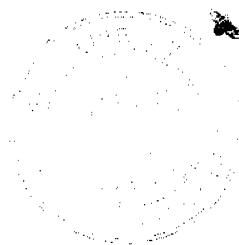


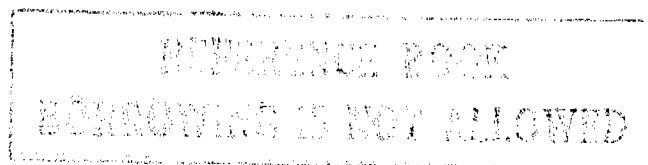


GOVERNMENT OF THAILAND

**THE SEVENTH NATIONAL ECONOMIC
AND
SOCIAL DEVELOPMENT PLAN
(1992-1996)**



11220



**National Economic and Social Development Board
Office of The Prime Minister
Bangkok, Thailand**

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Part I

Summary of the Seventh National Economic and Social Development Plan

Part I

Summary of the Seventh National Economic and Social Development Plan

1. Overall Development Performance

1.1 The Thai economy has grown rapidly and has become increasingly internationalized. During the Sixth Plan period, the Thai economic growth has skyrocketed with gross domestic product (GDP) expanding at an average of 10.5 percent per year, twice the Plan target, representing the highest average growth rate of the past twenty five years. Furthermore, the economic structure has become more outward-oriented and internationalized, as indicated by the increase in the proportion of international trade to GDP from 60 percent in 1986 to 80 percent by 1991.

Key factors which have brought about the high growth rates include growth of the export sector, investment and tourism, all of which had grown considerably faster than the projected rates. World economic conditions were also conducive to Thailand's economic expansion, in particular the lower oil prices and lower interest rates. At the same time, increase in world commodity prices and the realignment of foreign exchange rates of industrialized countries brought further benefits during this period. Comparative advantages in natural and human resources, and the reasonably low wages, made Thailand highly competitive in the world market, leading to further expansion of investment and exports.

On a macroeconomic level, cautious fiscal and monetary policies, together with political stability were also instrumental in boosting business confidence, propelling the Thai economy to grow far beyond the Sixth Plan targets, and making Thailand the fastest-growing economy in the world during the past 5 years.

1.2 The country's fiscal and monetary position was characterized by stability, higher income, and growing employment opportunities. Sustained high growth had a number of beneficial effects on the economy, including on the country's fiscal and monetary position, employment and income. More specifically :

1.2.1 The country's fiscal and monetary position was secure and stable. The rapid economic growth and the cautious management of fiscal and monetary policy helped strengthen fiscal and economic stability during the Sixth Plan period.

The volume of international reserves rose close to US \$ 17,000 million by mid-1991 with a significant reduction in the national debt burden. The proportion of debt repayment, covering both principal and interest payments in relation to export earnings, declined from 20.6 percent in 1986 to 10.5 percent by 1991. The proportion of external debt to GDP also declined from 38.5 percent to 34 percent during the same period.

A surplus was achieved in public sector finances starting for 1988 onwards, as revenue collection was higher than planned, while disbursements of public expenditures were low owing to delays of project implementation. Fiscal surplus rose from a low of 11,000 million baht in 1988 to 184,000 million baht by June 1991, representing about 50 percent of the government budget. The historically high level of fiscal surplus has enabled the government improve fiscal policy management by restructuring tax policy, reducing machinery import taxes, car import taxes and prepayments of loan.

1.2.2 Inflation. However, prices have tended to rise steadily. Inflation rate rose from 2.5 percent in 1987 to 6 percent by 1991. This was caused to a large extent by domestic demand for goods and services increasing more rapidly than production capacity. At the same time, world inflation rates have also risen, resulting in an average inflation rate of about 5 percent, which is considered manageable.

1.2.3 Greater employment opportunities and higher wages. The high economic growth has led to a substantial increase in employment, particularly in the industry and services sectors, with an average employment growth of 554,000 persons per year during the Sixth Plan period. Consequently, the unemployment rate has been reduced to 0.6 percent in 1991. This means that in practice there is virtually no open unemployment, with the exception of some seasonal unemployment during the dry season. At the same time, pressure for wage increases has resulted in higher income and better purchasing power.

1.2.4 Doubling of per capita income. During the Sixth Plan period, per capita income has increased from 21,000 baht in 1986 to 41,000 baht by 1991, due to an average GDP growth rate of 10.5 percent. This, coupled with a decline in the population growth rate to 1.4 percent by 1991, resulted in improvements in the general standard of living, contributing to the national poverty alleviation efforts.

1.3 Overall development pattern is still unbalanced in a number of ways. Although the high economic growth has had significant beneficial effects on the overall economy, the pattern of growth has led to several structural imbalances, which may become long-term development issues for the country, namely:-

1.3.1 Income disparities among households of different socio-economic status and between rural and urban areas have increased to an alarming level. Socio-Economic Surveys as conducted by the National Statistical Office indicate that income share of the top 20 percent, or the wealthiest group of households, has increased from 49.3 percent during 1975/1976 to 54.9 percent by 1987/1988, while income share of the lowest 20 percent, or the poorest group of households, has actually declined from 6.1 percent to 4.5 percent during the same period.

Agricultural workers continue to be the group with the lowest income, with about half of the national average income. Other low income groups, such as general manual workers and low-ranking civil servants, still have higher average income than agricultural workers.

Furthermore, regional disparities have also been on the rise as the Bangkok Metropolis and surrounding towns continue to have a dominant role and rapid economic growth rates. In 1981, Bangkok contributed about 42 percent to GDP. By 1989, this share increased to 48 percent, while in most other regions, these shares had actually declined. For instance, the shares of the northeast, the north, and the south declined from 14.7 percent to 12.9 percent, 13.5 percent to 11.4 percent, and 10 percent to 9 percent respectively during the same period.

1.3.2 Infrastructure bottlenecks have become more severe during the Sixth Plan period. Virtually all types of basic infrastructure services were inadequate to meet the strong demand resulting from the rapidly growing economy. This was the case despite special additional investment programs undertaken during the Sixth Plan period. In addition, the policy to promote private sector provision of infrastructure services has not been implemented in an effective and timely manner, impeding both current and future development efforts.

1.3.3 Savings and investment gap has widened. Although there has been a reasonable degree of fiscal and monetary stability during the latter part of the Sixth Plan, the savings-investment gap grew alarmingly with the current account deficit reaching 8.5 percent of GDP in 1991. This was caused by the growth in the proportion of investment to GDP from 24 percent in 1987 to 36.5 percent by 1991. At the same time, savings in relation to GDP grew from 23 percent to 28 percent during the same period. This problem requires close monitoring, together with the formulation of appropriate measures.

1.3.4 Thai society has a greater difficulty adjusting to the new economic changes. The structural changes from a fundamentally agriculture-based economy to a more industrialized one has transformed the Thai society from being a primarily rural society to a more urbanized one. Traditional ways of life are undergoing changes toward a more modernized lifestyle, with impact on the spiritual, moral, cultural, and general patterns of living. These changes have brought about numerous urban-related problems, in particular increase in crime. During the past 10 years, although the number of crimes has been reduced from 185.5 cases to 154.5 per 100,000 population, the nature of crimes committed have become more severe and complex. Similarly, drug addiction continues to be a major problem. The number of drug-related arrests increased 2.8 times from 21,730 cases in 1980 to 60,546 cases in 1989. In addition, the problems of urban poverty and urban slums have also become serious.

1.3.5 Deterioration of natural resources and the environment. The rapid and high economic growth rates in the past were associated with extensive exploitation and destruction of natural resources, particularly land, forests, water, fish, and mineral resources. Inefficient natural resources management has contributed to a more rapid deterioration and depletion of natural resources. For instance, the national forest area declined from 109.5 million rai, representing 34 percent of total land area in 1978, to less than 90 million rai or less than 28 percent by 1989.

Furthermore, expansion of economic activities, particularly industry and tourism, coupled with urban population growth, have resulted in increasingly

more serious pollution problems of various kinds, such as contaminated water, polluted air, noise pollution and industrial and hazardous wastes. The quality of water in major rivers, including the Chao Phraya and Tha-Chin rivers, and along tourist destinations in coastal areas has deteriorated beyond acceptable levels. The deterioration of natural resources and environmental problems have direct impact on the quality of life of the people. All of these problems represent constraints for future development.

1.3.6 The bureaucratic system is unable to adjust to changes and cannot adequately respond to national economic and social transformation. While the economy and society are changing rapidly, the bureaucracy has been unable to restructure and adjust itself to respond to this dynamic because of constraints in manpower, legal framework, rules and regulations, administrative system, and organizational structure of the government. All of these need major modifications.

With respect to manpower, the government is facing problems of braindrain from the public to private sectors, particularly in science and technology, areas facing shortages of manpower. A major reason is the much lower pay in the government sector. Another reason is the government organizational structure, which offers very few top administrative and technocratic positions, thereby limiting opportunities for career advancement.

The existing legal framework and government rules and regulations have not been modified to be in harmony with changing economic and social conditions. Furthermore, the highly centralized administrative system and organizational structure of the government are in need of appropriate decentralization of power and authority to the provincial and local authorities.

1.4 Summary of results of development during the Sixth Plan period. The Thai economy has been able to grow with a respectable degree of stability and security, providing a generally better standard of living for the people. However, the exceptionally high economic growth rates have led to the imbalances mentioned earlier, which will be obstacles and constraints for high quality and sustainable development in the long term. Therefore, the Seventh Plan has to define an appropriate direction for development to serve as a firm foundation for well-balanced and sustainable growth.

2. Main Development Objectives of the Seventh Plan

Evaluation of past development efforts suggests that the development objectives of the Seventh Plan will have to be carefully balanced in terms of quantitative and qualitative development dimensions, as well as social equity aspect in order to bring about more sustainable development for the country. Therefore, the three main development objectives of the Seventh Plan have been set out as follows.

2.1 Maintain economic growth rates at appropriate levels to ensure sustainability and stability.

2.2 Redistribute income and decentralize development to the regions and rural areas more widely.

2.3 Accelerate the development of human resources, and upgrading quality of life, the environment and natural resource management.

In order to bring about the pattern of more sustainable development mentioned earlier, it is essential to accord equal priority to the three main development objectives.

3. Opportunities and constraints of national development

In order to bring about well-balanced development and to attain the three main development objectives, the following opportunities and constraints need to be taken into consideration for the next five years.

3.1 *Development opportunities*

Opportunities conducive to development and which open new avenues for sustainable and stable development include the following.

3.1.1 *There are bright prospects for further export expansion* to the European Community, and the North American Free Trade Area (NAFTA) which includes the United States of America, Canada, and Mexico. Furthermore, there are encouraging trends in the Asia-Pacific economies including market-opening measures in Japan and the Asian Newly Industrialized Economies (NIEs), as well as the expansion of new markets in the Middle East, South America, and reconstruction of Indochina. All these trends and opportunities will contribute to the further expansion of Thai exports. These bright export prospects have been made possible because of the effective implementation of industrial investment promotion policy for export development during the Sixth Plan. Export products also have generally high value added, supporting satisfactory export growth rates during the next five years.

3.1.2 *Opportunities to further expand and diversify industrial base* are plentiful, both in terms of export-oriented, and in import-substituting industries, especially the petrochemical, engineering, electronics and basic industries. This is likely to be the case because of the strong likelihood that Japan and the East Asian NICs will continue to relocate their industrial base to this region, as the Western Asia-Pacific region with growing income and purchasing power as well as trade potentials becomes the new global economic center.

3.1.3 *Prospects for trade and investment opportunities in neighboring countries are improving.* The evolving situation and new political development in Indochina and other neighboring countries of Thailand, coupled with a new policy to open up trade and investment relations with the Indochina countries and Burma, will enhance the position of Thailand as the frontline economy of the region.

3.1.4 Drive to promote Thailand to become the region's economic and financial center. The policy to liberalize the financial sector and foreign exchange market since May 1990, together with measures to develop the domestic financial and capital markets will encourage more investment in the country. These policies and measures will also enable the financial system to evolve in line with global economic and social changes. All these trends will help promote Thailand to become the region's economic and financial center.

3.1.5 Increasing opportunities to expand purchasing power and growing domestic demand for goods and services. Domestic demand will tend to grow during the next five years, stimulating substantially continuous economic expansion even in the face of uncertainties in global economy.

3.1.6 Opportunities for productivity increase. Past and present investment in restructuring the agriculture, industrial, and services sectors have gradually increased production efficiency and productivity through the application of appropriate technology to the production process, and the application of high technology in several sectors, including modern agriculture, electronics industry, food processing, telecommunications, banking and finance. Furthermore, in agriculture, management efficiency has been boosted by encouraging agricultural workers to prepare production plans at the household level, thereby increasing considerably the productivity of the sector.

3.1.7 Higher basic quality of the Thai labor force. Generally speaking, the basic quality of the Thai labor force is good, since six years compulsory education has been made widely available, covering about 97 percent of the age group, leading to a literacy rate of about 86 percent of the population. These statistics must be considered among the most impressive in the region. With good basic education, the Thai labor force is highly trainable, well-disciplined and is readily acceptable to industrial enterprises. The Thai labor force has a further advantage in that the females in the labor force have played a very important economic role in comparison with neighboring countries in region.

3.1.8 High priority in mobilizing funds for rehabilitation of natural resources and environment. The high and sustained economic growth during the past has strengthened the government's fiscal position and has made it possible to mobilize the necessary funds for the rehabilitation of natural resources and the environment during the Seventh Plan period. Furthermore, the population at large, including children and youths have become acutely aware of the importance of the environment. Therefore, the people are now more willing and ready to cooperate with the government in seriously addressing problems of deterioration of natural resources and the environment.

3.2 Constraints for future development. Domestic and external constraints on the Thai economy during the next five years include the following.

3.2.1 Comparative advantages in human resources are being eroded in terms of quantity, quality, and wage level. Although the basic quality of the Thai labor force is good, there are labor shortages, including skilled labor,

technicians, and professionals, which will continue to remain bottlenecks for the immediate future. At the same time, there exists a surplus of labor, which is unskilled and inexperienced and therefore in low demand in the labor market. As a consequence, wage disparities among different labor skill levels will continue to widen and further worsen income distribution.

3.2.2 Cultivable land size has decreased and land prices have increased.

Forest encroachment, expansion of the industrial and services sectors, urban growth, and land speculation have all contributed to pushing up land prices considerably since 1988. These factors will lead to future development constraints in the form of land scarcity and high prices, which, in turn, will affect the international competitiveness of the Thai economy.

3.2.3 Private savings have not increased at a sufficiently high rate to meet rapidly expanding investment demand. The widening savings-investment gap since the Sixth Plan period will continue to be high. During the Seventh Plan period, it is expected that the gap will remain at about 5.0-6.0 percent of GDP. An important reason is the slow growth rate of savings, particularly of households and businesses, which lag behind investment demand.

3.2.4 Infrastructure services will continue to be deficient during the next three years because demand will increase in line with economic growth, while investment in the provision of infrastructure services continues to experience delays as a result of inefficient management. In addition, towards the end of the Sixth Plan period, construction of various large-scale infrastructure projects faced problems of higher input costs and shortage of construction companies, resulting in further delays. Finally, the policy to promote the private sector role in infrastructure investment could not be effectively implemented as it was unacceptable to some state enterprises. The public sector also lacked clear guidelines, operating criteria, operational procedures, and mechanisms to promote the private sector role in an appropriate manner.

3.2.5 Deterioration of natural resources and environment. Past development has involved wasteful and uneconomical exploitation of natural resources, including land, forestry, water, fisheries and mineral resources, resulting in rapid resource and environmental deterioration. The rural population, whose principal livelihood relies on these resources, have been negatively affected, making it more complex and time consuming to solve rural poverty problems. Furthermore, forest encroachment has also led to the extinction of valuable species of plants and animals.

Moreover, the rapid economic expansion in the past, along with the changing economic structure which has become more industrialized and service oriented, and the transformation of rural societies to urban communities, have led to more serious pollution problems, including water, air, solid wastes and toxic chemicals. These problems have severe impacts on people's living conditions.

3.2.6 The government's administrative system, legal framework, rules and regulations are out of date, and are in need of overhaul, requiring the introduction of new rules and regulation to cope with the changing situation. These constraints are important in hindering effective private business operations and overall government administration.

3.2.7 Pattern of morbidity and mortality from new diseases are on the rise. The rapid transformation from a basically rural society to urban economy, and changes in population structure involving an increasing share of the middle-aged and the elderly, have increased morbidity and mortality rates from relatively new diseases such as AIDS, respiratory tract diseases, cancer, mental illness and nervous breakdowns.

3.2.8 The government will have a heavier burden to provide welfare services for the underprivileged. This is because of the changing family structure from extended families with several generations staying together, to nuclear families of various types, such as families where the heads migrate to cities leaving behind the children and the elderly, or families with working mothers. Such a changing family structure tends to undermine the sense of security, reassurance, caring and warmth generally associated with the family institution. Furthermore, the changing family structure and the rapid urbanization are also important causes of imbalances between modern economic development and mental, spiritual and moral development. These imbalances are destabilizing and will have impacts on the peace and calm of society in the future. They can also cause other problems, such as family disintegration, maltreated and abandoned children, drug addiction, and threats and risks to society and property. Therefore, the government needs to have preventive measures to assist the underprivileged to be able to help themselves and participate in national development.

3.2.9 Uncertainties in the world economy. The formulation of the Seventh Plan has to be based on a number of assumptions and forecasts of the economic situation, which are subject to unforeseen changes. Therefore, it is necessary to be prepared to face any untoward events with caution. The following issues deserve particular attention.

(1) World economic slowdown. The world economy is forecast to slow down. Therefore, the growth in world trade will also slow down. This is because of attempts of the industrial countries to solve their problems of economic imbalances. Within the United States of America, the government's attempt to solve domestic economic problems is delaying the pace of US economic recovery. At the same time, the unification of Western and Eastern Germany has kept German economic growth rates in check. Only the economies of Japan and the NICs are forecast to have satisfactory levels of growth. But even this latter group of countries will be affected by the economic slowdown of the Western industrial countries, resulting in lower average growth rates in comparison with the rapid growth rates of the late 1980's.

(2) Uncertainties in oil prices, commodity prices, foreign exchange and interest rates, all of which are key economic variables, will have to be closely

monitored because changes in these variables have direct impact on the balance of payments, trade, current account and the domestic price level.

(3) Direction in international trade will be influenced by important world economic and trade policy changes, particularly the single European Community (EC) by 1992, and on-going political transformations in the Socialist countries of Eastern Europe. There is likely to be increasing volume of capital transfers within the EC, and to the Eastern European countries. In addition, the North American Free Trade Area (NAFTA) among the USA, Canada, and Mexico, and the US policy to solve trade and current account deficits are likely to have an impact on trade and investment in Thailand.

(4) Protectionism and trade competition may become more intense. Results of bilateral and multilateral trade negotiations on agricultural and industrial products and services, and the economic groupings of countries are likely to lead to an increasing number of goods and services being covered under international trade agreements, which can affect either positively or negatively the development of the industrial and services sectors of Thailand.

4. Overall national development targets.

In order to attain the three development objectives to 1) maintain economic growth rates at appropriate levels to ensure sustainability and stability, together with 2) redistribution of income and development benefits to the regions and rural areas, and 3) development of human resources, quality of life, environment and natural resources, and by taking due consideration of the aforementioned development opportunities and constraints, it is deemed appropriate to set quantitative and qualitative targets of the Seventh Plan as follows.

4.1 Economic growth targets

4.1.1 Overall economic growth rates to be set at 8.2 percent per year.

4.1.2 Per capita income to increase from 41,000 baht per person in 1991 to 71,000 baht by the end of the Seventh Plan, representing an income growth rate of 7 percent per year in real terms.

4.1.3 The agricultural sector to grow at no less than 3.4 percent per year.

4.1.4 The industrial sector to grow at 9.5 percent per year.

4.1.5 Exports in value terms to grow at 14.7 percent per year while the volume of exports to grow at 9 percent per year.

4.1.6 Commercial energy production to grow at 8 percent per year from 280,000 barrels of crude oil per day in 1990 to 410,000 barrels of crude oil per day by 1996.

4.1.7 *The provision of basic infrastructure services* is set to grow as follows.

(1) *Expand electricity generation capacity* by another 5,000 megawatts during the Seventh Plan period, thus increasing the total supply to 14,500 megawatts.

(2) Increase telephone lines from the current proportion of 3.6 phone lines per 100 population to no less than 10 per 100 population by the end of the Seventh Plan.

4.2 *Economic stabilization targets.*

4.2.1 *Inflation rate* is to be maintained at less than 5.6 percent per year

4.2.2 *Trade deficit* is not to exceed 9.4 percent of GDP.

4.2.3 *Current account deficit* is to be reduced to less than 2.5 percent of GDP by 1996, representing an average of 5.2 percent of GDP throughout the Seventh Plan period.

4.2.4 *Private savings* to grow at 23.0 percent of GDP by 1996.

4.2.5 *Maintain the dependency ratio of imported energy* at less than 60 percent of total energy consumption by 1996.

4.3 *Income distribution targets*

4.3.1 *Designate six target groups* to be given special attention to prevent income distribution from worsening further. The six groups include 1) the agricultural poor; 2) hired laborers in the agricultural sector; 3) small-scale self-employed workers and small business operators; 4) low income employees in the private sector; 5) civil servants and public employees; and 6) those who cannot help themselves.

4.3.2 *Ensure that the target groups will have adequate* basic necessities of life and capability to improve their well-being.

4.3.3 *Reduce the proportion of the poor* from the level of 23.7 percent under the poverty line in 1988 to less than 20 percent by 1996.

4.3.4 *Reduce income disparities* among different groups of people by using policies and measures to raise incomes of the poor, particularly in the rural areas.

4.4 *Human resources and quality of life development targets*

4.4.1 *Reduce population growth rate* to less than 1.2 percent per year which will bring the population of Thailand to 61 million by the end of the Seventh Plan.

4.4.2 Expand basic education from 6 to 9 years. The transition rate from the last year of primary school to lower secondary school is set to increase from the current rate of 46.6 percent to no less than 73 percent of primary school graduates.

4.4.3 Improve quality of the population by providing lifelong continuing education both within and without the system. These educational services will enable the people to adapt themselves to the changing economic and social conditions and will encourage people to have more active participation in and to benefit more widely from development activities.

4.4.4 Expand employment opportunities for another 2.8 million workers during the Seventh Plan period, thus increasing the number of employed persons from 32.02 million workers in 1991 to 34.85 million workers by 1996 (20.2 million agricultural workers and 14.65 million non-agricultural workers).

4.4.5 Increase opportunities for the economically underprivileged groups to have secure and stable jobs with fair wages.

4.4.6 Improve basic health conditions of all the people during the coming decade, emphasizing preventive and primary health care which can be undertaken by the people themselves. Furthermore, infant mortality rate will be reduced from 29 to 23 per 1,000 live births. Efforts will also be made to ensure that the people consume nutritious and hygienic type of food.

4.4.7 Emphasize development to bring about morally virtuous people who have sound health and the capability to bring about social progress and to preserve unique national characteristics and highly treasured cultural values.

4.4.8 Enhance efficiency of the system for protection of consumers, property and life in urban and rural areas.

4.5 Targets for development of natural resources and environment

4.5.1 Designate national forest reserve area at 25 percent of total land area.

4.5.2 Accelerate dispersion of land ownership by speeding up land reform covering 30 million rais within the next 7 years.

4.5.3 Speed up issuance of land rights to enable the people to have legal land ownership by issuing land title deeds nationwide within the next 20 years.

4.5.4 Protect coral reef resources in every national coastal park.

4.6 Designate environmental development targets by reducing pollution levels in water, air, noise, solid wastes and toxic chemicals in the following ways.

4.6.1 Reduction of water pollution by reducing BOD (Biochemical Oxygen Demand) loadings discharged into various water resources not to exceed 4 milligrams per liter in the following target areas.

(1) *The lower part of the Chao Phraya river* from the estuary to kilometer 100.

(2) *The lower part of the Tha-Chin river* from the estuary to kilometer 150.

(3) *Coastal areas and tourist destinations*, such as Pattaya, Chonburi, and Phuket etc.

(4) *Areas facing critical water pollution problems* or polluted raw water resources for consumption, such as in Bangkok and vicinity areas, Chiangmai and Sakon Nakhon etc.

4.6.2 Increase capacity of water treatment and disposal of toxic chemicals from industries as follows.

(1) *Designate target for treatment* of waste water by reducing BOD loadings.

(2) *Set target for disposal of hazardous wastes* from the current level of 60,000-80,000 tons per year, or 20 percent of total hazardous wastes to a minimum level of 400,000 tons per year, or 70 percent of total wastes by the end of the Seventh Plan period.

4.6.3 Reduce and control noise levels, particularly as produced by vehicles and construction activities, to a level which is not harmful to human beings, i.e., 85 decibels.

4.7 Set targets to limit emission of hazardous wastes from commercial energy consumption as follows.

4.7.1 Reduce lead level from gasoline-powered automobiles from 1,030 tons in 1990 to 300 tons by 1996.

4.7.2 Reduce carbon monoxide from gasoline-powered automobiles from 950,000 tons in 1990 to 750,000 tons in 1996.

4.7.3 Set level of sulphur dioxide from fuel combustion as follows.

	Unit : '000 tons	
	Year 1990	Year 1996
Diesel in automobiles	100	50
Lignite in industry	205	190
Lignite for electricity generation	535	620

5. Principal development guidelines during the Seventh Plan period.

In order to attain the objectives and targets, the following guidelines have been formulated.

5.1 Guidelines for sustaining economic growth rate at an appropriate level and with stability are as follows.

5.1.1 Implement fiscal and monetary policies and capital market development emphasizing liberalization measures to ease constraints and restructure the tax, financial and capital market systems to increase international competitiveness of the Thai economy. Moreover, effort should be made to mobilize savings and to increase efficiency in resources mobilization from the domestic capital market.

5.1.2 Restructure the agricultural sector to increase productivity and to produce high value added products which have high market demand. The cultivation system and farming methods must be improved, together with promotion of the sub-sectors of fisheries, livestock and economic forests to have a greater role in the development of production and processing activities. It is also important to formulate land use policies to encourage agricultural activities in line with the potential of each land area. Promoted zones for use of irrigation water must be designated, together with the collection of water fees. The policy on sales and production of chemical fertilizers must be spelled out clearly, together with policies to encourage the private sector to carry out research and development activities in high yielding varieties, superior animal stocks, and agriculture machinery, and to upgrade the level of agriculture technology.

5.1.3 Develop the industrial, trade and investment sectors, emphasizing the creation of opportunities for Thai nationals to compete in investment and business activities in foreign countries. At the same time, the government must continue with the liberalization policies to facilitate private business operations emphasizing the leading role of the private sector in industrial development and foreign investment in this country, with the government playing only supporting, promotional and supervisory roles.

5.1.4 Encourage the development and application of appropriate science and technology to increase productivity and improve quality of export products to enhance the competitiveness of Thai exports. Protection of domestic industry must be reduced to create a more competitive environment and facilitate the acquisition of appropriate technology. Thailand will need to import foreign technology for a period of time as the local technological capability is not adequate to develop required prototypes. The acquisition and application of appropriate technology from foreign sources at fair conditions and fair prices remain necessary at this juncture. The government also needs to lay a firm foundation for basic scientific development to enable Thailand to absorb, adapt and apply imported technologies for productive uses, and to develop the required manpower in science and technology in sufficient quantity and quality.

5.1.5 Provide adequate amount of energy to meet demand of various sectors of the economy by developing more domestic sources of energy, as well as more joint energy development programs with neighboring countries. On energy administration and management, the government will encourage a more efficient use of energy, and will further liberalize energy development to allow the market mechanism to function freely and to promote maximum competition, as well as encourage greater participation of the private sector in investment and management in the energy sector.

5.1.6 Speed up investment in the provision of infrastructure services to ensure adequacy of supply at high quality to meet the increasing demand from economic growth. In this regard, three principles have been identified. First, the formulation of a longterm plan to serve as a framework for investment decisions and for coordination of various programs and projects in a systematic manner and in response to actual needs. Second, increasing the role of the private sector in investment and management of infrastructure services by laying down clear criteria and operational procedure, together with modification of laws hindering development and supervision of the private sector to ensure that their greater role is socially beneficial. Finally, the managerial and operational procedures of public development projects also need to be improved by removing unnecessary steps and through the relaxation of superfluous rules and regulations to speed up project implementation, and to ensure that provision of services is efficiently carried out as in private business operations.

5.1.7 Promote development of Bangkok Metropolitan Region in order to ensure a better connection and integration of Bangkok Metropolis with the Eastern Seaboard area to serve as a principal economic base of this Metropolitan region and stimulate international competitiveness of the Thai economy. This Metropolitan region will also serve as a regional center for finance, tourism, air transport and telecommunications in the Southeast Asian region. The government will need to lay down a network of basic infrastructure services to ensure proper land use conducive to environmental protection, as well as designate and appropriate form of urban development authority, emphasizing operational flexibility and promotion of private sector investment in the provision of basic services.

5.2 Guidelines for redistribution of income and development to the regions and rural areas.

5.2.1 Implement monetary, fiscal and capital market development policies to genuinely support redistribution of income and development benefits to the regions and rural areas. The government will implement fiscal and public expenditure policies and support decentralization of fiscal and budgetary power to the provinces and local authorities, together with introduction of wealth and inheritance taxes. In addition, the government will disperse more investment in securities to the provinces and will encourage employees to have more shares in their companies.

5.2.2 Dispersion of property ownership to enable those in the agriculture sector to have legal ownership of the land or to have security in the farm land. This also includes efforts to enable the people to have their own dwellings, or to have security in the rental agreements. Emphasis will be on speeding up land reform, issuance of land titles, housing credit provision for the low-income and the promulgation of the Slum Improvement Act.

5.2.3 Carry out agricultural restructuring and dispersion of industries and services to the regions. Emphasis will be placed on raising agricultural incomes, protection and support of agricultural workers to ensure that they receive fair treatment and fair prices in the production system, as well as maintenance of stable commodity prices. Furthermore, special encouragement will be given to disperse industries to the regions by strengthening provinces with strong potential to serve as regional centers in the development of industries. Finally, industrial development in the new economic zones, such as the Southern Seaboard, and the upper central subregion, will also be promoted.

5.2.4 Develop regional centers to serve as economic and employment bases in each region to take advantage of the decentralization policy of economic activities to the regions by speeding up basic infrastructure networks to be linked with all surrounding towns, together with designation of land use and environmental control.

5.2.5 Upgrade quality of life of rural people, emphasizing decentralization of government authority to the regions and local levels. Special budget must be given to the provinces to enable provincial authorities to spend on activities which will increase incomes, and upgrade well-being and quality of life of the poor in rural areas. At the same time, there must be measures to support the role of people's organizations, non-governmental organizations and private business enterprises to effectively participate in rural development.

5.2.6 Occupational development and upgrading of quality of life of the urban poor, particularly those who cannot help themselves, the low-income hired laborers, and the small-scale self-employed workers in slum communities. Policies will emphasize income enhancement, provision and upgrading of housing, provision of welfare and basic social services necessary for the basic living requirements of the urban poor.

5.3 Guidelines for development of human resources, quality of life and environment

5.3.1 Develop human resources, education and health in support of national economic and social development emphasizing the following.

(1) **Expand opportunities and improve quality of education** stressing expansion of basic education opportunities at the lower secondary level. Curricula and educational programs will be modified to emphasize labor skills and occupational development in line with local environments. In addition,

there will be incentive packages to enable poor parents to send their children to secondary schools.

(2) *Deregulate the education and health sectors* by relaxation of unnecessary and superfluous rules and regulations in order to promote investment and participation by private sector as well as participation by NGOs in the provision of these services. Examples include review of imposition of tuition ceiling policy for private schools and pricing of costs per course unit and tuition fees at the university level, particularly in areas of shortage. Private providers should have more flexibility in adjusting prices in different subject areas to reflect costs and market demand. At the same time, the government will need to introduce a more extensive scholarship system to adequately assist children of underprivileged groups. Public higher education institutions will also be encouraged to have more independence, selfreliance and flexibility in their administration.

(3) *Further expand scope of cooperation in skill and occupational training* among education institutions, skill training centers and business enterprises, and provide necessary incentives to enable private entrepreneurs to efficiently organize skill training and upgrading programs in their enterprises.

(4) *Develop and expand primary health care to urban areas* while continuing to support rural primary health care which is being effectively implemented.

(5) *Reduce congestion in large urban hospitals* by improving quality and efficiency of health centers and community hospitals so that patients with minor illnesses may be treated locally. Those who are seriously ill and requiring sophisticated medical technology and equipment may be sent for proper treatment in large urban hospitals via a referral system.

(6) *Carry out continuous campaigns to prevent and cure AIDS* by mobilizing cooperation from public and private sectors. It is important to stress the formulation of joint operational plans in educating the public to know how to prevent the disease and to have correct understanding of working and socializing with AIDS patients without having negative attitudes and reactions. In addition, the government needs to provide medical and social services to AIDS patients so that they can lead a normal life without spreading the disease to other people.

(7) *Encourage and support the role of women in economic and social development* by increasing opportunities for women to attain their full potential and improve their quality of life. Eliminate all forms of sex discrimination by improving laws and regulations and their enforcement, including the recognition of the full value of women in society and equality of participation between men and women. Provide social welfare support for disadvantaged women. Promotion of gender awareness, of a sense of self worth and of the role and participation of women in all facets and stages of the development process.

5.3.2 Spiritual, cultural and moral development to enable the people to properly adapt themselves to the changing situation and to serve as an important force in national development.

(1) *Set up a public institutional mechanism* to coordinate and support work and activities of households, monasteries, schools, communities and organizations devoted to moral and spiritual causes in order to have a common role in the spiritual development process. The public administration system for cultural development must be restructured to reduce duplications of work and responsibilities among organizations and to decentralize cultural administration authority to local areas.

(2) *Place importance on efforts to strengthen stability of the family institution* by continuous campaigns to encourage parents to be responsible to their families, together with the provision of marriage counselling services, advice on child rearing, and on solving marital problems.

(3) *Establish a system to provide welfare services to the underprivileged and those unable to help themselves* in various ways, including subsidies or scholarships for education, and medical care for the poor, the elderly and the handicapped. It is important to reorient the thinking about welfare provisions to the underprivileged from a pure welfare and handout approach to one aiming to enhance potentiality of the underprivileged to increasingly rely on themselves and to participate more actively in national development.

(4) *Mobilize cooperation and participation from communities, private sector organizations, religious institutions and the public sector* in prevention and solution of social problems. The public sector needs to be supportive of private sector and non-profit organizations in their activities, together with improvement and expansion of scope of cooperation between the public sector and people's organizations in various forms, such as primary health care, community work, public relations, as well as volunteers to conserve national artistic and cultural heritage. These cooperative efforts should be widely promoted and improved to increase operational efficiency.

5.3.3 Develop environmental quality hand in hand with national economic and social development by emphasizing development management mechanisms to deal with pollution problems in water, air, solid and hazardous wastes in a more efficient manner in the following ways.

(1) *Enforce the "polluter-pays-principle"* during the Seventh Plan period.

(2) *Improve organization, role and legal framework* to improve efficiency in environmental management, such as strengthening role of the local authority in management and pollution treatment system in the local areas. The local authorities should have flexibility to manage the treatment services, both in the case where public agencies offer the services themselves, and in the case of subcontract to the private sector. The local authorities should be empowered to collect service charges as appropriate.

(3) Mobilize investment for reduction and control of pollution in various forms. For instance, the government may offer subsidies for construction of central sewage treatment plants for communities and partial or total subsidy for garbage collection in local communities. Similarly, the government may invest or carry out joint investment, or grant a concession to the private sector for the provision of a central hazardous wastes disposal system for industrial plants etc.

(4) The government should join forces with the private sector, communities, and the people in the protection, prevention and solution of environmental problems. For instance, a tripartite form of organization including communities, private enterprises and the government may be set up to supervise, protect and take care of environmental quality to maintain acceptable standards, particularly in urban areas, industrial zones, and tourist destinations etc.

5.3.4 Improve administrative system to natural resources to serve as basic means of livelihood of rural people, as national heritage and as an important basis for sustainable development. The following measures are proposed.

(1) Encourage the people to cooperate with the government in natural resources conservation by promoting a greater role for people's organizations, and non-governmental organizations from central to local areas to have a role in formulation of natural resources management projects, as well as monitoring, supervising and evaluating successes of these projects.

(2) Control and ensure implementation in accordance with existing natural resources management plans, such as the national park management plan, and development plans covering wildlife conservation, mangrove forests, and coral reefs. Emphasis will be on adequate provision of budget and personnel for protection of the environment, and cultivation of a sense of awareness among interested and affected parties. Furthermore, public relations campaigns through the media and open assessment of the rate of natural resources destruction at frequent intervals will be carried out, and measures to enhance efficiency of environmental conservation will be formulated and implemented.

(3) Reduce conflicts of future natural resource use by speeding up formulation of land use plan earlier on, such as designation of rocksalt production zone in the northeast, and designation of mineral resource development in national forest reserves. In this regard, information for planning and implementation should be open and accessible to the public.

(4) Employ monetary and fiscal measures in natural resources management to create a sense of social justice and to ensure a fairer distribution of benefits from natural resources in a more widespread fashion. Some of these measures include review of water rates for the private sector and big-volume users of irrigation water, establishment of a fund for post-mining rehabilitation, and readjustment of land tax to reduce land speculation, and occupation of unutilized and large pieces of land.

(5) *Set up a natural resources information system* to serve as a basis for reliable and efficient planning and to reduce confusion on sources of information from different agencies as is the case at present. Furthermore, forest reserve zones must be clearly demarcated, together with designation of land use along coastal areas to develop fishery resources, hand in hand with conservation of mangrove forests and coral reefs.

(6) *Accelerate enactment of laws to ensure appropriate natural resources conservation* in line with changing situation, such as law on community forests to enable the people and non-governmental organizations to have a legal role in forest conservation.

5.4 Guidelines for development of law, state enterprises and the bureaucratic system consist of the following.

5.4.1 Amend laws to be consistent with direction and process of development by setting up an independent and non-partisan organization under the law to reform and amend laws which are obstacles to development administration. Budget and necessary personnel must be provided to enable such an organization to have adequate capability and efficiency.

5.4.2 Increase efficiency of state enterprises by reducing the supervisory role of the government and improve the legal framework and rules and regulations to ensure more flexibility to state enterprises. At the same time, state enterprises must improve their performance by adopting a more business-oriented approach. What is important is that the private sector must be given opportunities to have a role in management and operation in various forms, by having clear and transparent criteria and stages of operation.

5.4.3 Improve the bureaucratic system by improving the organizational structure and the government management system, as well as keeping a compact and efficient government workforce conducive to career advancement and development of professionalism in government service. At the same time, quality of the government workforce must be improved, together with adoption of new government salary structure and compensatory rewards to reflect changes in the current labor market. In other words, improvement of the bureaucratic system and human resource development in the public sector must be considered as an important and necessary component of human resource capital formation.

Major development targets of economic and social development _ during the Seventh Plan (1992-1996)

	Sixth Plan (1987-1991)	Seventh Plan targets (1992-1996)
1. Economic growth	10.5	8.2
(% per year at constant prices)		
1.1 Agriculture sector	3.4	3.4
1.2 Non-agriculture sector	12.1	8.6
- Industry	13.7	9.5
- Construction	18.7	8.9
- Services and others	11.0	8.1
2. Per capita income (baht/year) ^{1/}	41,000	71,000
3. Expenditures (% per year at constant prices)		
3.1 Private sector		
- Consumption	9.1	5.7
- Investment	26.0	8.8
3.2 Public sector		
- Consumption	2.0	3.3
- Investment	6.5	8.5
4. Export of goods		
4.1 Average (billion baht)	496.0	1,063.0
4.2 Average growth rate per year (%)	24.5	14.7
5. Import of goods		
5.1 Average value (billion baht)	664.3	1,358.0
5.2 Average growth rate per year (%)	32.6	11.4
6. Trade balance		
6.1 Average value	(168.0)	(313.0)
6.2 Trade balance/GDP (%)	(8.4)	(9.4)
7. Income from tourism		
7.1 Average value (billion baht)	91.5	185.0
7.2 Average growth (%)	27.5	13.3
8. Current account balance		
8.1 Average Value (billion baht)	(99.0)	(170.3)
8.2 Current account balance/GDP (%)	(4.9)	(5.2)
9. Inflation (%)	4.7	5.6
10. Commercial energy production ^{1/} (Thousand barrels of crude oil/day)	280.0	410.0

	Sixth Plan (1987-1991)	Seventh Plan targets (1992-1996)
11. Dependency ratio of foreign energy (%)	60.0	60.0
12. Ratio of telephone lines ^{1/} per 100 population	3.6	10.0
13. Number of population (million)	56.9	61.0
Population growth rate (%)	1.4	1.2
14. Transition rate to secondary schools (%)	46.2 ^{2/}	73
15. Employment (million persons)	32.0	34.9
Unemployment rate (%)	0.6	0.5
16. Infant mortality rate (per 1,000 live births)	29	23
17. Proportion of people under poverty line (%)	23.7 ^{3/}	20
18. Reserve forest (% of total)	18.4 ^{4/}	25
19. Control of noise level not to exceed (decibels)		85
20. Limited emission of hazardous wastes from commercial energy consumption compared with 1990		
- Lead level from vehicles	1,030	300
- Carbon monoxide from vehicles (thousand tons)	950	750
- Sulphur dioxide (thousand tons)	840	860
. motor vehicles	100	50
. electricity generation	535	620
. Industry and others	205	190

^{1/} Figures of the last year (1991 and 1996) of the Sixth and Seventh Plans respectively)

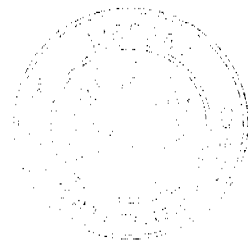
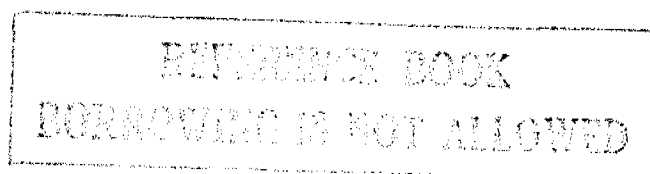
^{2/} Year 1989/1990

^{3/} Year 1988

^{4/} In 1991 there were 59 million rai of reserve forest.

Part II

Guidelines for Maintenance of Economic Growth with Stability



Part II

Guidelines for Maintenance of Economic Growth with Stability

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Introduction

1. In order to sustain Thailand's economic growth with stability during the Seventh Plan period, it is critical to effectively enhance the international competitiveness of the Thai economy, together with the expansion of domestic market demand. In this respect, Thailand needs to restructure economic, financial and trade policies in the following ways.

1.1 Liberalize the economic system further in order to increase efficiency and remove remaining constraints to enable the market mechanism to function properly and to promote free competition.

1.2 Expand private sector role to lessen the burden and responsibilities of the public sector.

1.3 Increase production efficiency in the agricultural, industrial and service sectors by intensifying scientific and technological application to enhance productivity increase and by diversifying the production base to higher value added sectors and to products in which Thailand has comparative advantage.

1.4 Diversify and expand economic base to the regions and new economic zones to serve as alternative production bases and to be directly integrated with the world economy and international trade, which would at the same time reduce congestion in Bangkok Metropolis.

2. Guidelines for maintenance of economic growth with stability consist of the following.

2.1 Development of the monetary, fiscal and capital market sectors will require acceleration of domestic mobilization private savings to satisfy expanding investment demand. The fiscal system must be restructured to increase the domestic capability to effectively compete in the international market. Constraints in the monetary system and capital market must be eased to increase efficiency and to make it possible for Thailand to become the financial center of this region.

2.2 Agricultural development will have to be geared towards productivity increase and production diversification into new products with higher value added, as well as formulation of clear land use and chemical fertilizer policies.

2.3 The development of the industrial, trade and service sectors will emphasize greater competition and lesser protection, together with policy measures.

to ease remaining constraints to be supportive of the functioning of the market mechanism, and minimization of government intervention.

2.4 *The development of science and technology* will stress the application of modern science and technology to raise productivity in agricultural and industrial sectors. Furthermore, it is equally important to intensify production and development of science and technology manpower, together with promotion of research and development in technology in both public and private sectors to increase production efficiency and promote self-reliance in technological development.

2.5 *Basic infrastructure and energy development* will be focused on the expansion of infrastructure services to solve existing bottlenecks, and the provision of more services to the regions and the new economic zones. The government will need to increase its investment outlays, and promote a greater private sector role in expanding basic services in a more widespread manner. Relevant laws, rules and regulations must be amended and improved to have clarity and transparency so that the private sector can have an effective and efficient participatory role. In the energy sector, security of supply to meet the national needs is crucial, together with conservation of energy use, and formulation of measures to deal with potential impacts on the environment from energy utilization in the transport sector and in electricity generation.

2.6 *Development of the metropolitan region and new economic zones* will be primarily infrastructure-led to ensure that growth of Bangkok Metropolitan region will be integrated with development of the new economic zone of the Eastern Seaboard, which will serve as the main economic base of the country. This new economic zone development will open up new opportunities for international trade and trade with neighboring countries. Finally, it is also necessary to devise an urban administration system, which is flexible and, at the same time, delegates sufficient power to the local authorities.

Chapter 1

Monetary, Fiscal and Capital Market Development

1. Monetary, fiscal and capital market development in the past

1.1 During the Sixth Plan period, the economy grew very rapidly at an average rate of 10.5 percent per year, compared with the Plan target of 5 percent. Although the rates of inflation, trade and current account deficits have gone up, and have a tendency to remain high during the Seventh Plan period, the fiscal position continues to be secure with high stability. Government revenue collection had been significantly higher than targets, having increased from 15.1 percent of GDP in 1986 to 19.7 percent of GDP by 1990. Although the government has significantly increased investment spending in infrastructure projects facing bottle necks, government cash balance is in substantial surplus and the fiscal reserve was as high as 184 billion baht in June 1991. During this period, the foreign debt burden had been declining constantly. Therefore, savings in the public sector had increased from 0.3 percent of GDP during the Fifth Plan period to 6.0 percent of GDP during the Sixth Plan period. In addition, the amount of international reserves reached 17 billion US dollars by mid-1991. Nevertheless, household savings continue to be at a low level although the government has implemented a number of fiscal policies to stimulate savings.

1.2 On the monetary side, during the Sixth Plan period, the monetary structure had been improved and made more flexible and stable by abolition of interest rate ceiling for deposits of over one year, adjustment of interest rate ceiling for loans granted by financial institutions, acceptance of Article 8 of the International Monetary Fund and liberalization of foreign exchange transactions and so on. The above measures have contributed to a more efficient and flexible monetary system which can respond in a timely manner to rapid national economic changes and world financial fluctuations and enable Thailand to take further steps to become the financial center of this region.

1.3 On the capital market side, the Sixth Plan period saw very rapid capital market development, serving as an important source of long-term capital mobilization for the business sector. The market value of securities listed in the SET in 1990 was 600 billion baht, representing about 29.5 percent of GDP. Nevertheless, investment in the Thai stock market is still largely speculative. After the Persian Gulf crisis in 1990, trading in the stock market became less active and the SET (Securities Exchange of Thailand) index has been adjusted downward considerably.

1.4 Inflationary pressure during the Sixth Plan period had become more intense with an average inflation rate of 6 percent by 1991 thanks to higher oil prices and higher purchasing power of the people, reflecting economic progress and higher incomes from speculation in real estate and the stock market. Towards the end of the Sixth Plan, although real estate business became relatively less active because of the aftermath of the Persian Gulf War, land prices still have a tendency

to increase, pushing up domestic production costs, and posing as a constraint for Thailand's effort to compete in the international market.

2. Targets for monetary, fiscal and capital market development

2.1 Increase gross national savings from the level of 28 percent of GDP in 1991 to 32 percent by 1996 by increasing household savings from 10 percent of GDP to 14 percent during the same period to reduce current account deficit to 2.5 percent of GDP by 1996.

2.2 Restructure the monetary, fiscal and capital market development system to boost international competitiveness.

2.3 Enable Thailand to establish herself as the financial center of this region and to have a more internationalized stock market.

3. Policies and measures for monetary, fiscal and capital market development

3.1 Domestic savings mobilization

3.1.1 Reform of tax system and structure to promote savings.

(1) Consider taxing income from all kinds of financial instruments at a uniform and appropriate rate, and do away with duplicate business taxes for financial institutions.

(2) Consider possibility of tax exemption for interest earned from fixed deposits which are intended for children's education, purchase of housing, for security in life and other longterm savings, and the possibility of deducting the savings from the amount of personal taxable income.

3.1.2 Develop instruments for long-term savings

(1) Develop private debt instruments in various forms. In the primary market, constraints concerning fiscal, legal and regulatory aspects will be removed, such as in the business tax system, and stamps collected from financial instruments. Furthermore, efforts will be made to facilitate sales of financial papers, together with designating institutions to play the role of primary dealers and market makers in the secondary market.

(2) Promote securitization by setting up a specialized institution for issuance of such instruments and by using selective aspects of Trust Law for consumer protection.

(3) Permit private financial institutions to sell newly issued government bonds and determine returns on the bonds which are acceptable to the market. There should be few issues of Government bonds but in sufficient quantity to induce secondary market development. Furthermore, the government should abolish compulsory holding of government bonds, encourage a more

flexible purchasing system of government bonds, together with abolishment of repurchase on Government bonds and their early redemption.

(4) Encourage local authorities and state enterprises to mobilize funds by issuing bonds in various investment projects by developing the primary and secondary markets as in the case of government bonds.

(5) Support establishment of provident fund, retirement fund, life assurance, contractual savings, newer types of mutual funds, and campaigns for cultivation of thriftiness and savings habit.

(6) Establish and develop institutions which provide necessary basic services to financial institutions dealing with financial instruments both in the primary and secondary markets. Finally, consider setting up an organization to study and supervise housing credit system, and expansion of the role of the Government Housing Bank in extending credit for housing and securitization of mortgage-backed assets.

3.2 Improvement of the structure and efficiency of the monetary, fiscal and capital market systems to support enhancement of Thailand's international competitiveness by increasing flexibility and reducing financial costs of businesses will be based on the following guidelines and measures.

3.2.1 Remove financial constraints.

(1) Allow freer movements of interest rates in line with market conditions and domestic and external economic and financial conditions. The interest rates may include those on savings accounts of commercial banks, on government securities and state enterprises and other interest rates.

(2) Liberalize foreign exchange transactions and develop foreign exchange market in line with domestic economic and financial conditions, as well as develop a more flexible foreign exchange rate adjustment system.

3.2.2 Develop financial institutions and capital market, and encourage more competition in the financial system.

(1) Devise policy to allow financial institutions to open up new branches more freely, and review policy to allow setting up of new financial institutions in line with economic and financial conditions or with international bilateral agreements. At the same time, domestic financial institutions should be allowed to expand their scope of business and financial activities to include new types of financial services. For example, commercial banks may be allowed to engage in buying and selling of securities, whereas finance and securities companies may be allowed to offer foreign exchange services. Finally, financial institutions may be allowed to manage more types of funds.

(2) Speed up provision of new financial services, such as establishment of EXIM bank, export credit guarantee scheme etc. by improving ...

laws and tax system to support such operations. Emphasis should also be on development of the development of long-term credit, such as industrial investment credit, housing credit, etc. and support for leasing business. Appropriate types of juristic persons to be permitted to operate such business activities must be carefully screened. Finally, it is equally important to improve credit system for buying and selling of securities to ensure adequate supply and new varieties of credit schemes which are appropriate to actual needs.

(3) Consider possible permission for commercial banks and financial institutions to hold a greater amount of shares in other companies without limit in the case of finance-related businesses, and with appropriate limitations in other types of businesses.

(4) Improve refinancing facilities of the Bank of Thailand, and support creation of an institution independent from the Bank of Thailand, and develop financial institutions for the development of specific sectors to ensure wider dispersion of funds to the target economic sectors in an efficient manner.

(5) Consider possible sales of shares held by the Ministry of Finance, which tend to be scattered in various areas. Proceeds from the sales can then be used to set up a fund for industrial development in suitable projects.

(6) Encourage establishment of a market dealing in securities outside the Securities Exchange of Thailand (SET).

(7) Consider rating of securities to be listed in the SET in line with critical economic sectors and national development policy.

(8) Carry out a feasibility study for the setting up of a futures market for securities, together with measures to monitor the market and control extreme fluctuations.

(9) Consider basic restructuring of the SET administration for greater security of the capital market. There should be a separate and independent authority to supervise and control securities business, together with support to set up a research unit for the capital market and a credit rating agency.

3.3 Tax restructuring to reduce distortions and enhance greater competitive position of Thai industries and trade.

3.3.1 Speed up introduction of value added tax (VAT) to be used in place of business tax. The new VAT should cover sectors of production, services, wholesale, and retail trade and should have a uniform rate. Excise tax structure should also be improved to effectively limit consumption of luxury goods and products which may generate negative impacts on society. The above-mentioned improvements of the tax structure should be in line with the on-going restructuring of the external trade tax regime.

3.3.2 Improve business tax on financial institutions, which is not included in the VAT system to ensure neutrality and avoid double collection of taxes in order to bring about more efficient and flexible financial services.

3.3.3 Modify structure of import duties in order to reduce the number of tax rates and to reduce rate differentials among different types of industries.

3.3.4 Consider adoption of the valuation system based on the General Agreements on Tariffs and Trade.

3.3.5 Improve criteria for deduction of expenses used in the calculation of taxable corporate income. The private sector should be given incentives to carry out research and development activities and incentives for development of venture capital via deduction of losses incurred in joint investment in high risk projects from income generated from other activities.

3.3.6 Modify policy of granting specific tax privileges in investment promotion and make it more general promotional policy. Nevertheless, special tax privileges may still be granted to encourage dispersion and relocation of industries to the regions and development of basic industry.

3.4 Reduction of land speculation

This policy measure is necessary in order to reduce impacts on production costs of goods and services and the higher inflation rates. As people's income and purchasing power increase because of the gains from speculative land deals, they often develop consumption pattern which has impacts on inflation.

3.4.1 Modify tax collection on the income portion over and above the land cost or capital gains tax.

3.4.2 Consider introducing property tax to replace local maintenance tax, housing tax and land tax. Property value should serve as a base for tax calculation. Furthermore, tax rates for empty and unused land plots may be higher than land which is actively utilized to increase tax burdens for holding of land for speculative purposes.

3.4.3 Modify structure of personal income tax. Expenses which are normally tax deductible in the calculation of taxable income may be abolished or reduced in the event that sales of real estate are characterized by short-term ownership and for speculative purposes.

3.5 Development of the capital and financial markets to serve as the financial center of the region and an international stock market.

3.5.1 Develop and promote Thailand to become the financial center of this region.

(1) Promote a greater role of the baht currency in trade and investment of Thailand's neighboring countries, together with encouragement of Thai financial institutions to play a more active part in these countries.

(2) Develop banking practices to have a wider scope and to meet international standards.

(3) Develop a forward market for foreign exchange dealings to meet the increasing demand for foreign exchange transactions.

3.5.2 Development of the Securities Exchange of Thailand to become an international stock market.

(1) In the initial stage, encourage foreign investors to invest in the Thai stock market in the form of fund or at an individual level, emphasizing diversification of investors worldwide. Efforts will be made to encourage setting up of representative offices of foreign securities companies; and cooperation in transfer of technology related to operation of securities business which has international standard. Thai companies may also be allowed to sell securities in the foreign securities market.

(2) At a later stage, Thai securities companies may be encouraged to set up representative offices in foreign countries. At the same time, Thai investors may be allowed to use domestic funds to invest in foreign countries directly in order to support international trade. Furthermore, the government will consider the possibility of allowing foreign companies to offer securities for sale in the Thai stock market, together with support for establishment of funds to mobilize domestic resources for investment in foreign countries.

(3) In the long run, free international securities trading may be contemplated.

Chapter 2

Agricultural Development

1. Outcome of past developments in agriculture.

1.1 Agricultural production during the Sixth Plan period grew at an average rate of 3.4 percent per year, which was considered to be satisfactory in comparison with average world agricultural growth rate of 1.5 percent. The relatively low growth was attributable to the weakening prices of major world commodities since 1989 and the climatic conditions characterized by continual droughts towards the end of the Sixth Plan. During this period, the industrial and services sectors continued to grow at very high rates. As a result, the share of the agricultural sector in GDP gradually declined to about 11.5 percent in 1991. Nevertheless, the sector is still important to the Thai economy as the share of agricultural employment share remains as high as 64 percent of total employment.

1.2 Development in the past has resulted in a more diversified production structure from primary agricultural produce to higher value added products, such as highly priced field crops, modern forms of fisheries and livestock and so on. This was made possible by the increasing application of modern agri-business management style, and more integration of agricultural production with the processing industries.

1.3 Although the agricultural sector has increasingly diversified its production to over 400 types of produce, these are generally of small quantities and do not lend themselves to export promotion. Agricultural exports continue to be dominated by a few items of primary commodities, including rice, tapioca, rubber and maize, while export volume of other field crops, vegetables and fruits remain low, resulting in low overall value of these export items. As a result, share of agricultural exports has rapidly declined from 41 percent of total exports in 1986 to only 23 percent in 1990. Nevertheless, there are still opportunities for agricultural development, particularly of higher value added items, which will support overall economic expansion during the Seventh Plan period.

2. Targets for agricultural development.

The Target of average overall economic growth rate of 8.2 percent per year assumes that the agricultural sector will be able to attain an average growth rate of 3.4 percent. At this rate of expansion, the sector will need to be restructured to be able to produce in response to market demand, develop further agro-processing industry, together with more intensive application of higher agricultural technology to boost productivity.

3. Guidelines for agricultural development.

Agricultural development to support the economic growth objective will emphasize enhancement of productivity and higher value added products as follows.

3.1 Emphasize efficient use of natural resources to serve as agricultural production base and to preserve the resources for the future by stressing the following.

3.1.1 Special protection of fertile agricultural areas, particularly in areas where the government has already invested heavily in the provision of irrigation and other basic services, to enable these farm lands to be used for agricultural purposes. Measures necessary to prevent land encroachment and speculation to convert agricultural land for other uses include the following.

(1) Consider the possibility of enforcing progressive tax rates for owners of agricultural land which is left unused, or which is used for non-agricultural purposes, together with the possibility of collecting capital gains tax from land sales which benefit from public provision of infrastructure services, in order to bring about more equal distribution of development results.

(2) Study the possibility of amending relevant laws to protect agricultural land in irrigated areas from being converted to other uses.

3.1.2 Support systematic land use to reduce potential conflicts among farmers, and between farmers and those in other non-farm groups, such as conflicting uses between farmers and prawn farmers, between farmers and salt farmers etc. Incentives of various types may have to be used, such as soft loan facilities.

3.1.3 Formulate land use plan as well as demarcate clear zoning of land use under the law to serve as guideline for basic infrastructure development in line with types of land utilization.

3.1.4 Encourage a more efficient use of water as supply of irrigation water is limited and falls increasingly short of demand by carrying out the following measures.

(1) Consider collection of water fees in irrigated agriculture areas based on amount of use to encourage economical water use and to ensure fairness to all agricultural workers.

(2) Appropriately revise irrigation water fee schedules distinguishing between water for agricultural and non-agricultural uses. Within the agricultural sector, calculation of water fee should only cover the maintenance costs of the water distribution system.

(3) Set up a water utilization and delivery system to distribute water from the principal waterways down to the farm level. The agricultural workers who use this water should be encouraged to participate in the planning of water distribution and maintenance of the distribution system at the farm level. Finally, officials concerned and farm workers should be educated on efficient water utilization methods and techniques.

3.2 Support research and development and transfer of technology in agriculture, together with provision of necessary inputs to production. The role of the public and private sectors must be properly defined to increase efficiency in research and training programs to enable agricultural workers to apply new technical knowhow to reduce production costs, and increase their competitiveness. It is equally important to ensure adequate provision of production inputs in a widespread manner as in the development of other basic facilities and services as follows.

3.2.1 Support the private sector with the government playing the leading role in research and development and encourage use of seedlings, plant varieties and animal stocks, which are suitable to the locality and economic status of the agricultural workers based on the following measures.

(1) Provide technical information to agricultural workers about advantages and disadvantages of hybrid varieties, beef breeds and dairy breeds so that agricultural workers may choose appropriately according to household economic status.

(2) Provide technical information to the private sector and agricultural workers concerning production and export of varieties of seedlings, and consider protection of intellectual property rights for new seedlings that the private sector has produced. In addition, support should also be given in the inspection and accreditation of quality of plant seedlings and animal stocks as specified by law.

(3) Speed up research in plant varieties and post harvest technology, emphasizing reduction of costs and production of new products to diversify farm production further and to be used as raw materials for industrial factories. Furthermore, new production techniques for expansion of seedling varieties and animal stocks will be encouraged, such as tissue culture and embryo transfer and encouragement of research and development of new stocks of new aquatic species with high economic value to enable the private sector and agricultural workers to further expand production.

(4) Provide technical knowhow and management skills concerning aquaculture in natural water resources and coastal areas to people engaged in fisheries related activities.

3.2.2 Encourage agricultural workers to optimize chemical fertilizer use and ensure adequate supply of high quality fertilizer with the following measures.

(1) Advise and transfer technical knowhow on the correct use of chemical fertilizer to be consistent with soil conditions in each locality and types of crops, emphasizing efficiency, production costs and returns on investment for agricultural workers to choose from. Public campaigns will also be launched to encourage agricultural workers to use organic fertilizer with chemical fertilizer to preserve soil conditions and reduce production costs.

(2) Restructure domestic chemical fertilizer trade and marketing policies in order to promote freer competition and review feasibility of domestic chemical fertilizer production, taking into consideration benefits to agricultural workers. The provision of fertilizer may actually be considered as a basic infrastructure service.

3.2.3 Encourage correct use of chemical products and reduce their uses in the future so that they will not pose hazards to consumers of agricultural produce and to agricultural workers, via the following measures.

(1) Campaign for prevention and elimination of pests and insects by encouraging agricultural workers to monitor their own circumstances, and control pests and insects via natural methods in order to reduce the use of chemical products. Emphasize knowhow and importance of prevention of pests and insects before cultivation, together with prevention of outbreak of epidemics among livestock, as opposed to use of curative measures after contracting the diseases.

(2) Carry out public campaigns to promote correct use of chemical products among agricultural workers and to educate them on the dangers and hazards from incorrect uses of chemical and medical products. Use of plants and organic elements for prevention and elimination of pests and insects in plants and animals should be promoted. The campaigns will use all kinds of media including printed documents, radio, video and television programs. The target agricultural workers will include those engaged in planting of crops, animal husbandry, fisheries, and imports or trading of chemical products for agricultural uses.

(3) Review relevant laws and consider enactment of a special law to specifically control veterinary medicines to enable adequate supervision of business activities in veterinary medicines and in relevant chemical products. The control and supervision should cover from the stages of production to utilization, together with banning of forbidden chemical and medical products. Furthermore, specification of generic names of medicines should be required to prevent profiteering and exploitation of agricultural workers by the use of well-known brand names through advertisements.

(4) Accelerate research work in the prevention and elimination of pests and insects by using plants, plant extracts and other organic elements to replace the use of chemical products, together with their eventual development and promotion of commercial private sector production for use on a wider scale.

(5) Designate standards of acceptable level of chemical residues in meat and meat products via public and private sector cooperation to carry out research work on dosage, appropriate waiting period and the acceptable level of chemical residues in food.

3.2.4 Enhance productivity and efficient use of agricultural machinery with the following measures.

(1) Encourage and support cooperative efforts with the private sector in research and development (R&D) of agricultural machinery. Factors to be considered in these R&D efforts are gender of agricultural workers, soil conditions, types of crops, and cover cultivation, harvest, development and preservation of products and packaging. Furthermore, production of machinery for use in agro-processing industries and investment of labor-saving machinery at farm level should be encouraged.

(2) Set quality standards for agricultural machinery, together with inspection and accreditation services.

(3) Carry out training programs for officials and agricultural workers to increase their knowledge with respect to selection criteria, maintenance, and repair of agricultural machinery.

(4) Encourage provision of long-term credit for small-scale producers of agricultural machinery and to agricultural workers for purchase of appropriate and necessary agricultural machinery, together with support for businesses providing services related to agricultural machinery.

3.2.5 Expand scope of agricultural credit and encourage contract farming business by using the following measures.

(1) Increase funds to the Bank of Agriculture and Agricultural Cooperatives for provision of adequate short-term and long-term credit to agricultural workers to promote production restructuring and off-farm activities, particularly among small-scale agricultural workers.

(2) Support amendment of the Bank of Agriculture and Agricultural Cooperatives Act to enable extension of the Bank's role to cover provision of credit to small-scale agricultural workers in non-farm activities in a widespread manner.

(3) Carry out a feasibility study on the setting up of an agricultural credit guarantee fund to reduce risks and induce financial institutions to grant credit to small-scale agricultural workers, and increase proportions of medium and long-term credit provision.

(4) Encourage agri-businesses, with the government as coordinator among various agricultural groups to cooperate with entrepreneurs in agriculture-related businesses to have opportunities for contract farming arrangements, and to have joint investment to expand and increase the types of products of agro-industries.

(5) Supervise contract agreements between agricultural institutions and business entrepreneurs to ensure fairness to all parties.

3.3 Restructure agricultural production in line with the local conditions and market demand by adjusting the cultivation and farming systems to have a

more integrated nature. The fisheries, livestock, and economic forests sectors should be encouraged to play an increasing role in agricultural development using the following measures.

3.3.1 Change the agricultural promotion and extension services provided by the government from the primarily product specific type of promotion to provision of knowhow to enable agricultural workers to formulate production plan at the farm level by themselves. The government will provide necessary support services as reasonably required by agricultural workers.

3.3.2 Support the private sector, agricultural institutions and agricultural workers in the cultivation of commercial forests as follows.

(1) Speed up promulgation of a Plantation Act to assure investors in economic forests of their privileges to fell teak and rubber trees in their concession areas, together with exemption of royalties, and the privileges not to have to follow regulations as stipulated in the Forestry Act of 1941.

(2) Encourage private sector cultivation of economic forests where there is a related industry in an integrated manner, and cultivation of community forests or for commercial purposes by agricultural institutions. In this regard, it is important to have clear demarcation of the two types of forests, together with improvement of permit granting methods to ensure fairness and speed.

3.4 Support development of agro-processing industry or increase value added as opposed to export of raw materials, and to serve as substitutes for imports, using the following measures.

3.4.1 Formulate clear measures concerning raw material imports and to ensure stability so that the processing industry can develop and expand.

3.4.2 Enhance productivity in agro-processing industry by encouraging public and private sector cooperation in acquisition and transfer of knowhow on high-yielding seedling varieties, and high quality animal stocks, quality improvement of raw materials and products, standard development of products and packaging technology.

3.4.3 Support modern agri-business operations in producing new varieties of agricultural products which have promising prospects for exports, together with support for the processing and import substitution industries.

3.5 Improve agricultural and cooperative development system to ensure that public investment in agricultural development benefits agricultural workers, and the government's attempts to solve problems at the local level respond to needs of agricultural workers. The following measures are proposed.

3.5.1 **Formulate agricultural production restructuring plan** at provincial level to contain both work programs and projects to solve agricultural problems

and to respond to the needs of agricultural workers. Operation of local public agencies should be integrated and can readily serve government policy to decentralize power and budgetary authority to the regions.

3.5.2 *Improve and develop capability of the information system* to cover collection, dissemination and management of agricultural news and modern technical knowhow. The scope of work and responsible agencies must be clearly designated both at the national and local levels.

3.5.3 *Provide training on management and administration* from stages of production, product quality development, marketing and credit to agricultural workers, leaders of agricultural groups, and administrators of agricultural cooperatives. In addition, it is necessary to produce marketing information related to market demand of each type of product. This information should be constantly updated and distributed to various agricultural institutions to serve as supplementary data for decision making on production and product quality improvement in line with market demand.

Chapter 3

Development of the Industrial, Trade, and Service Sectors

1. Results of past development

1.1 Industry

1.1.1 During the Sixth Plan period, the economy and the export sector grew rapidly due to the extremely important role played by the industrial sector. The industrial share in relation to GDP had grown from 23.5 percent in 1986, the last year of the Sixth Plan, to 26 percent in 1991. The average industrial growth rate was 13.7 percent per year, much higher than the target growth rate of 6.6 percent. Important factors stimulating such high growth were export growth and investment expansion, particularly export production, and large-scale industrial investment in import substitution.

1.1.2 In terms of production process, the industrial sector made considerable progress both in terms of types of production and quality of products. Industrial production has become increasingly sophisticated and generated more linkages with related industries. Industrial factories are also more modern, utilizing higher technology, and larger amount of investment. These changes have been brought about largely because of the development of industrial exports, which need to compete in the world market, and through joint ventures with foreign investors.

1.1.3 Despite the rapid industrial growth, the majority of industrial factories continue to be concentrated in and around Bangkok Metropolis. Some factories are being dispersed to the outer ring in the central and eastern regions. In the remoter regions, no significant number of industrial factories have been located. As a result, the number of factories located in and around Bangkok Metropolis account for 52 percent of the total nationwide.

1.1.4 The amount of pollution emitted from industrial factories, including both the older generation of industrial factories, and the newer ones, has increased very rapidly because of ineffective government control, high investment costs of treatment plants, and negligence of industrial operators.

1.1.5 Basic infrastructure services critical for industrial factories, particularly electricity, transport, communication and various types of other utilities, have been inadequate and cannot respond to the rapidly growing industrial and commercial needs in a timely manner, resulting in the present bottlenecks obstructing future development.

1.1.6 There has been an increasing shortage of manpower and skilled labor in various professional fields, which has impacts on expansion of the production, trade and services sectors. Furthermore, research and development in science and

technology and product standardization, which should play a contributory role in the production and trade processes, have had limited effectiveness. At the same time, technology transfer and enhancement of productive capability of medium and small-scale industries have not been appropriately carried out.

1.1.7 Government rules, regulations and operational procedures, together with the tax structure and collection method have not been able to adapt themselves flexibly to rapid changes in economic activities, thus posing as constraints for Thailand's competitiveness in the world market, and creating loopholes for retaliatory measures from the trading partners.

1.2 On trade and services

1.2.1 The Thai economy has become more open and internationalized and has been increasingly dependent on the foreign trade sector. During the first four years of the Sixth Plan during 1987-1990, the value of foreign trade and services had increased from 740 billion baht in 1987 to 1.66 trillion baht in 1990. Value of exports had increased about 2.6 times from 290 billion to 760 billion baht while value of imports had increased about 2.3 times from 370 billion baht to 900 billion baht. The share of foreign trade and services sectors in value terms had increased from 59 percent to 80 percent of GDP during the same period, 37 percent of which was accounted for by exports, while 43 percent was accounted for by imports.

1.2.2 Thai exports have become more diversified, particularly industrial goods, from consumer products such as textiles and processed foods to consumer durable goods, parts and equipment, such as electronic and vehicle parts. In the agricultural sector, although export value has increased with a more diversified structure, the growth rate has been low. Therefore, industrial exports have come to play a much more important role than agricultural exports. By 1990, the share of industrial exports to total exports in value terms was 75 percent. Major export markets continue to be the USA, EC and Japan, which together accounted for 60 percent of the total export market.

1.2.3 As the Thai economy has become increasingly dependent on the foreign trade sector, it has become necessary to readjust trade negotiation strategy in order to protect existing interests as well as to identify new opportunities.

1.2.4 Development of agricultural marketing system has been largely confined to field crops, the area in which the government has played a major role. Consequently, agricultural workers have limited choices in selling their product, and are obliged to rely heavily on middlemen. Furthermore, prices of major commodities are directly affected by movements in world prices, thus having an impact on agricultural income.

1.2.5 The services sector has assumed an increasingly important role in the economy. Since the middle of the Sixth Plan, for the first time Thailand has had a surplus in the services balance, i.e., 50 percent of the total revenue was derived from the tourism sub-sector, which grew very rapidly. At the same time,

Thailand has incurred significant expenses in international shipping and freight insurance because of export expansion, accounting for about 42 percent of total expenses. Other major expenditures include interest payments and remittances of profits and dividends to foreign countries.

1.2.6 During the Sixth Plan period, the domestic service industry has begun to play a more supportive role in the production and trade sectors and other activities. The sector has also become an important topic in international trade negotiations as the developed countries have pushed for a free market policy in the services sector, such as land, sea and air transport, communications, telecommunications and advertisements etc.

2. Targets of the industrial, trade and services sectors development

To enable the industrial, trade and services sectors to support the development objective of sustained economic growth, the following targets have been set.

2.1 Industry

2.1.1 The industrial sector is to achieve an average sustained growth rate of 9.5 percent per year.

2.1.2 The agro-industrial sub-sector is to achieve an average growth rate of no less than 5.5 percent per year during the Seventh Plan period.

2.1.3 The share of industrial exports to total exports is to increase to no less than 80 percent by 1996.

2.1.4 Six industrial sub-sectors have been designated as target industries including agro-industry, textile and garment industry, metal industry, electronics industry, petrochemical industry, and iron and steel industry.

2.1.5 The standard industrial product classification is to include no less than 2,500 items by 1996.

2.2 Trade and services

2.2.1 Export of goods is to grow on average at no less than 14.7 percent per year during the Seventh Plan period to help reduce trade deficit to a more appropriate level.

2.2.2 International tourism will be promoted to generate foreign exchange earnings, and is set to grow at no less than 13 percent per year. Number of tourists is to grow at no less than 8 percent per year.

2.2.3 Designate target service sub-sectors which need to be modified in order to boost their international competitiveness. These sub-sectors include international shipping and air transport, freight insurance, communications services, telecommunications and construction.

3. Guidelines for industrial development

3.1 Promote and support industry as a whole

3.1.1 Employ fiscal policy covering both tax and non-tax measures to remove constraints for promotion of industrial development and exports and to encourage private sector joint investment in the provision of infrastructure services.

3.1.2 Adjust ceilings of interest rates on loans and deposits to reflect the financial market situation and economic conditions, and allow the floating of interest rates on loans and deposits in line with domestic and foreign financial markets.

3.1.3 Remove constraints that foreign exchange rates may pose to industrial development efforts.

3.1.4 Support establishment of long-term credit institutions for industrial enterprises and encourage greater long-term private sector savings. Develop domestic capital market and encourage wider use of commercial papers, and develop secondary market for government bonds and public enterprise bonds and commercial papers.

3.2 Revamp tax and privileges system

3.2.1 Minimize the number of customs duty categories to keep the tax structure as neutral as possible. At the same time import tax rates for finished products, parts and raw materials should be kept appropriately different to promote domestic production of primary and secondary goods.

3.2.2 Consider use of an international system for valuation of goods and calculation of import duties. This system should be based on standard international trade practices.

3.2.3 Introduce new monetary and fiscal measures to support growth of exports and investment, such as EXIM bank, export credit guarantee service, leasing and factoring services.

3.3 Improvement of rules, regulations and promotion policy

3.3.1 Speed up modification of rules and regulations which are obstacles to growth of trade and investment, such as Factory Act B.E. 2512 (1969), Machinery Registration Act 1971, and Public Health Act, B.E. 2484 (1941) etc.

3.3.2 Distinguish between groups of industries which have more as opposed to less impact on the environment and communities so that the granting and renewal of permits for industries considered safe for the environment and communities may be facilitated and accelerated, while environment threatening types of industries will need much more examination and may be required to relocate to specially prepared industrial estates.

3.3.3 Support private sector role to relieve some public responsibilities, such as examination of industrial plants, machinery and equipment, and examination of laboratories to promote a greater speed and convenience.

3.3.4 Provide budgetary support to private non-profit organizations to encourage training programs and support activities for medium and small-scale industrial enterprises.

3.3.5 Encourage the private sector to expand joint venture agreements in foreign countries endowed with domestic factors of production and in trading partners with potential for domestic industrial development.

3.3.6 Encourage role of private sector institutions, such as the Board of Trade of Thailand, the Federation of Thai Industries, the Thai Bankers' Association and Provincial Chambers of Commerce in addressing economic problems as the development of the country both at the national and local areas.

3.4 Speed up expansion of infrastructure services, particularly electricity supply, water for industrial use, telecommunications, and land transportation system. These services should be provided in an adequate amount, on a timely basis, and consistent with industrial needs in terms of quality of services, and internationally competitive prices.

3.5 Amend the Industrial Estate Authority of Thailand Act, B.E. 2522 (1979) to also cover private industrial zones so that owners of factories located in private industrial zones may be given fair protection.

3.6 Provide training and upgrade labor skill level. Promote systematic cooperation between government agencies and business enterprises in training of industrial personnel. Furthermore, efforts should be made to encourage the private sector to carry out training programs by themselves via establishment of a labor skill development fund. The government may contribute a grant, while the rest may be collected from factories or business enterprises to form the fund which will pay for training and operating expenses.

3.7 Enhance technological capability of industry to increase productivity and competitiveness of Thai exports in the world market and develop basic technology to ensure long-term self-reliance of the industrial sector by carrying out the following measures.

3.7.1 Encourage sub-contracting type of production in industry, from foreign investment vis-a-vis domestic industry and in domestic industries to promote technology transfer.

3.7.2 Promote research and development of product design to upgrade quality of goods in line with market demand.

3.8 Encourage use of Industrial Product Standard System.

3.8.1 Consider revision and modification of the Industrial Product Standards Act, B.E. 2511 (1968), particularly in the setting of standard and certification of quality to be consistent with international practice in product standard and certification and conducive to Thailand's export drive.

3.8.2 Review priority of products which should have standard consistent with domestic industrial development, consumers' demand, and testing instruments.

3.8.3 Promote research and development to be used as information for setting national standard and for international negotiations.

3.8.4 Formulate guidelines to ascertain reliability of testing instruments to ensure accuracy of tests.

3.8.5 Support private sector role in development of product quality in industrial plants and in providing testing and product quality certification to supplement work of public agencies. The government may provide tax incentives to facilitate procurement of instruments and equipment necessary for testing of product quality.

3.8.6 Formulate guidelines to come up with a uniform system to take care of the testing and product quality certification services, which, at present, are provided by a number of public agencies. It will be necessary to modify criteria and methodology on certification of product quality, quality of industrial plants, testing laboratory accreditation, the actual tests, and metrology to be consistent and conform with standard international practice.

3.8.7 Set up a standards information center on industrial standardization and technical services center to provide advice to industrial factories and exporters.

3.9 Develop target industries by sectors.

Apart from the guidelines to promote general industries, it is deemed appropriate to formulate specific guidelines for target industries by sector as those industries are critically important to the national economy, and form a base for long-term industrialization. Furthermore, they also have close linkages to other industries, as they utilize high proportion of domestically produced raw materials and semi-finished products, thus generating high value-added, and also possessing comparative advantage in production and trade. The following represent the target industries by sector.

3.9.1 Agro-industry. Key problems of this sector include the following.

(1) Production of agricultural raw materials to feed into the processing plants, particularly export-oriented ones, encounter problems and constraints ranging from inadequate supply, inconsistent product quality, uncertain prices, irregular distribution of products, and types of products which do not satisfy market demand.

(2) Smaller agro-industrial enterprises are likely to face problems of outdated production technology and low productivity and lack of marketing knowledge. Consequently, their products lack quality and standard.

(3) The third problem area is the management system between producers of raw materials and factories, such as contract farming system between agricultural workers and factories, which still has limited application.

3.9.2 Guidelines for agro-industrial development.

(1) Support modern agricultural management system. Develop and expand contract farming system between agricultural workers and processing plants. In this way, it can be expected that the quantity produced, prices and quality of products may better satisfy the requirements of processing plants. The government will act as coordinator between agricultural workers and industrial entrepreneurs.

(2) Set up an organization or a national committee on agro-industrial policy to formulate plans and coordinate agro-industrial development, together with clear designation of responsible agencies and their respective duties.

(3) Set up a center to promote agro-industrial development to support and assist small-scale agro-industrial producers in terms of production, product quality control, and management.

(4) Do away with measures which require certain types of agro-industries to only purchase raw materials from domestic sources. Similarly, remove the excessively high import duties to protect domestic producers of raw materials in case they cannot reduce their production costs, or in case they can already effectively compete with foreign producers.

3.9.3 Textiles and garments industry generates income largely from exports, and is very labor-intensive. However, there are constraints in terms of establishment and expansion of factories and weakness in bleaching and dyeing industry.

3.9.4 Guidelines for development of textiles and garments industry.

(1) Reduce protective import duty rates for the upstream and intermediate industries, and promote investment for development of the weaving and spinning industries.

(2) Set up industrial estates for the bleaching and dyeing industry in particular, while ensuring effective pollution control and systematic environmental protection. At the same time, clear measures must be designated, together with specific timeframe to support factory relocation into the industrial estates.

(3) Set up an institution or organization to help develop technology and analyse information on textiles and garments industry, together with dissemination

of news, and support other activities relevant to the sector, such as manpower development.

3.9.5 Metal working industry. Large-scale producers of this sector, particularly car assembly industry, have received high degree of protection, while the production capability of machinery industry and domestic intermediate metal working industry is still limited. The quality is low, while prices are not sufficiently competitive in the international market to serve as a base for production of vehicles and other industrial products. Furthermore, measuring and testing instruments and machinery parts are not available in sufficient quantity because of high import duties.

3.9.6 Guidelines for development of metal working industry.

- (1) Reduce protection of local car assembly industry.
- (2) Support and enhance capability of machinery industry and intermediate metal products factories, such as machinery industry, mold and die industry, casting, forging, and hardening industries, etc. to ensure higher production efficiency.
- (3) Speed up specification of these industrial product standards to encourage quality improvement so that they will be increasingly acceptable to both domestic consumers and the export market.

3.9.7 Electronics industry. Investment in this industry at the present time is largely confined to assembly of parts, drawing upon comparative advantages in terms of lower wage costs. In the future, it will be necessary to upgrade technology to competitively produce other higher value added products. Furthermore, structure of import duties and government investment promotion policy for exports have not adequately contributed to growth of domestic intermediate industry.

3.9.8 Guidelines for development of electronics industry.

- (1) Encourage large-scale investment in electronics industry to use as many locally produced parts as possible to stimulate development of support industries.
- (2) Promote electronics industries with long-term market potential, such as production of facsimile machine, and application-specific integrated circuit, etc. to support higher technological development in this field.
- (3) Encourage industrial plants and private educational institutions to have a greater role in skill training and personnel development, apart from the on-going programs of accelerated production of engineers and technicians that the government has already emphasized.

3.9.9 Petrochemical industry. The structure of import duties offers a high degree of protection to domestic industry, particularly to the intermediate

group of industries, rendering them inefficient, while the downstream industries can only grow slowly because of high raw material costs.

3.9.10 Guidelines for development of petrochemical industry.

(1) Reduce protection to the industry by readjusting import duty levels, and cancel import ban in a systematic manner.

(2) Permit private investment in the sector without constraints.

(3) Change the role of the government from direct investor to coordinator of investment, and emphasize the government's role in managing infrastructure services, supervising and monitoring pollution control and safety measures, as well as personnel development.

(4) Promote development of downstream industries, particularly production of plastic products to grow steadily.

3.9.11 Iron and steel industry. At present, there is no such industry, particularly an upstream iron industry, while demand for iron and steel has increased rapidly following rapid economic growth, resulting in very high import value. Therefore, it is necessary to accelerate the development of this industry.

3.9.12 Guidelines for development of iron and steel industry.

(1) Promote the private sector to invest in the production of upstream iron industry. The government will provide support in terms of location, and coordination to secure necessary facilities and other supportive services.

(2) Support increase in production capacity of steel sheets in a freely competitive environment to ensure adequate supply to satisfy domestic needs.

(3) Readjust structure of import duties for finished steel and semi-finished products to maintain appropriate differentials to support greater domestic production.

4. Guidelines and measures for development of the trade and services sectors.

4.1 International trade.

4.1.1 Enhance capability to expand and protect trade interests. This is because the present system of international trade tends to involve interventions, with a trend toward increasing protectionism. Therefore, in order to expand and protect Thailand's trade interests, the following guidelines are proposed.

(1) Set up a unified trade negotiation body to be responsible for international trade negotiations at the multilateral, regional, bilateral and unilateral levels.

(2) Amend laws and revise relevant rules and regulations related to trade and investment to be consistent with international trade agreements, such as regulation concerning imports and exports and granting of privileges in investment promotion, together with amending laws to prevent trading partners from taking advantage of Thailand and to prevent unfair competition, such as market dumping and provision of export subsidies.

(3) Formulate trade negotiation plans with trading partners, such as the U.S.A., EC & Japan, and with important multilateral groups, such as GATT.

(4) Strengthen economic and trade cooperation with countries which have common interests in order to enhance bargaining power in trade negotiations.

(5) Formulate guidelines and contingency plans to protect existing interests and identify new ones in the event of changes in the world economic and trade systems, such as the single market of the EC, and the North American Free Trade Agreement. (NAFTA). In this regard, an agency must be established to coordinate and manage the above issues in a continuous and efficient manner.

4.1.2 Expand as well as maintain shares in the existing markets by continually according high priority to development and promotion of exports. Emphasis should be given to groups of products where Thailand has comparative advantage and can compete effectively. Furthermore, the government should recognize the importance of boosting the marketing skills of private traders. Relevant guidelines are as follows.

(1) Formulate strategic product plans, and target export markets in the short, medium and long-terms, emphasizing flexibility in export strategy in line with changes in market conditions, such as Japan's revised commodity market policy, the adjustment of the EC's product standard system and the transformation of some Eastern European countries' economic and trade systems and so on.

(2) Increase the role of the Office of Commercial Counsellors and Trade Centers in foreign countries to provide more support to Thailand's international trade efforts, particularly in terms of information and new developments which will help penetrate and expand Thailand's export markets.

4.1.3 Develop trade data system to make it efficient and conducive to Thailand's trade development through the following measures.

(1) Strive to set up a trade data and information system to support planning at the policy level and formulate policy alternatives, as well as build up an advanced trade warning system, forecasts, target setting and trade opportunity identification. For the overall system to function efficiently, there will need to be close cooperation between the public and private sectors.

(2) Develop a system to make the trade data and information as widely available as possible, particularly to ensure that small and medium scale entrepreneurs may get easy and speedy access to the information.

4.1.4 Support private sector role in trade development by setting up a network and work plan for systematic and continuous public and private sectors cooperation to enable private entrepreneurs to participate in the provision of some public services, such as the testing and product standard inspection services.

4.1.5 Develop Thailand into a trade center, particularly for the Indochina region, via the following.

(1) Designate an agency to be responsible for formulation of an operational plan to coordinate guidelines and necessary measures including provision of basic services and facilities, such as telecommunications and transport services.

(2) Encourage setting up of regional offices with necessary supporting measures and services, which do not contravene international trade agreements.

4.2 Internal trade

4.2.1 Promote free trade in commodity market. Set up a system for pricing policy to reduce market interventions of the government by removing rules and regulations causing market distortions, on a step-by-step basis.

(1) Support private sector development of marketing systems in various forms, particularly auction markets, such as central market and specialized forward markets to help regulate the stability of commodity prices and to ensure fairness. Government's role will be confined to supervisory work to enable marketing operations to function according to the set rules on a fair basis. The government will rely on various means, such as regulations or ministerial announcements of the Commerce Ministry. When circumstances warrant, the government may also resort to the use of monetary and fiscal measures as additional support, together with the enactment of laws for the clear supervision of work.

(2) Promote private sector role in the development and provision of supporting marketing facilities and services for effective quality preservation and efficient storage, such as provision of warehouses and silos in the form of public services. Another potential service includes provision of credit using products as collateral. On the whole, the government will need to amend relevant laws and regulation to enable the private sector to effectively provide supporting marketing facilities and services.

4.2.2 Strengthen efficiency of industrial product marketing, via the following.

(1) Remove price control on selected industrial products where market competition is near perfect.

(2) Promote competition and consumer protection by modifying laws governing business operations with a view to preventing monopolistic and unfair trade practices and amending consumer protection laws for greater effectiveness.

In order to realize the above, there must be common guidelines to coordinate work of relevant public agencies in a systematic manner.

4.3 Services

Develop the service industry in its various forms, which generate income, and which have potential to compete in the international market, together with the types of services likely to play a major role in international trade negotiations. The private sector will be supported in its provision of services. Relevant laws and regulations will be amended to ensure that the private sector has adequate flexibility to conduct their business operations in line with the situation and guidelines for international trade negotiations, such as Public Company Act and other laws in connection with business operations of aliens (Revolutionary Decree number 281) etc. Important service industries include tourism, sea and air freight transport, cargo insurance, communications, telecommunications and construction services.

4.3.1 Tourism

(1) Pave way to establish Thailand as the tourism center of the Southeast Asian region.

(1.1) Cooperate with member countries in the Association of Southeast Asian Nations (ASEAN) to promote more tourist visits within the ASEAN region, emphasizing cooperation rather than competition in the marketing area.

(1.2) Formulate guidelines to enable Thailand to serve as gateway for development of tourist loops within Indochina and neighboring countries.

(1.3) Encourage private sector investment in the development of new tourism activities to increase locations and new varieties of tourist attractions apart from the usual reliance on locations of natural beauty and the traditional cultural and artistic attractions. Examples may include cruising tours by sea or along rivers, sports tournament, travel for health, organization of conventions and international trade shows etc.

(2) Preserve and develop resources and relevant factors in tourist destinations.

(2.1) Formulate a master plan to develop and rehabilitate tourist destinations, together with infrastructure facilities and other basic services. In this master plan, the traditional locations of tourist attractions and the new tourist destinations which have potential will be covered, and will be integrated into the same system with the development of regional urban centers. These centers include Pattaya, Phuket, Chiangmai, Hat Yai, Cha-am Huahin, Chiengrai, Samui Island/Surat Thani, Kanchanaburi, Ayudhya and the lower part of the northeast.

(2.2) Enforce laws governing use of buildings, city plans, national parks, and ancient ruins, buildings and other structures to control land use, and types of business activities that the private sector may be pursuing around

the locations of tourist attractions to prevent impacts on the environment from investment in various business operations.

(2.3) Encourage public organizations, the private sector and local people to participate in efforts to manage and revive natural resources and conserve the natural environment, such as waterfalls, islets, beaches, as well as preserve art work and the surrounding, such as ancient ruins and places of historical significance.

(2.4) Encourage private sector participation in development of tourist attractions, together with amendments of relevant rules and regulations to be conducive to private sector investment, particularly investment to develop new locations or new types of tourist destinations to support development of regional tourist loops.

(2.5) Increase efficiency in the provision of infrastructure facilities and other public utilities and amenities, emphasizing long-term use and tourists' safety, together with modification of various laws to protect tourists and to keep business operators from taking advantage of tourists, which may result in negative image of the country.

(3) Develop and upgrade quality of personnel in the tourism sector.

3.1 Expand manpower development at the professional and university levels in terms of quantity and quality which reflect market demand of the tourism sector at the national and regional levels.

3.2 Encourage private sector role in the development and training of manpower at various levels to attain high level of service quality, together with modification of relevant laws to promote efficient manpower development. Among the most important legislation in need of amendment is the Hotel Act, B.E. 2478 (1935), to enable utilization of high quality hotels as skill training institutions.

4.3.2 Sea and air freight services

(1) Improve management system and facilities in international ports to reduce production costs and speed up services, as well as improve operation of concerned public agencies to save time and increase efficiency.

(2) Encourage and promote development of merchant marine fleets in the form of joint ventures, among Thai nationals and with foreign companies to enhance capability in mobilization of investment funds, in management and international competition. Relevant laws will be amended to facilitate implementation of the above measures.

(3) Encourage investment to expand capacity to provide air freight services in particular, as well as warehouse services to support exports of

modern industrial products and to help establish Thailand as an integrated air freight services center of this region.

4.3.3 Freight insurance

(1) Speed up amendments of the Insurance Act, B.E. 2510 (1967), to stimulate development of the insurance industry. Expand size of funds of insurance business and increase opportunities for investment in other business activities, as well as designate scope of regulations of insurance operations to ensure security of the business and fairness, both for the insurers and their clients.

(2) Promote greater freight insurance with domestic companies, together with development of manpower in this field, and carry out public relations campaigns to convince importers and exporters of the advantages of freight insurance in reducing possible losses from accidents.

4.3.4 Communications and telecommunications

(1) Speed up expansion of communication and telecommunications services to adequately meet demand by amending laws, revising rules and regulations to reduce monopoly power in provision of communications services by public agencies, as well as to promote a greater private sector role in jointly providing the services.

(2) Improve quality of communications and telecommunications services to ensure a greater speed and convenience to customers, and to maintain price levels which do not place undue burden on production costs of goods and services, thus reducing international competitiveness of Thailand.

4.3.5 Construction industry

(1) Since the construction industry is a very large-scale service industry, involving employment of a great number of people and their safety, it is, therefore, deemed appropriate to assign the Ministry of Interior to be directly in charge of the industry and to be responsible for development of the entire industry system. The actual operations may take the form of a national committee for construction industry development. Alternatively, an agency within the Ministry may be given the responsibility.

(2) Encourage Thai contractors to be able to undertake construction projects in foreign countries, particularly as applied to the rebuilding of Indochina countries, both in the form of wholly Thai owned companies and joint ventures with foreign contractors.

(3) Improve rules and regulations of the public sector concerning bidding procedures for construction projects to create greater flexibility and ensure that the work programs and public investment projects can be successfully implemented.

Chapter 4

Development of Science and Technology

1. Results of past development in science and technology (S & T)

There have been the three following successful outcomes of past efforts in the development of science and technology.

1.1 Creation of an environment supportive of scientific and technological development.

Success in this regard may be measured by a greater sense of awareness and heightened consciousness about the importance of science and technology. This is particularly the case among high level public officials and national administrators, who have given priority, and supported increasing application of science and technology in national economic and social development.

1.2 Promotion of research and development in the public and private sectors as follows.

1.2.1 Within the public sector, several organizations have been set up to formulate policies and to support research and development in science and technology. These national organizations have been set up to support science and technology development in three major fields, including biotechnology, metal working and material technology, and electronics and computer technology.

1.2.2 Within the private sector, incentives have been offered by the government to encourage research and development, including the provision of soft loans, grants, tax privileges for certain types of machinery and equipment, privileges regarding corporate taxes, dividends, and other research and development activities of companies granted promotional privileges, etc.

1.3 Preparation of S&T personnel

Development of high level manpower in science and technology has increased to enable these personnel to serve as university professors and researchers. Extensive scholarship programs at the bachelor, master and doctoral degree levels, both in Thailand and in foreign countries have been offered in the three major areas mentioned above, together with other engineering and science degree programs.

2. Important issues which continue to be constraints hindering prospects of long-term sustainable development

2.1 Limited application of technology to enhance productivity.

2.1.1 Despite an increasingly diversified industrial production structure into more modern and high level industries, the process and stages of production are still largely labor and resource intensive since these are comparatively cheaper. Within the agricultural sector, increase of output was usually accounted for by

extension of the farm land, and use of cheap labor, to reduce production costs. In the future, both the industrial and agricultural sectors will no longer be able to employ to the same extent these factors which Thailand used to have comparative advantage over some other countries. This is because Thai wages have been on the rise, and Thailand has reached the end of the land frontier, causing land prices to rise rapidly.

2.1.2 Another important factor which has played a part in delaying the application of modern technology to increase industrial productivity is the high level of protection that the government had given to the industrial and commercial sectors, such as import tariff barriers, import bans, and bans on establishment of some types of industrial plants, etc.

2.2 Limited capability in the acquisition and transfer of technology.

2.2.1 Thailand continues to rely on imports of technology in various forms, costing an increasing amount of money annually. But the capability to acquire technology is still limited as the small and medium-scale industries tend to be at a disadvantage in terms of pricing and other business constraints. This is because they lack sources of data and information on technology, as well as bargaining power and appropriate financial support.

2.2.2 Diffusion of technology and technical knowhow is still limited. Normally, parent companies will transfer technology or technical knowhow only to clients or subsidiaries in foreign countries. Therefore, small and medium scale companies in Thailand will generally not get the benefits of the technology transfer, and will not be able to act as sub-contractors in producing the desired parts. As a result, imports of parts and necessary materials from foreign sources continue to be a necessity. In some cases, it is also necessary to bring in foreign companies to act as sub-contractors in producing some parts.

2.2.3 Large-scale industries and state enterprises, which import equipment and materials, and which rely on high technology from foreign countries, do not sufficiently recognize the importance of building up local capability in acquiring, selecting, and absorbing technologies imported from foreign countries.

2.3 Manpower in science and technology is inadequate both in terms of quantity and quality.

2.3.1 The rapid economic expansion, and the changing production structure, which is increasingly oriented towards the industrial, services and modern agricultural sectors, have led to severe shortages in science and technology manpower, particularly engineers, technicians and skilled craftsmen. During 1987-1989, shortage of engineers alone was estimated to be 5,000. During the Seventh Plan period it is estimated that demand for such manpower will be even greater.

2.3.2 There have been increasing problems of braindrain of personnel from the government and state enterprises to private business and industry. Particularly acute is the problem of braindrain of university professors in science

and technology, who are key "producers" of new generations of scientists and technologists. Furthermore, given the greater needs in research and development activities, demand for highly qualified personnel in science and technology can only increase, thereby exacerbating the existing problem of shortages further.

2.4 Research and development activities and basic facilities and support services for development of science and technology are still not strong enough to readily absorb foreign technology, or to have sufficient degree of self-reliance for indigenous technological development.

2.4.1 Most of the research and development activities are conducted by the public sector, and are scattered in various places. Research results have generally not been effective in solving basic problems. Newer areas of research activities tend to be carried out in isolation, and are unrelated to the industrial sector. Therefore, research results are not applied commercially. With regard to the private sector as users of research results, they are still not sufficiently aware of the importance of research and development because of the lack of positive measures and incentives from the government to encourage them to invest in this field.

2.4.2 Other supporting services, such as metrological service, analysis and testing standards, and product quality accreditation, are provided by several agencies, which still lack capability and efficiency to offer speedy services in response to the increasing demand.

3. Targets for science and technology development

In order to promote application of appropriate technology to enhance productivity, increase international competitiveness, strengthen capability to acquire and transfer technology from foreign countries, develop science and technology manpower in shortage areas both quantitatively and qualitatively, and develop basic services in science and technology to be conducive to indigenous technological development, the following targets have been set.

3.1 Develop and use technology to increase productivity in agriculture and industry

3.1.1 Increase productivity of the industrial sector at an average rate of 2.6 percent per year during the Seventh Plan period in order to support the target growth rate of 9.5 percent of the industrial sector.

3.1.2 Increase productivity of the agricultural sector from an average of 1 percent per year during the Sixth Plan period to 1.8 percent per year during the Seventh Plan period in order to support the target growth rate of 3.4 percent of the agricultural sector.

3.2 Expand capacity to develop manpower in science and technology in various fields to achieve targets by the last year of the Seventh Plan in the following fields.

3.2.1 The proportion of engineers to increase from 9.8 per 10,000 population to 14.9 per 10,000 population.

3.2.2 The proportion of scientists to increase from 7.2 per 10,000 population to 10.2 per 10,000 population.

3.2.3 The proportion of agricultural experts to increase from 6.7 per 10,000 population to 10.5 per 10,000 population.

3.2.4 The proportion of technicians to increase from 141.5 per 10,000 population to 221.5 per 10,000 population.

3.2.5 The proportion of researchers in science and technology to increase from 1.4 per 10,000 population to 2.5 per 10,000 population.

3.3 Increase budget for research and development to 0.75 percent of GDP by 1996. The public sector will account for 0.50 percent of GDP, representing about 2 percent of annual budgetary allocations, while the remaining 0.25 percent of GDP will be accounted for by the private sector.

4. Guidelines and measures for development of science and technology

4.1 Stimulate the industrial sector to intensify application of technology to increase productivity, via the following measures.

4.1.1 Create a competitive environment by reducing protection to domestic industry, including readjusting protection level, removal of ban on new entrants to selective industries, relaxing import control and reducing the high levels of customs duties etc.

4.1.2 Create a favorable atmosphere by reducing tariff rates for equipment used in laboratories, measurement and testing instruments, and computer-aided manufacturing (CAM) to similar levels as rates on machinery.

4.1.3 Encourage and promote wider use of important technologies for industry, such as management technology, computer-aided design and computer-aided manufacturing (CAD/CAM), energy conservation, waste management and quality control, together with provision of information services and calibration service of measuring instruments, and product testing under international standard.

4.1.4 Amend government rules and regulations to enable technological promotion organizations of the public sector to have flexibility and to operate in an efficient manner as in private organizations, including permission to keep income from provision of services to purchase other necessary equipment and permission to offer other services etc.

4.1.5 Support development and technological application in specific fields in order to enhance production efficiency of the so-called target industries in the following ways.

(1) Machinery and metal working industry. Emphasize development of metal working technology to strengthen capability to undertake sub-contract work, such as in production of parts. Promote use of high precision technology to increase efficiency of mold and die industry and production of machine tools. Develop knowledge and designing skills of machinery and machine tools, as well as set up centers of excellence in each area of metal work.

(2) Electronics industry. Encourage investment in application of high technology, such as integrated circuit fabrication, and production of automatic branch exchange (PABX). Support joint public and private research and development activities in producing prototypes, which do not involve high technology, but which have high market potential, such as personal computers, mobile telephones, and application-specific integrated circuit. Promote skill acquisition and knowledge in product design, together with setting up of center of excellence in electronics technology.

(3) Textile industry. Support use of modern machinery to reduce production costs of spinning and weaving industries. Promote development of finishing technology, especially in bleaching and dyeing for high quality products, as well as develop modern management technology.

(4) Food industry. Support research in basic knowledge concerning raw materials, post harvest technology, processing technology, food formula. Improve quality of food, to ensure hygienic, sterilized and contamination-free food, and promote quality control and production management, together with research on industrial waste recycling.

(5) Plastics industry. Promote development of compounding technology to support development of intermediate and engineering plastics for industrial use, as well as enhance efficiency of machinery.

(6) Iron and steel industry. Support development of melting quality, cost reduction in melting, efficient use of melting furnace, as well as technological development of alloyed steel production, and alloyed steel casting.

(7) Gems and jewelry industry. Promote research on precious materials for jewelry industry, as well as issue gems color and clarity certification.

4.2 Promote use of modern technical knowhow, together with efficient use of resources to increase productivity and reduce production costs of the agricultural sector, via the following.

4.2.1 Formulate measures to maintain stability of commodity prices, and to keep price level on an increasing trend, as well as set quality standard and commodity prices to induce agricultural workers to make use of technology to increase productivity.

4.2.2 Support agricultural cooperatives and agricultural groupings in various forms to promote quality development, and cost reduction to raise awareness about the importance of technological application.

4.2.3 Improve organizational structure of agricultural technical services to ensure that government personnel have adequate capability to supervise and solve technical problems of agricultural workers in each locality.

4.2.4 Increase private sector role in developing and transferring technology to agricultural workers by encouraging business activities in the form of contract farming and joint ventures in agroindustry to enable agricultural workers to benefit from newer forms of technology.

4.2.5 Formulate measures to develop and transfer technology to increase agricultural productivity as follows.

(1) **Farming.** Support use of new technologies, such as genetic engineering and tissue culture to improve quality of plants. Promote appropriate and correct use of agricultural technology, plant protection, and harvesting methods, emphasizing correct use of chemical products, utilization of biological products and biological control, development of agricultural tools and equipment suitable to each locality, as well as carry out studies about system or process of preservation, processing and packaging.

(2) **Livestocks.** Improve artificial insemination technology and embryo replanting of beef breeds and dairy breeds to ensure maximum efficiency at minimum costs for stocks and feed production. Furthermore, provide basic knowledge about imported pureline cow breeding for small-scale agricultural workers as well as improve process of slaughter, control of waste water treatment and maintenance of hygienic conditions of slaughterhouse.

(3) **Fisheries.** Formulate plans and lay down measures to conserve aquatic resources, particularly marine lives. Carry out research and development in artificial insemination of fish and other aquatic animals. Develop post-fishing technology and technology to process aquatic animals to attain quality level demanded by the market. Finally, develop technology to protect as well as rehabilitate the environment from the adverse impacts of the fishery industry.

4.3 Increase efficiency in the acquisition and transfer of technology, via the following.

4.3.1 Increase bargaining power in the acquisition of technology.

(1) Formulate plans to promote foreign investment in projects which will be beneficial to technological development in the country. Promotional privileges will be given to activities whose development is desired together with systematic transfer of technology.

(2) Designate an institution with potential to become a center of information on sources of technology, quality, prices, purchase conditions, as well as provide advice, disseminate knowledge about assessment of technological value, selection of technology, negotiations, and promote the private sector to seek their own sources of technological information.

4.3.2 Promote widespread diffusion of imported technology, via the following.

(1) Promote Thailand to become sub-contractor of selective industrial production, by providing a center to link together various production units of industries, creating information system about sellers, sub-contractors and their clients, both inside and outside the country, as well as attempting to match demand with supply.

(2) Provide financial support to small and medium scale industries to improve the application of technology and to relocate to industrial estates in order to benefit from technology transfers among each other, as well as from larger-scale industries.

(3) Encourage industrial estates, or industrial zones to provide land, and central instrument and equipment institute, with facilities, such as testing equipment and computer-aided design for small and medium scale industries so that they can be more conveniently linked with large-scale industrial plants. These promoted industrial estates and industrial zones should also receive financial assistance.

(4) Formulate measures to disseminate knowledge and technology generated from promoted foreign firms to Thai enterprises and educational system, such as the use of consultants and foreign experts as resource persons in the conduct of research and development activities, etc.

4.3.3 Encourage state enterprises which purchase hardware and materials from abroad on a regular basis to develop capability in the selection and learning about foreign technologies, via the following.

(1) Support provision in purchase contracts requiring sellers of technologies to transfer important aspects of technologies to the Thai side.

(2) Allocate budget for research and development concerning specification of types and patterns of materials and hardware to be purchased, together with assessment of new technological development in order to enhance capability to acquire technologies.

4.3.4 Monitor results of technology transfers, particularly from large-scale projects, by designation appropriate agency and mechanism to set targets and monitor results.

4.4 Develop science and technology manpower to support economic growth and self-reliance in technology by carrying out the following measures.

4.4.1 Accelerate development of engineers, scientists, mathematicians, and technologists in areas with high demand. The following measures are proposed.

(1) Encourage public educational institutions to speed up manpower development in fields of high demand, including mathematics, mechanical engineering,

electrical and electronics engineering, metallurgical engineering, petrochemical engineering, agro-industrial engineering and industrial design, etc.

(2) Devise measures to enable temporary hiring of qualified personnel from the public and private sectors as well as from abroad to relieve existing shortages of teaching personnel in higher education.

(3) Encourage the private sector to develop manpower in areas of shortage by relaxing government controls and revising rules and regulations to give flexibility in the administration and management of private education services.

(4) Encourage private sector participation in educational planning, manpower production, curriculum development and skill training to ensure that graduates will have the quality and qualifications which are more consistent with the labor market demand.

(5) Support measures to expand opportunities of basic education to enable as many children as possible to complete lower education level during the Seventh Plan period, which will provide a substantial pool of better quality students with better quality to pursue higher education in science and technology.

4.4.2 Accelerate development of technicians and skilled workers in areas of shortage to ensure adequate supply of manpower at quality acceptable to the market, via the following.

(1) Upgrade status of technicians, and skilled craftsmen to attract capable students to these fields of studies.

(2) Encourage close cooperation between educational institutions and industrial enterprises to improve teaching methods to keep up with technological progress and to respond to needs of the labor market.

(3) Encourage schools to undertake some industrial projects to increase experience and enable greater field work for the students in industrial factories.

(4) Expand scope of cooperation between educational institutions and industrial establishments to encourage more technical education for factory workers and more practical training in actual factory settings for students.

(5) Support a system for testing of skill levels to enable technicians and skilled craftsmen to have long-term professional development.

4.4.3 Speed up production of university professors and researchers in shortage areas, via the following.

(1) Increase number of post-graduate students at master and doctoral levels at leading universities in foreign countries.

(2) Support increase in the number of officials and government employees in science and technology, who are in short supply.

(3) Develop domestic higher education institutions to enable them to produce graduates in science, mathematics, and technologies at internationally acceptable quality level, emphasizing cooperation with well-known foreign educational institutions.

(4) Encourage utilization of foreign experts or Thais living abroad to teach, conduct research and development activities, and to act as instructors or resource persons in training programs. Incentives will be provided in the form of relaxation of personal income tax and facilitation of granting of work permits.

4.4.4 Place high priority on training by implementing the following.

(1) Establish a system of public and private sector cooperation in the provision of skill training programs to respond to the needs of the industrial sector, as well as stimulate the private sector to organize their own training programs by setting up a skill development fund.

(2) Invite foreign governments, multinational companies, and leading foreign institutions to organize special training programs for Thai personnel in areas facing critical shortages, such as research administration research supervisors and researchers.

(3) Encourage science and technology personnel to have training opportunities, and to regularly participate in technical seminars to keep up with advances in technical knowledge.

4.4.5 Improve working environment of the technical professions, particularly teaching, research and development to maintain high quality personnel within the government system, via the following measures.

(1) Improve the administrative system and operational procedures of research institutions, higher education institutions, public agencies, and state enterprises to encourage flexibility in management of finance, personnel and procurement of supplies.

(2) Improve salary scales or grant special compensatory rewards to engineering and science faculty members, together with personnel in crucial fields in shortage areas.

(3) Encourage higher education institutions and research organizations to have more regular interchanges or secondments of personnel across organizations or institutions to increase experience and to enhance efficiency of research personnel. Furthermore, consider measures to allow personnel of public agencies to carry out projects of technical nature with private organizations without violating government rules and regulations.

(4) Encourage cooperative efforts among high quality research personnel to jointly undertake challenging work, which will enhance their skills as well as benefit the country, for example the organization of national research and development projects, specialized research institutions, science and technology parks, etc.

4.5 Rearrange research and development system to support national development, particularly in industrial development in the following ways.

4.5.1 Formulate policies and research and development programs to be consistent with the stages of industrial development as follows.

(1) Emphasize the importance of research and development activities for selection, modification and improvement of imported technologies, particularly design and product development technologies.

(2) Encourage frequent reviews of policies and research and development programs to increase efficiency and consistency with industrial development.

(3) Encourage setting up of an accounting system for research and development activities in the public and private sectors and state enterprises for effective promotion and monitoring of results.

4.5.2 Improve efficiency of public research and development institutions in order to effectively solve technological problems of industry.

(1) Encourage research institutions to operate in closer connection with industrial and business enterprises by inviting private sector representatives to serve as executive committee members. Establish a joint mechanism with the private sector to identify research topics and formulate operational plans, and to persuade the private sector to use these services.

(2) Improve organization of public research institutions to have more specialized functions to ensure increasing support in terms of personnel and equipment in order to enable the institutes to become "centers of excellence", capable of providing technological support to industry in specialized areas.

(3) Amend rules and regulations to encourage operational flexibility and to attract highly capable personnel to join research institutions, and reduce taxes for research and development related equipment within public institutions.

4.5.3 Encourage research activities in educational institutions to enable them to become national centers of knowledge in science and technology.

(1) Promote greater research and development activities within higher education institutions by providing support from public funds for promotion of research and development.

(2) Support research and development activities by master and doctoral degree students by following guidelines of national research and development plan, and by publicizing research results leading to their commercialization.

4.5.4 Promote private sector role in research and development.

(1) Provide tax incentives, such as permission to deduct expenses incurred in research and development activities from corporate tax calculations. This deductible amount may be as high as 1.5-2.0 times the actual expenses, together with deduction of depreciation costs of research and development equipment at progressive rates. Furthermore, provide tax exemptions or reduce import duty rates on machinery, measuring instruments, parts, raw materials and other materials, together with sample products used in testing analyses and other research and development activities, etc.

(2) Provide financial incentives to encourage private sector participation in technological development, such as low interest loans, and counterpart funds for research and development activities. Support establishment of venture capital which will encourage use of research results or new technologies for business operations. Finally, support the establishment of a joint public and private sector fund for research and development.

(3) Provide other incentive measures, such as the improvement of procurement and employment contracts of public agencies and state enterprises to open up new markets for domestically produced goods, together with protection of intellectual property rights.

(4) Expand scope of research and development in technology to cover quality control, improvement of factory plans, and application of research and development results for commercial use.

4.5.5 Promote development of research and development profession.

(1) Improve career prospects of researchers to the highest positions comparable to top administrators in the bureaucratic system. In the academic setting, researchers should also be ensured of promotions to top academic posts while continuing to conduct research.

(2) Researchers and inventors with socially beneficial achievements and inventions should be publicly recognized and awarded with citations and praise for their work. They should also be given official promotions in their work.

(3) Scientists, inventors, and those involved in research and development activities should be considered as engaged in independent employment as stipulated in the revenue code in order to benefit from expense deductions in the calculation of personal income tax.

4.6 Other basic infrastructural development to support application and development of technology as follows.

4.6.1 Develop metrology system, product standard, and increase efficiency analysis and testing.

(1) Speed up development of metrological system in science in order to gain international acceptability by supporting agencies, which have been assigned responsibilities, with resources including equipment, manpower, and upgrading of the quality of personnel. Formulate joint long-term plans agencies engaged in research and development of metrology, and provide investment promotion in the import substitution production of measuring and testing instruments.

(2) Speed up product standard specification to ensure adequacy and consistency with domestic industrial development, consumers' demand, and testing equipment. Furthermore, the government should also set up a nationally unified system which will include both testing and quality accreditation system, consistent with operational procedures, and which conforms with international standards.

(3) Encourage and speed up public and private sector operations involving the enhancement of productivity of analysis and testing, development of system for testing laboratory accreditation, calibration procedure of test instruments, as well as various analysis and testing instruments. These standards should be made internationally acceptable and capable of providing services demanded by industries. Finally, there should be tax reductions on equipment used in analysis and testing.

4.6.2 Develop information and data systems in science and technology by setting up a system of extensive networks capable of providing information services required by users, as well as dissemination and utilization of data and information, particularly information on patents.

4.6.3 Enhance capability of engineering consultancy services by providing financial assistance and relevant information to Thai engineering consultancy firms to enable them to compete with foreign firms in bidding on important national projects.

4.6.4 Create environment and awareness conducive to development of science and technology.

(1) Promote role of associations related to science and technology in creating appropriate understanding and obtaining cooperation of people from various professions, together with disseminating knowledge, and creating an environment for development of science and technology.

(2) Revise curriculum and teaching as well as learning methods in both formal and non-formal school systems to encourage greater application of technology in daily life. Students should be encouraged to take an active interest in pursuing science as a subject by improving the learning environment in schools through the increased provision of scientific instruments for experimentations, etc.

Chapter 5

Infrastructural development

1. Results of past development

1.1 During the Sixth Plan period (1986-1991), development of infrastructure services had closely followed the Plan guidelines. This included fuller utilization of existing facilities, connections of networks of services, upgrading of quality of services, increasing private sector role in investment and increasing efficiency of services, improvement of management and operation of public agencies, readjustments of the pricing structure of services, and amendments as well as revisions of rules and regulations which are obstacles to development. The total investment outlay came to 344 billion baht, which is about twice the size of investment during the Fifth Plan period. Nevertheless, implementation of a number of these investment projects has taken a considerable amount of time. Furthermore, the government has had numerous constraints hindering effective implementation of various projects. In particular, the increasing private sector participation in provision of selected infrastructure services has faced a great deal of delay, resulting in increasing shortages of services. In addition, the extremely high economic growth rates, which far exceeded the target growth rates, only exacerbated the shortages of services and have led to critical bottlenecks for future development in the following ways.

1.1.1 Transportation. The network of services is still incomplete and inadequate and unable to offer efficient, convenient and rapid service. Particularly serious is the problem of heavy traffic congestion. Although a number of crucial infrastructure projects have been started, such as Laem Chabang commercial port, outer ringroad around Bangkok Metropolis, the second stage expressway, and the elevated tollway etc., their actual implementation takes a great deal of time. A number of these projects have been facing delays at various stages of implementation, particularly the increasing private sector role in the provision of infrastructure services.

1.1.2 Telephone. The waiting list is still as long as 1 million despite the increase in telephone numbers from 800,000 at the end of the Fifth Plan period to 1.8 million. The proportion of telephone numbers per population is still at 3 per 100 population, compared with an average of 9 per 100 population in other ASEAN countries.

1.1.3 Water supply. Water supply is still inadequate. In Bangkok, the production capacity is deficient by about 400,000 cubic meters per day. In the region, the geographic coverage of service is still incomplete.

1.1.4 Housing. There are still at least 190,000 housing units, whose conditions need to be improved and upgraded, while, during the Sixth Plan period, only 30,000 housing units in slum communities had been upgraded.

1.2 Past infrastructural development faced with a series of problems and obstacles which may be summarized as follows.

1.2.1 Monopoly of services by the public sector, constraints on investment and on private sector role.

The majority of infrastructure services are still monopolized by public agencies, most of which have investment constraints, and have been obliged to rely largely on foreign borrowing. Therefore, the expansion of services cannot be speedily carried out. At the same time, the private sector cannot readily participate in investment in the provision of services as there are still legal constraints hindering their effective participation.

1.2.2 Lack of efficiency in administration and management.

The majority of infrastructure services are run by public agencies, and are, therefore, rigidly controlled by a host of rules and regulations and complicated operational procedures. This has resulted in a lack of flexibility causing delays in project implementation and thus, hindering or slowing down development of other sectors. Although during the past years, there have been attempts to improve the organizational structure, and enhance operational efficiency of state enterprises to make them more business-oriented, the problems require a long lead time to solve. Therefore, during the Sixth Plan period, not enough progress in the infrastructure area has been made.

1.2.3 Lack of long-term plan.

Most of the agencies providing services do not formulate long-term plans for expansion of infrastructure networks, taking into account quality improvement to reflect market demand. There is also a lack of coordination of plans among relevant agencies, causing problems both at the stages of project approval and actual project implementation.

1.2.4 The quality of some infrastructure services does not meet international standard.

Selected infrastructure services are not of sufficiently high quality to meet present-day needs which develop and evolve with technological progress and contribute to effective international competition. Examples of these services include the transportation system and traffic congestion, domestic and international telephone systems which do not offer convenient services, and the irregular water service.

1.2.5 Lack of a central body at the policy level to coordinate various networks into a system.

(1) *Transport.* Responsible agencies within the transport sector still lack coordination of networks in various forms to become an integrated system.

(2) *Communications.* The Telephone Organization of Thailand (TOT) and the Communications Authority of Thailand (CAT) still lack effective coordination, and have overlapping responsibilities and duplication of services

(3) *Water supply.* The development of raw water resources is dispersed in various public agencies without a core or central agency to formulate administrative and management policies.

1.2.6 Prices and rates of services do not reflect actual production costs.

The procedure to determine price levels is neither sufficiently flexible nor responsive in the business sense. It is highly dependent on the political situation, instead of actual production costs. Therefore, increase in operational efficiency, and improvement of services is difficult to implement. In some cases, it was even necessary to provide public subsidies to some of these services.

1.2.7 Pollution and environmental problems.

Expansion of basic services in the past did not seriously take account of prevention and solution of pollution and other environmental problems. This has led to acute deterioration of the environment, which has become very difficult to solve, such as waste water treatment problems, and air pollution problems caused by traffic congestion etc.

1.2.8 Lack of personnel.

Personnel in charge of the provision of basic services is inadequate in terms of both quantity and quality, particularly in the case of engineers, technicians, and administrators. Therefore, development and expansion of some types of services could not be effectively carried out, particularly with respect to the improvement of quality and efficiency.

2. Targets of infrastructural development.

Infrastructural development policy during the Seventh Plan period will emphasize expansion of investment in the provision of basic services to ensure adequate quantity of supply at sufficiently high quality to meet the demand of the industrial sector and of general economic expansion. It will be crucial to speed up implementation of the policy to increase private sector participation in the provision of basic services, together with improvement of public sector operations, by relaxing certain rules and regulations and by doing away with unnecessary steps and stages of various investment projects so that they can be speedily and efficiently implemented. Consequently, the following targets for development of infrastructure services during the Seventh Plan period have been proposed.

2.1 Transport.

2.1.1 Increase capability and efficiency of the transport sector to

provide services which are convenient, rapid, safe and at lower costs, to support development of other sectors and enhance international competitiveness of the Thai economy to ensure appropriately high sustained economic growth.

2.1.2 Utilize the transport sector as accelerator or catalyst of development, leading to dispersion of development benefits to the regions and a better quality of life of the people.

2.1.3 Emphasize safety and quality of land, sea and air environmental conditions.

2.2 Communications.

2.2.1 Expand telephone services to satisfy all the requests for services by the end of the Seventh Plan period.

2.2.2 Increase the proportion of phone numbers to no less than 10 per 100 population by the end of the Seventh Plan.

2.2.3 Upgrade quality of domestic and international communications services to attain international standards.

2.2.4 Set up common communications services utilizing the digital system to respond to business needs and support enhancement of the international competitiveness of the Thai economy.

2.3 Water supply.

2.3.1 Provide adequate water supply to meet the needs of urban and industrial growth, particularly in areas with intensive development activities and new economic zones.

2.3.2 Expand water production capacity in Bangkok Metropolis from 2.8 to 4.5 million cubic meters per day by the end of the Seventh Plan.

2.3.3 Expand water production capacity in the regions from 1.3 to 2.9 million cubic meters per day by the end of the Seventh Plan.

2.3.4 Undertake survey and construction of rural water supply in 15,856 villages.

2.4 Housing.

2.4.1 The government will provide housing in line with the expansion of Bangkok Metropolis, regional cities, and new economic zone development, totalling 112,000 units during the Seventh Plan period, emphasizing housing for the low-income and workers in industrial plants. This may be broken down as follows:

- (1) 65,000 units in Bangkok and vicinity towns;
- (2) 47,000 units in the regions.

2.4.2 Upgrade 80,000 households in urban slums and set up an efficient community management system with the following breakdown:

- (1) 73,000 households in Bangkok and vicinity towns;
- (2) 7,000 households in the regions.

3. Guidelines for infrastructural development.

3.1 General guidelines.

3.1.1 *Support private sector investment and expand scope of funds mobilization.*

(1) Amend laws obstructing private investment in the provision of basic services.

(2) Designate an organization, as well as formulate criteria, methods of work and clear steps of operation for consideration of private sector role in providing various forms of basic services to ensure actual implementation.

(3) Encourage sub-contracting of certain public services to the private sector as well as hiring the private sector to administer portions of selected public projects or activities.

(4) Improve methods to mobilize greater funds for infrastructure services via the following.

(4.1) Emphasize equity financing as opposed to debt financing.

(4.2) Support transformation of status of some state enterprises into limited companies by diversifying partial or total shares for sales to the public through the Securities Exchange of Thailand, or by direct sales to the employees or the general public.

(4.3) Support capital mobilization through sales of bonds.

(4.4) Support establishment of joint ventures with the private sector for specific objectives.

3.1.2 *Improve operational efficiency of agencies providing infrastructure services.*

(1) Improve organizational structure, administrative system and operation of public agencies involved in provision of basic services to enable them to have managerial flexibility, and to become more business-oriented. Emphasis will also be given to development of the information system, formulation of investment plan and corporate plan to serve as framework for administration and operation.

(2) Revise rules, regulations, criteria, restrictions and reduce unnecessary steps of the government to support flexibility and speed in consideration

of projects and to be conducive to a more business-oriented approach in the provision of services, as well as set up an efficient monitoring and evaluation system.

3.1.3 Organize long-term planning and plan coordination system.

(1) Require public agencies which provide infrastructure services to formulate long-term plans covering periods of 10-20 years to serve as principal frame for expansion of work and determination of future projects.

(2) Designate a specific organization to be responsible for the long-term planning of various agencies to ensure consistency and mutual support.

3.1.4 Improve pricing procedures to ensure a fairer and more appropriate determination of price levels.

(1) Support setting up of a permanent body which is independent from political intervention to supervise and determine price levels for each type of infrastructure services to reflect actual production costs in order to encourage an efficient use of services and to be fair to both the suppliers and users of services.

(2) Include a provision which will allow for special pricing policy of selective services for the poor and the underprivileged, such as special supporting budget for upgrading of housing in urban slums.

3.1.5 Set up a system for the prevention as well as solution of pollution problems and protection of the environment.

(1) Require construction of infrastructure facilities having adverse environmental impacts to devise a system to prevent possible environmental problems and to include expenses of such a preventive program in the actual production costs of the project.

(2) Formulate a master plan for waste water treatment system and garbage disposal facilities emphasizing the following issues.

(2.1) Determination of pattern of capital mobilization and joint ventures with the private sector.

(2.2) Supervise and seriously enforce punitive measures for those causing environmental destruction.

(2.3) Collection of fees for waste water treatment and garbage disposal services should cover costs of investment and maintenance of the services, and local public agencies should be given supervisory responsibilities.

3.1.6 Develop personnel necessary for development of infrastructure services.

Accelerate the development of personnel, particularly engineers and technicians to be consistent with demand in terms of both quantity and

quality. Educational and training institutions of the public and private sectors will be given necessary support.

3.2 Development guidelines by sectors

3.2.1 Transport

(1) Solution of traffic congestion problems and organization of urban transport system.

(1.1) Speed up construction of ringroads around the city and alternative routes bypassing the city for large urban areas and for those who have no need to get into city center, which should help reduce traffic congestion in the inner core areas.

(1.2) Speed up construction of secondary roads in the outskirts of Bangkok Metropolis, together with networks to be connected with the main roads in a systematic manner.

(1.3) Construct a central passenger transit center with an integrated network connecting all modes of travel from train, mass transit rail system, air travel to bus services to facilitate intermodal connection of all means of transport.

(1.4) Speed up construction of elevated rail tracks, mass transit rail, community rail and expressway services, while ensuring consistency and coordination with other road networks, as well as facilitate greater use of expressway system by public buses, together with provision of bus stops where appropriate.

(1.5) Enforce restrictive measures and organization of traffic system to reduce use of private passenger vehicles by encouraging greater use of mass transit system, as well as ensuring the most efficient utilization of road space, such as the enforcement of parking bans, and improvement of traffic control at intersections to support greater traffic flows etc.

(1.6) Construct public truck depots in appropriate locations for transport of goods in city areas.

(1.7) Encourage passenger transport services along the Chao Phraya river and other interconnected canals in Bangkok Metropolis and other vicinity towns in a systematic manner. The government or in cooperation with the private sector will jointly construct modern and safe water transport service stations for passengers, together with other facilities and services, such as access roads, car park and bus stops.

(1.8) Improve organization and mechanism related to the solution of traffic problems to encourage more efficient supervision and coordination.

(1.9) Promote public and private sector cooperation to alleviate environmental problems caused by the traffic situation, including polluted air, excessive noise level, dust particles, and scenery. There must be a clear work plan for prevention and solution of environmental problems, the costs of which should be included as part of investment expenses of the project.

(2) Land transport

(2.1) Develop networks of inter-urban expressways, or special highways with controlled entries and exits to enhance efficiency of the transport system and contribute to dispersion of development benefits to the regions.

(2.2) Develop transportation by road, high speed rail and pipeline systems to meet the requirements of new economic zone development in a timely manner.

(2.3) Develop road and rail networks to respond to the demand of the expanding industrial and agricultural sectors by constructing, improving and upgrading road standards to link sources of raw materials, production units and consumers together.

(3) Water transport

(3.1) Develop and promote Thai merchant marine system by carrying out studies for long-term planning in development of the fleets and the number of docks, both in quantity and quality terms. Furthermore, encourage joint ventures with foreign companies and open up new shipping routes, together with establishment of Freight Booking and Cargo Consolidation Center, as well as coordinate air and sea transport services in order to boost efficiency in marketing of services, together with an adjustment of relevant tax measures in order to develop and promote the Thai merchant marine system.

(3.2) Increase capacity of international seaports in accordance with development guidelines of coastal areas, designated as having high priority.

(3.3) Accelerate improvement of work on planning, policy coordination and operation in connection with development of seaport, merchant marine and coordination of networks to transport system and services which are port-related to ensure systematic and efficient movements of goods into and out of the seaport.

(3.4) Develop international seaports for maximum utilization by developing related infrastructure facilities, such as road, rail, inland container depot (ICD), together with prior marketing exercises to fit in with timing of opening of port services.

(3.5) Promote the private sector to invest in construction and operation of boat/ferry services for tourism. The government will facilitate private sector operation by the relaxation of rules and regulations, and will provide other related infrastructure support.

(3.6) Encourage greater use of rivers, canals and coastal areas for transportation of goods and passengers, particularly for seaport which has already been constructed. In the latter case, the government must ensure maximum utilization of the port as soon as possible by promoting private sector role in administration and management of selective services.

(4) Air transport

(4.1) Promote Thailand to become air transportation center of the Southeast Asian region with the following development guidelines.

4.1.1 Enhance capacity of the existing international airports, and the newcoming one to provide convenient services both for passengers and cargoes, and upgrade quality of services to be comparable to international standards.

4.1.2 Encourage foreign airlines to increase their regular flights to Thailand, particularly at the international airports in the regions, both in terms of number of airlines and numbers of flights.

4.1.3 Expand and upgrade infrastructural facilities which are connected to airports, such as networks of roads, trains, seaport, oil pipeline, communications system, as well as adequate and efficient transport services to facilitate inbound and outbound traffic to and from the airports to the cities, special economic zones and tourism areas.

4.1.4 Increase efficiency in management, and development of airlines by seeking cooperation from neighboring countries in this region to coordinate and adequately link air traffic control systems to ensure maximum safety.

4.1.5 Encourage and facilitate air travel into Thailand for tourism purposes, both for visits inside the country and as an extended stopover prior to visits of locations of tourist attractions in neighboring countries.

4.1.6 Encourage cargo transport system which is transferable between sea and air modes both for imported and exported cargoes and bulk cargoes to attract greater cargo traffic through Thailand.

4.1.7 Consider construction of the second Bangkok international airport to relieve burdens of Bangkok airport. The second international airport construction will have to be consistent and harmonious with urban development, development of airport-related activities, development of appropriate and convenient networks, together with control of environmental impacts based on international standards, particularly in the control of noise levels. In addition, the pattern of development and provision of services should emphasize flexibility in terms of operation and investment by considering granting opportunities to the private sector to participate in the development.

(4.2) Increase efficiency in Planning, administration, management and investment methods.

(4.2.1) Formulate long-term plans covering a 15 year period for development and investment of various public agencies to ensure a systematic approach with higher standard. The coverage will not only be confined to airports and airlines, but will also include networks of transport and communication services and other related activities, such as tourism; investment and export promotion, as well as development of personnel related to air travel activities, and development of air technology. In addition, emphasis should also be given to the development of a planning body of a more permanent nature to ensure continuity and efficiency of operation.

(4.2.2) Restructure organizations involved with air transport, such as the Thai Airways International Ltd., the Airport Authority of Thailand and the Aeronautical Radio of Thailand Ltd. to assume a more commercial-oriented approach in terms of management, operation, organizational improvement,

as well as investment method, particularly in increasing the role of the private sector in development in various ways, such as granting of concessions, joint ventures, resource mobilization from the general public, and granting of private investment and operation in selective activities.

(4.2.3) Support establishment of training institutes of personnel related to air transport in all sectors within Thailand to serve as center for training and upgrading of quality and efficiency of personnel to attain ever higher standard. In this regard, the private sector should be given a greater role in this development.

3.2.2 Communications

(1) Revise rules and regulations on communications services.

(1.1) Amend laws to keep up to date and to be consistent with the rapidly changing communications technology.

(1.2) Amend laws to facilitate a greater private sector role in joint investment with the public sector in the expansion of principal and supporting services, particularly the encouragement of the private sector to invest and operate selective supporting services.

(1.3) Improve rules and regulations governing the operation of public agencies for better clarity to increase operational efficiency, and do away with duplication of investment in the provision of services.

(2) Improve operational efficiency

(2.1) Formulate a long-term master plan covering a period of ten years for the development of national communications services to serve as a frame for communications development which has continuity and clear targets, consisting of demand projection, expansion of networks of various types of services, organizational development, communications technology development, production and development of personnel and information technology.

(2.2) Improve management system and operation of public agencies which provide services to encourage flexibility and greater unity.

(2.3) Establish a high level regulatory body under the law, and which is independent, comprising representatives from the public and private sector to formulate policies covering various aspects of communications, including determination of pricing of services to ensure fairness to providers and users of services, as well as coordination of work programs in communications services. In the initial stage, a National Committee for Communications may be set up based on the authority of the executive branch.

(2.4) Speed up development of personnel in communications, particularly engineers and technicians to serve both short-term and long-term

needs and develop a personnel training institute, as well as improve salary structure to a realistic level to prevent shortages of personnel.

(3) Adjust pricing structure as appropriate.

Determine rates of service fees to reflect actual production costs. A particularly important example is international phone rates which should be maintained at a level which is internationally competitive, and which will support investment in other sectors, such as industry and services etc.

(4) Encourage and support research and development in telecommunications technology.

Encourage research and application of research results in telecommunications for greater commercial utilization to support industry producing telecommunications equipment and parts.

(5) Encourage use of information technology.

Formulate a national information plan to serve as guidelines for development of the information industry consisting of information industry, software industry, telecommunications services industry and industry producing computer and telecommunication parts and equipment.

(6) Ensure efficient radio frequencies management.

(6.1) Control and supervise application of radio frequencies for use in communication services only in necessary cases, and institute regulations for use of radio frequencies to ensure maximum efficiency.

(6.2) Control ad-hoc communication networks and permit expansion only in important cases. The main network should be utilized to the full first to avoid duplication of investment and wasteful use of resources.

(7) Improve public relations work.

7.1 Formulate public relations plan of the government, emphasizing use of radio and television as main media for dissemination of information and news, and to create understanding of government policy and development projects among the people.

7.2 Improve production of programs emphasizing areas which are of productive use in education and quality of life enhancement.

3.2.3 Water supply

(1) Development and procurement of raw water resources.

(1.1) *Organize an integrated coordinating mechanism* starting from the stage of development and procurement of raw water resources, water distribution system, production plan, and sales and distribution of water supply.

(1.2) *Designate scope of responsibilities of related agencies*, together with encouragement of a greater private sector role.

(1.3) *Formulate criteria for sharing of investment burdens*, and determine rates of raw water to reflect production costs.

(2) *Improvement of watersupply*

(2.1) *Improve efficiency of existing water supply and construct new plants* to expand production capacity and upgrade quality of service to adequately meet demand, particularly in areas with high development potential.

(2.2) *Determine water rates to reflect production costs in each locality*, as well as improve criteria for the calculation of appropriate service charges to ensure fairness to producers and users of service.

(2.3) *Formulate guidelines for promoting and attracting private investment* in the development of water service system for consumption and industrial use.

3.2.4 *Housing*

(1) *Develop land utilization for housing.*

(1.1) *Utilize city plan measures as major guidelines* for regulating land utilization and investment in public utilities which, in turn, serve as guiding indicators for housing development.

(1.2) *Prepare land, or expropriate land for construction of low-income housing* in the development of new economic zones or large-scale projects with impact on housing development.

(2) *Develop organization, increase role and capability in coordination and provision of services of public agencies and local authorities to ensure clarity and efficiency of work* by encouraging the setting up of a central body with permanent status to coordinate policies and operations in the housing field for greater efficiency.

(3) *Develop housing for low-income groups, industrial workers, and urban slum dwellers* in harmony with guidelines for development of the metropolitan region and new economic zones. The government should increase the amount of subsidies to upgrade living standard and quality of life of the people.

Chapter 6

Energy Development

1. Summary of energy situation during the Sixth Plan period

1.1 During the past years, the Thai economy has been growing very rapidly with an average growth rate of 10.5 percent per year, which is considerably beyond the Sixth Plan growth target. The rapid economic expansion has been made possible because of the rapid growth of the export, investment and tourism sectors. Furthermore, the Thai economic structure has been transformed from a rural agricultural society to an increasingly industrialized economy, with some diversification of industrial activities to selective regional urban communities and new economic development zones.

1.2 Such rapid economic expansion has, in turn, led to a rapidly rising demand for commercial energy from 388,000 barrels of crude oil equivalence per day in 1987 to 605,000 barrels of crude oil equivalence per day in 1990, 64 percent of which was accounted for by petroleum demand. By contrast, the level of domestic energy production was only 177,000 barrels of crude oil equivalence per day in 1987, having risen to 250,000 barrels of crude oil equivalence per day in 1990, the majority of which was production of natural gas and lignite.

1.3 As domestic energy demand has risen sharply while domestic production capacity is limited, the volume of imported energy has also grown rapidly, almost all of which is import of petroleum. Therefore, the proportion of imported energy to total energy demand remains high at 60 percent, compared with the target energy import dependency ratio of 49 percent by the end of the Sixth Plan period, thus affecting financial position of the country.

1.4 The past energy situation has indicated major problem areas of energy development, which may have adverse impacts on future economic development if there are no appropriate development guidelines. These problems include the following.

1.4.1 Demand for commercial energy has risen sharply with the following results.

(1) Dependence on imported energy has been rising as in the short run development of domestic energy resources cannot be speedily and adequately carried out, with impacts on the financial position of the country.

(2) Investment in domestic energy development, which has been largely carried out by the public sector, has added considerable financial burden to government, while progress on private sector participation in energy investment has been slow, and is still at the initial stages.

1.4.2 During the beginning of the Sixth Plan period, Thailand had greatly benefited from reductions of world oil prices. But towards the end of the

Sixth Plan, and the beginning of the Seventh Plan, world oil prices have risen and become very unpredictable, which may impact on the financial standing of the country.

1.4.3 The structure and pricing level of energy still do not reflect real economic costs and are not determined by market mechanisms due to political reasons. Therefore, the use of energy has been inefficient and wasteful, particularly in the case of electricity.

1.4.4 Production and utilization of some types of energy has resulted in rapid deterioration of the environment. This is particularly the case in energy consumption by urban vehicles, and in use of lignite for electricity generation, which is expected to increase by four folds during the next 10 years, and can potentially lead to acid rain etc.

1.4.5 The administrative mechanism and operation of some public agencies involved in energy development still lack efficiency to promote energy development to respond to the rapidly rising needs and economic expansion. At the same time, there are also shortages of personnel in selected areas because of high rates of turnover.

2. Targets of energy development

Policy guidelines for energy development during the Seventh Plan period will emphasize procurement of energy to adequately meet the demand by developing domestic energy resources and by increasing cooperation with neighboring countries in developing primary energy resources. In terms of administration and management, the Plan will stress efficient use of energy by deregulating the energy sector to enable the energy market to function according to market mechanism, and to encourage maximum competition, as well as to promote private sector investment and operation in the energy sector. Therefore, the following energy development targets during the Seventh Plan period have been set.

2.1 Increase commercial energy production at a rate of 8 percent per year from 280,000 barrels of crude oil equivalence per day in 1991 to 410,000 barrels of crude oil equivalence per day by 1996.

2.2 Reduce overall growth rate of commercial energy consumption to less than 10 per cent per year during the Seventh Plan period.

2.3 Maintain the level of energy import dependence at 60 percent by 1996.

2.4 Speed up exploration and production of domestic petroleum by setting target of exploration and appraisal wells to be drilled at a minimum of 50 wells during the Seventh Plan period (with an investment outlay of no less than 6,000 million baht to explore new sources of petroleum).

2.5 Increase petroleum refinery capacity from 246,000 barrels per calendar day in 1991 to 740,000 barrels per calendar day by 1996.

2.6 Set targets for domestic production of natural gas, crude oil, condensate, and coal/lignite as follows.

	1991	1996
Natural gas (million cubic feet/day)	760	1,250
Condensate (barrels/day)	22,000	31,000
Crude oil (barrels/day)	24,000	24,000
Coal/Lignite (million tons/year)	14.6	18.5
(1) for electricity generation	12	14
(2) for industrial use	2.6	4.5

2.7 Increase electricity generating capacity by another 5,400 megawatts during the Seventh Plan period, and set targets for use of fuels in electricity generation as follows.

	1991	1996
Natural gas : GWh	19,900	31,950
million cubic feet/day	566	780
Lignite : GWh	12,431	14,275
million tons	12.1	14.0
Imported coal : GWh	0	766
million tons	0	.29

2.8 Reserve capacity of the electricity system is to be at no less than 15 percent of maximum electricity demand per year.

2.9 Set a minimum production target of 500 megawatts for private investment in electricity generation under the co-generation system (production of heat and electricity) during the Seventh Plan period.

2.10 Set target for reduction of electricity demand through Demand Management measures at 4,500 gigawatts/hour per year by the end of the Seventh Plan period.

2.11 Limit number of outage per user per year as follows:

	Unit : frequencies/year/per user			
	Within zone of		Within zone of	
	Metropolitan Electricity Authority		Provincial Electricity Authority	
	1990	1996	1990	1996
Permanent outage	6.7	3.3	10.0	7.0
Temporary outage	10.3	5.0	24.0	17.0
Total	17.0	8.3	34.0	24.0

2.12 Discontinue sales of leaded premium gasoline by the end of the Seventh Plan period.

2.13 Limit emission of hazardous wastes from commercial energy consumption to the following levels.

	1990	1996
Lead from vehicles (tons)	1,030	300
Carbon monoxide from vehicles (thousand tons)	950	750
Sulphur dioxide (thousand tons)	840	860
- Vehicles	100	50
- Electricity generation	535	620
- Industry and others	205	190

3. Strategies for energy sector development

In order to attain the targets of energy development during the Seventh Plan period, the following strategies have been formulated.

3.1 Provide adequate amount of energy to satisfy demand, while ensuring security of supply at reasonable prices, via the following.

3.1.1 Speed up exploration and development of petroleum resources.

(1) Improve organizational structure, personnel, and petroleum data system of the Department of Mineral Resources to have greater readiness and flexibility, as well as formulation of guidelines for prevention and solution of the problem of braindrain of personnel to the private sector to cope with requirements of the Petroleum Act, B.E. 2532 (1989).

(2) Formulate a clear overall operational plan for exploration and development of petroleum resources, particularly of sources with proven reserves, and encourage a greater private sector role.

(3) Study and evaluate petroleum potential in locations which are of interest to the private sector in order to disseminate information to attract investment in further exploration and production of petroleum resources.

(4) Speed up establishment of a Thai-Malaysia Joint Authority as stipulated in the Thai-Malaysia Joint Authority Act, B.E. 2533 (1990) so that concrete actions may be taken, leading to negotiations for permission of oil companies to explore and develop natural gas in the Joint Development Zone as soon as possible.

(5) Encourage the Petroleum Authority of Thailand to speed up construction of the main gas pipeline system to ensure that production of natural gas meets the target, such as construction of the second main pipeline from the Gulf of Thailand to Rayong.

3.1.2 Speed up exploration and development of coal.

(1) Improve operational procedure, organization, and personnel of the Department of Mineral Resources and amend rules and regulations hindering development of coal, particularly amendment of the Minerals Act to ensure flexibility and a more systematic development of coal resources.

(2) Promote private sector investment in exploration and development of coal resources. Improve criteria for granting concessions to the private sector to develop coal mines for industrial use, as well as allow the private sector to develop coal mines for electricity generation in undeveloped concession areas, originally earmarked for the Electricity Generating Authority of Thailand.

(3) Develop technology for more efficient and economical utilization and production of coal, such as coal products in the form of coke or char briquette and other products.

3.1.3 Speed up negotiations with neighboring countries in order to :

(1) jointly develop energy resources, including hydro electricity projects with Laos and Burma, exploration and development of petroleum with Burma, Malaysia, Vietnam and Cambodia, as well as set clear criteria for joint ventures, emphasizing increased private sector role;

(2) purchase energy, including natural gas from Malaysia, Indonesia, Vietnam, and Burma, and purchase of coal or enter into joint ventures for development of coal with Indonesia, Laos and Burma etc.

3.1.4 Ensure that the country's oil trading, refining, and distribution systems continue to be efficient and competitive following the Sixth Plan period.

(1) Promote free and fair competition in the oil market in continuation from the Sixth Plan period, for instance, increase the number of petrol stations, and encourage companies with new brand names by removing obstructing government rules and regulations. Amend criteria for purchase of petroleum by government agencies to reduce monopoly of the Petroleum Authority of Thailand, particularly for state enterprises which are large users of petroleum products. Furthermore, the procedure for granting permits for setting up of new service stations must be improved and speeded up. Rules, regulations and criteria for setting up of service stations must be modified in line with presentday technology, and economic and social conditions as well as to encourage greater dispersion of service stations in rural areas, and to reduce operating costs of service stations in urban areas where land prices are more expensive.

(2) Encourage free and fair competition in the liquefied petroleum gas market at every stage, particularly the lifting of control on liquefied petroleum gas imports.

(3) Improve organizational structure of the Petroleum Authority of Thailand to achieve greater operational efficiency and flexibility as in private business companies, and allow all petroleum-related businesses where the government holds some shares to compete freely among themselves.

(4) Increase investment for expansion of domestic refinery capacity by speeding up construction of the new refineries in the eastern region, and by expanding Sriracha refinery under fair conditions. Furthermore, a new request for.

proposal inviting investment in new refineries should be issued. Government rules and regulations damaging Thailand's competitive position, vis-a-vis foreign petroleum refineries must be amended or removed to enable Thailand to become center for export of finished petroleum products within the Eighth Plan period.

(5) Improve the efficiency of oil and liquefied petroleum gas distribution systems in order to lower oil distribution costs and disperse oil and liquefied petroleum gas distribution centers away from Bangkok, as well as for relieving traffic congestion within Bangkok Metropolis. In this regard, it is necessary to speed up construction of oil pipeline linking Sriracha, Donmuang with Saraburi and the pipeling linking Bangchak, Don Muang with Bang Pa-in. Furthermore, the government should encourage transportation of oil and liquefied petroleum gas by rail, sharing of oil depots, and construction of oil depots in the western and northern parts of Bangkok.

(6) Inspect, control and supervise service stations to ensure that the quality of petroleum meets official standards as a consumer protection measure. Public agencies in charge of these services should be given support in terms of equipment and personnel to carry out the work efficiently.

3.1.5 Investment and improvement of quality of electricity

(1) Accelerate development of electricity generating sources to ensure adequate supply including exploration and development of domestic coal for electricity generation, exploration and development of economically feasible water resources with low environmental impacts for electricity generation, economically feasible mini-hydro power projects, development of imported coal-fired electricity generating plants, and support for greater natural gas production to substitute for fuel oil in electricity generation.

(2) Improve the electricity transmission and distribution system to ensure adequate, stable and reliable supply with safety, particularly in industrial areas and new economic zones in various regions, and improve interconnection of the transmission system with neighboring countries to increase capacity of load transfer as well as to enhance economic benefits and reliability of electricity system.

(3) Consider appropriateness of application of nuclear energy for electricity generation, in terms of economic feasibility study, technological implications and safety factor, as well as carry out public relations campaigns to create understanding among the population in a continual manner.

(4) Speed up relocation of electrical cables underground, particularly in Bangkok metropolis and major urban centers in the regions. Furthermore, encourage the Electricity Authorities to coordinate and cooperate closely with city planning units to ensure that relocation of public utilities is in harmony with city plans.

3.1.6 Encourage research and development leading to production and application of renewable energy which may have commercial viability and enhance quality of life, particularly the following.

(1) Generation of electricity and heat through renewable energy, such as solar energy, energy from geothermal sources, and energy from agricultural and industrial wastes, including bagasse paddy husks and garbage.

(2) Production of octane boosters from agricultural materials in order to reduce level of toxic chemicals emitted from combustion of gasoline in motor vehicles.

(3) Encourage the private sector to engage in reforestation activities and to develop rural energy industry for production of fuel wood and charcoal, as well as carry out campaigns to encourage villagers, and village students to plant trees in empty land of the villages or school compounds in order to be used as fuel wood or charcoal for own use or for sales to supplement income of the villages and schools.

(4) Promote and encourage production and utilization of commercially viable energy consuming equipment, such as cooking stoves using fuel wood or charcoal, high efficiency charcoal making kilns, biomass combuster, etc. Furthermore, disseminate information on energy technology to encourage high quality production and application for commercial purposes.

3.2 Encourage efficient use and conservation of energy.

Efficient use of energy and its conservation not only helps reduce investment requirements in energy production, but also helps reduce the impact of energy consumption on the environment. Principal measures include pricing measures to induce efficient use of energy, which must be carried out together with introduction and improvement of various rules and regulations, restructuring of institutions related to energy conservation, and raising of people's awareness.

3.2.1 Improve structure and pricing levels of energy, together with price determination system in order to reflect economic costs of production in line with market mechanism, in order to dispense with political decision making and to encourage efficient use of energy and conservation.

(1) Fully deregulate petroleum prices and remove controls of refinery wholesale prices, as well as ex-refinery prices in addition to removal of controls of retail prices, which have already been accomplished.

(2) Remove price control of liquefied petroleum gas, and introduce the full deregulation for implementation by the beginning of the Seventh Plan, as well as remove subsidies for liquefied petroleum gas depot, and for gas transportation to wholesale depots nationwide.

(3) Formulate clear and transparent criteria for natural gas pricing between producers (concessionaires) and Petroleum Authority of Thailand, and between seller (Petroleum Authority of Thailand) and users (Electricity Generating Authority of Thailand and other users), while considering gas pipeline system as a form of public utility. It is also important to have long-term sales contracts between

Petroleum Authority of Thailand and Electricity Generating Authority of Thailand and other gas users, which reflect real production costs and energy substitutes, including quality of fuels, to serve as reassurances to both producers and users of natural gas.

(4) Improve structure and price levels of electricity, and reclassify categories of consumers to reflect actual production costs, and to induce efficient use of electricity and conservation, as well as to introduce an automatic adjustment mechanism for electricity tariff in line with movements of fuel prices. Social and political considerations should be kept to a minimum.

(5) Expand scope of the time of day pricing system, which has been partially enforced since the Sixth Plan, to cover industrial users and all large-scale business enterprises, and to finally consider expanding the scope to cover other users as well.

(6) Improve tax system for motor vehicles by enforcing progressive tax rates for larger private vehicles.

(7) Reduce customs duties on machinery and equipment used in the production of high efficiency electrical appliances, such as high efficiency fluorescent lights, energy efficient ballasts and energy efficient air conditioners etc.

(8) Reduce customs duties on machinery and equipment which are used to reduce energy imports to conserve energy or to reduce pollution.

3.2.2 Prepare legislation, and amend laws, rules and regulations to encourage efficient use of energy and conservation.

(1) Speed up promulgation of an Energy Conservation Act to enable a broad spectrum of energy conservation.

(2) Amend the Building Control Act to include regulations on energy conservation, such as standard of energy use per floor space.

(3) Improve public agencies' supplies procurement regulations hindering purchases of materials and equipment which promote efficiency of energy use and conservation.

(4) Impose mandatory energy efficiency standard for energy consuming equipment and appliances in households and commercial and office buildings.

(5) Increase tax rates for appliances consuming excessive energy.

3.2.3 Promote production of energy efficient appliances, and equipment or construction materials which contribute to energy conservation.

3.2.4 Improve transport system and traffic situation by encouraging provision of mass transit electric rail and electric tram systems etc. as initiated during the Sixth Plan period, and impose rules restricting transport of liquefied petroleum gas from or through Bangkok Metropolis to the regions.

3.2.5 Improve roles of organizations involved in energy conservation, and mobilize cooperation from other agencies.

(1) The three Electricity Authorities (namely, Electricity Generating Authority of Thailand, EGAT; Metropolitan Electricity Authority; MEA and Provincial Electricity Authority; PEA) are to implement a Demand Side Management Program (DSM) for electricity conservation by jointly setting up a DSM in order to provide incentives, revise government rules and regulations, and provide advisory and training services.

(2) Encourage educational and financial institutions, professional committees, and various agencies to have a greater role and genuine cooperation in energy conservation.

3.2.6 Create public awareness and recognition of the importance of energy conservation by carrying out campaigns, providing advice, educational and public relations services to promote uses of high energy efficiency apparatuses, and economical use of energy.

3.3 Promote private sector role and develop public organizations

3.3.1 Promote and encourage a greater private sector role in joint operation and joint investment with the public sector in energy in continuation from the Sixth Plan to reduce investment burden of the government, and to increase competition which will lead to efficiency in utilization, development and sales of energy, as well as to encourage capital market development, and savings mobilization from the private sector, and to enable the population to play a role in energy development through the following:

(1) In petroleum-related activities, encourage private sector investment in government-owned refineries (such as Bangchak Refinery), marketing of petroleum, distribution of natural gas, together with exploration and production of petroleum by inviting joint private investment and/or through sales of shares in the Securities Exchange of Thailand.

(2) Encourage small-scale producers to invest and produce electricity in the form of co-generation and electricity generation from renewable energy sources by speeding up issuance of "regulations on purchase of electricity from small-scale producers", particularly for generation of electricity and steam for sales in industrial estates.

(3) Speed up establishment of subsidiary companies of the Electricity Generating Authority of Thailand (EGAT) in order to purchase selective power

plants from EGAT for subsequent sales of shares in the stock market, such as Rayong, Khanom and Ao-Pai power plants. In the medium term, open up opportunities for private sector investment in large-scale power plants in other forms, such as "Build, Own, and Operate", with clearly defined and appropriate investment criteria.

(4) Amend laws hindering joint ventures with the private sector, or laws obstructing increasing competition in provision of energy and public utility services.

(5) In coal mining development, encourage the private sector to explore as well as carry out coal-mining activities in areas where the government has already conducted preliminary surveys, or in locations which are currently unused by the Electricity Generating Authority of Thailand for power generation, such as at Ang Vienghaeng basin.

3.3.2 Develop and enable public organizations to administer and manage of the energy sector in an efficient manner.

(1) Improve organizational structure and administration of state enterprises involved with the energy sector to assume a more business-oriented approach, or to enable some of them to operate as private companies in order to increase efficiency in administration, investment, and personnel development, including increasing competition, which will eventually lead to removal of control of energy prices. At the same time, make preparations for increasing equity of state enterprises through subsequent sales of shares in the stock market, particularly amendments of State Enterprise Acts, such as the Acts governing the three Electricity Authorities, to encourage flexibility in joint ventures with the private sector and to promote competition.

(2) Upgrade the National Energy Policy Office to become a permanent department within the Office of the Prime Minister by speeding up promulgation of an Act to set up such an office, which will be responsible for formulation of energy policy. At the same time, the National Energy Administration under the Ministry of Science, Technology and Energy will be reassigned to take charge of research and development, as well as regulatory role and undertake operational work. This should make the management of national energy administration more unified, flexible and responsive to rapid changes in the energy situation and capable of coordinating energy development of various agencies in a systematic manner.

(3) Upgrade the Natural Fuels Division, of the Department of Mineral Resources, into a department in the Ministry of Industry to supervise, control and secure supplies of petroleum and coal.

(4) Improve administration, personnel development and operation of public agencies involved with energy to ensure that they carry out their duties in an efficient manner.

Chapter 7

Development of the Metropolitan Region, and New Economic Zones

1. Past results of development of the metropolitan region and new economic zones

1.1 Bangkok Metropolis and its vicinity towns have constituted the national base in economic, political and cultural activities, serving the international community as the country's main focal point throughout the years, and ranking as the world's fifteenth largest metropolitan capital. Furthermore, Bangkok Metropolis is considered the largest center for international airlines in the Southeast Asian region. As the major base of economic activities and services, Bangkok Metropolis has contributed greatly to the overall rapid economic expansion during the Sixth Plan period. In 1991, Bangkok Metropolis and its vicinity towns contribute about 51 percent to the country's gross domestic product, which demonstrates their importance as the major economic center for the present and foreseeable future, and which will facilitate the structural transformation of Thailand, and enable closer integration with the international economic system.

1.2 Migration to the capital. As the majority of economic, industrial and trade activities continue to be concentrated in the metropolitan areas, and as they provide better prospects for job opportunities than other regions, more and more people continue to migrate to Bangkok Metropolis and its vicinity towns. As a result, there are now approximately 7.7 million people residing in the capital area compared with the national urban population of 18.3 million. It is also expected that within the next 20 years, the population of Bangkok Metropolis and its vicinity areas will be 12 million.

1.3 The direction of growth of urban communities and land use within Bangkok Metropolis and vicinity towns tend to be dispersed, and sprawling along main infrastructure networks, particularly along major highways, resulting in inefficient land use, and making it difficult to lay down systematic and inter-connected infrastructure networks. The limited capability of the local authorities further complicate the efforts to coordinate investment in the transport system, traffic management, in the provision of housing and protection of the environment. These problems are becoming more serious, ranging from congestion problems, traffic problems, shortages of housing, and the increasingly serious environmental pollution problems.

1.4 Adjustment problems of migrant workers. A large proportion of migrant workers to Bangkok and its vicinity towns, who have contributed significantly to strengthening the economic base of the capital, are mostly capable and productive

workers, but are lowly paid because of lack of work experience. Therefore, a large number of these people do not have job security and cannot earn enough to support an adequate basic living standard in the capital, resulting in greater urban slum problems, with an estimated urban slum population of close to 2 million. It has therefore become necessary to formulate measures to assist these people with the provision of housing, enhancement of skills, and occupational knowledge, together with the expansion of social infrastructure services to upgrade quality of life of the urban poor.

1.5 Population growth trends. It is expected that the urban population growth rate of Bangkok Metropolis and its vicinity towns will continue to increase, but at a slower rate because of the effects of the policy to decentralize economic activities and benefits to the regions. It is also estimated that the share of Bangkok in the country's total urban population will decline from 42 percent to 34 percent of the total within the next 20 years. Similarly, the future direction of Bangkok growth is likely to be more closely integrated with the development of the Eastern Seaboard, thus becoming a greater metropolitan region, next to the Seaboard, serving as a base for basic industrial development and as a new gateway of Thailand's economic development. Therefore, there must be promotional measures to speed up development of this metropolitan region to serve as the center of economic, trade and financial activities, thereby contributing to the internationalization of the Thai economy.

2. Development targets of the metropolitan region and new economic zones

Development of the metropolitan region, and new economic zones during the Seventh Plan period will emphasize development of infrastructure facilities, which will be used to lead growth and land use pattern of Bangkok Metropolis and vicinity towns in an appropriate and orderly direction and to be integrated with the Eastern Seaboard development system. In this regard, it is important to formulate work plans to solve problems of shortages of infrastructure facilities, develop quality of life, and the urban environment, as well as enhance administrative efficiency. Consequently, development targets have been classified into two areas as follows.

2.1 The metropolitan region will cover Bangkok Metropolis and its vicinity towns, the Eastern Seaboard Development zone and the strip connecting the two locations. The ultimate target is to develop the entire area into an integrated urban conglomeration with the same network of facilities and services.

2.2 The industrial zone of the upper central region will be more closely integrated with the metropolitan region, with Saraburi serving as a center.

3. Guidelines for development of the metropolitan region and new economic zones

3.1 Bangkok Metropolis and vicinity towns

3.1.1 Formulate guidelines for growth of *Bangkok Metropolis and its vicinity towns* by coordination investment in infrastructure networks with management of land use and the environment to enable expansion of Bangkok Metropolis to be integrated with Eastern Seaboard Development area as follows.

(1) Guidelines for management of land use and urban environment in the metropolitan region

(1.1) Utilize the Bangkok Metropolitan Region Structural Plan for the development of the metropolitan region and land use plan of each urban conglomeration as indicative plan for land development and expansion of networks of infrastructure facilities of Bangkok Metropolis and vicinity towns to ensure higher efficiency of urban land use. Furthermore, it is necessary to formulate measures to relieve congestion from the city center, such as construction of new towns and satellite cities, control of building construction, together with measures to prevent housing sprawls along main highways.

(1.2) Increase utilization of empty and unused land in urban area for economic activities by providing supporting infrastructure services, particularly construction of access roads to connect the land with existing networks of roads.

(1.3) Designate promotion zones and control growth of high-rise buildings, while requiring relevant private entrepreneurs to bear the burdens of solving traffic problems, waste water treatment and other impacts on the environment, and ensure effective and speedy implementation of these measures.

(1.4) Improve and rehabilitate urban communities in run-down conditions, and designate the local authorities as the central organization in coordinating with other agencies in preparing district plans as additional measures for rehabilitation of urban communities.

(1.5) Conservation of locations of historical and cultural significance, particularly in Ratanakosin Island area, which also has further implications for tourism promotion.

(1.6) Encourage a greater provision of recreation areas, such as public parks, and sports fields, and ensure that they are widely distributed throughout the area.

(1.7) Encourage development of waste water treatment and garbage disposal systems for communities, by speeding up preparation of a master plan to serve as a framework for investment in the operation, and maintenance system. The central government, the local authorities and the private sector should jointly cooperate both in investment and operation.

(1.8) Speed up enactment of laws controlling standard of community waste water and ensure effective enforcement, as well as strictly

control quality of waste water from other activities in communities along both sides of the Chao Phraya river.

(2) *Guidelines for development of infrastructure networks.*

(2.1) *Urgently solve traffic problems and organize urban transport system.*

(2.1.1) Develop public transport system to reduce traffic congestion and promote efficient utilization of densely populated areas, particularly the construction of mass transit rail system, improvement of bus services, and provision of special bus lanes, as well as promote water transport services for passengers to be connected with the public bus, and mass transit rail systems.

(2.1.2) Coordinate the expressway system to be consistent with local road networks, as well as speed up construction of networks of artery and secondary roads, ringroads around the city or bypasses to avoid the city and reduce urban traffic congestion and to guide urban growth in the right direction and within an appropriate development framework.

(2.1.3) Speed up construction of suburban truck depots, and impose measures for controlling the parking of trucks in inner city areas.

(2.2) *Develop inter-urban expressway system,* together with preparation of a high efficiency transport system, such as high speed train system linking Bangkok Metropolis and vicinity towns with the Eastern Seaboard.

(2.3) *Develop the second international airport* within the metropolitan region by providing basic infrastructure facilities, as well as management of land use and the environment in harmony with urban growth.

(2.4) *Expand system of communication services* to ensure adequate supply of services with high quality, and encourage the introduction of new services, particularly in new economic zones.

(2.5) *Speed up implementation of flood prevention plan* within Bangkok Metropolis and vicinity towns. The plan should then be instituted into a permanent system, together with conservation of flood terrain and reservation of low lying land for temporary storage of water.

(2.6) *Speed up expansion of water supply services into the rapidly growing suburbs of Bangkok and its vicinity towns* together with control of private sector use of ground water, and conservation of raw water resources for production of water supply.

(3) *Guidelines for development of the urban poor.*

(3.1) Upgrade slum communities by development of low-income housing as follows.

(3.1.1) Enact specific legislation to look after slum communities, and protect housing rights of the communities, as well as upgrade income, and quality of life.

(3.1.2) Upgrade quality of existing slum communities, and provide new housing for those who have been forced to relocate, by joint investment among the government, local authorities and communities, land owners, and the National Housing Authority.

(3.1.3) Provide public subsidies for investment in construction of higher standard public utility system, such as road system, pavements, drainage system, and land surface adjustment.

(3.1.4) Establish community organizations to look after well-being of slum dwellers and set up a fund for them to borrow, as well as promote occupational development.

(3.2) Provide housing for the low-income and industrial laborers as follows.

(3.2.1) Provide more low-income housing in the form of rented housing units to satisfy demand for temporary housing which is characteristic of presentday industrial society.

(3.2.2) Encourage the private sector to increase their participation in construction of housing for the low and medium income by considering incentive measures to attract investment and to enable construction of inexpensive housing.

(3.2.3) The government must provide adequate level of subsidies for construction of low-income housing to reduce the burden of rent or installment payments of the residents.

(3.2.4) Encourage owners of enterprises and factories to share investment costs for construction of housing for workers to reduce the public burden.

(3.3) Support the urban poor to have greater economic opportunities to enable them to have job security with regular income. The urban poor should also be encouraged to have a greater role in upgrading their well-being and quality of life by promotion of small-scale self-employment and short-term skill training and development.

3.1.2 Increase efficiency and methods of local authorities' fund mobilization for provision of urban infrastructure services as follows.

(1) Increase efficiency of local authorities' revenue collection efforts to ensure more complete coverage and to be consistent with the changing level of development by updating and adjusting tax rates and different kinds of local fees to reflect presentday conditions. Furthermore, improve tax base and increase varieties of income allocated from the central government to the local authorities, as well as consider possibility of increasing sources of credit for development, such as urban development fund etc.

(2) Promote greater private sector role in investment and operation of infrastructure services by specifying types of activities designated for private investment. Furthermore, operational procedures and conditions must be clearly spelled out, together with revision of rules, regulations and various restrictions to be conducive to greater private sector role.

(3) Implement cost recovery measures by imposing direct charges on the users, or on other people who benefit from investment in public infrastructure services. Furthermore, other innovative measures may be attempted. For instance, private sector projects which increase investment costs of public infrastructure services may be charged a special fee. Similarly, owners of land who benefit from public infrastructure facilities may be asked to pay a special fee to the government. Finally, the concept of land readjustment may be used as a means of land preparation for provision of infrastructure services.

3.1.3 Improve administration of Bangkok Metropolis and its vicinity towns

(1) Provide a policy level mechanism for overall planning and coordination at the national level and for policy formulation, issuance of orders, as well as coordination of operations.

(2) Improve and strengthen capability of local organizations in planning, financial administration, management and city planning.

(3) Consider improvements to laws and regulations in order to facilitate city planning and development, i.e. Expropriation of Immovable Property, B.E. 2530 (1987), to enable compensatory payments consistent with market prices, and the Canal Conservation Act, B.E. 2445 (1902) in order to increase levels of penalties and fines for encroachment on public waterways.

(4) Consider enactment of new laws to be used as means of urban development administration, such as laws involving land readjustment and improvement and rehabilitation of cities.

3.2 Further development of the Eastern Seaboard.

The Eastern Seaboard will serve as the country's major industrial base and a new gateway which will accommodate as well as promote industrial growth, and reduce congestion within Bangkok Metropolis and vicinity towns. The Seaboard area covers (1) the target area of Laem Chabang, Chonburi province, which will serve as a modern seaport town with an international commercial

seaport for containerized cargoes, general industrial estates, and an export processing zone; (2) the target area of Map Ta Phut, Rayong province to serve as a modern industrial town, with an industrial port for transportation of raw materials, liquid chemical products, and an industrial estate for large-scale industries, such as petrochemical plant, oil refinery; together with (3) regional urban centers of Chonburi, Rayong and Chachoengsao.

In order to disperse economic activities and promote urban growth out of Bangkok Metropolis and vicinity towns to the Eastern Seaboard to become a single integrated network of urban conglomerations, as well as to expand and connect the new economic gateway to the inner parts of the country, particularly the northern and northeastern regions, so that these latter regions may be directly engaged in international trade, the following guidelines for a more complete development of the Eastern Seaboard for the next stages will be proposed.

3.2.1 *Speed up expansion of major infrastructure facilities*, particularly road, rail and communication systems to connect the target areas of Laem Chabang, Map Ta Phut, as well as the regional urban centers within the Eastern Seaboard with the national networks of facilities and services to enable the hinterland to make maximum use of this new economic zone.

3.2.2 *Ensure implementation of work programs in the fields of community and social work, environment and administration* in order to establish new urban conglomerations of Laem Chabang and Map Ta Phut, as well as infrastructure and social infrastructure support services, together with implementing an administrative system consistent with development level.

3.2.3 *Implement an administrative and management system for various types of infrastructure services* to promote competition in the provision of services by encouraging a greater private sector role, such as in the management of commercial seaport and so on

3.3 *Begin development of the industrial zone of the upper central region.*

As expansion of industrial activities within Bangkok Metropolis, particularly in the suburbs, continue to add congestion and cause environmental problems, it is deemed appropriate to develop a new economic base in the upper central region to serve as a center for relocation of industrial activities from Bangkok Metropolis and vicinity towns. This center will also serve as a connecting point with Laem Chabang for transportation of agricultural commodities for export to avoid going through Bangkok, reducing congestion in the city. Targets for development include (1) development of Saraburi as a main economic base of the upper central region in the fields of trade, transport and supporting services; (2) Kaeng Koi as a center of cement and construction industry and other industries which will have been relocated from Bangkok and vicinity towns; and (3) Tha Rua/Tha Luang as an agro-processing center for exports.

3.3.1 Administer and manage industrial expansion in the target areas in a systematic manner to prevent deterioration of the environment as follows.

(1) Formulate incentive measures to attract newly established industries to move into the industrial center of Saraburi.

(2) Promote natural gas utilization as the main source of energy for industry by linking the gas pipeline from the Eastern Seaboard with the one from the northeast.

(3) Speed up provision of basic infrastructure services, such as road, water supply, electricity and telephone services.

(4) Promote role of local authorities in supervising and controlling operation of industrial plants to prevent adverse impacts on the environment.

3.3.2 Develop Saraburi to be the urban center of the upper central region, and center of inter-regional transportation as follows.

(1) Develop and connect infrastructure services with the Eastern Seaboard network of services.

(2) Develop the transport systems connecting the eastern and western sides, and establish a regional network of services to be connected with the industrial center of Saraburi.

(3) Speed up development of Saraburi to become the main industrial base of the region, particularly to be center of trade, technical services, education, training, skill development and business consultancy services.

Part III

Guidelines for Income and Prosperity Distribution to the Regions and Rural Areas

Part III

Guidelines for Income and Prosperity Distribution to the Regions and Rural Areas

Introduction

1. Status of Income and Prosperity Distribution

Despite Thailand's high rates of economic growth in the past, income disparities have widened among different groups of people in cities, between urban and rural areas, and between Bangkok Metropolis and other regions. This situation is comparable to various other countries which are attaining the status of newly industrialized countries, which often encounter problems of income inequality during their transformation period. After this initial period, if highly targeted income distribution policies are properly implemented, the situation will improve accordingly. In Thailand, the current situation of income distribution can be summarized as follows:

1.1 Poverty incidence has been slightly reduced.

Although the country's production structure has increasingly been transformed from agricultural to industrial production, the majority of the population are still engaged in agriculture with uncertain income because of climatic conditions and fluctuations of commodity prices in the world market. Meanwhile, supplementary job opportunities for extra income in non-agricultural sectors are limited because industries and services are not yet dispersed to provincial and rural areas. As a consequence, the proportion of the poor in the total population of the country, or the so-called poverty incidence, has declined slightly from 30 to 23.7 percent between 1976 and 1988. Nevertheless, when world commodities experience price slumps as was the case in 1986, the proportion of people under poverty line increased to 29.5 percent. With subsequent improvements in world commodity prices in 1989, this proportion again dropped to 23.7 percent, clearly confirming that world commodity prices are crucial in determining rural poverty conditions in Thailand.

1.2 Income disparities among various groups of people have widened.

Income disparities among different socio-economic groupings have widened, with the proportion of the top twenty percent of the wealthiest households increasing from 49.3 percent during 1975/1976 to 54.9 percent during 1987/1988. By contrast, income proportion of the bottom twenty percent of households dropped from 6.1 to 4.5 percent during the same period. This is because the income of the first group reached 9.9 percent a year on average during 1975-1988, as opposed to the latter group which expanded by approximately 6.5 percent

per annum during the same period. These income inequalities are mainly due to imbalances in 4 areas, namely: imbalance between production and employment structures; imbalance between population distribution and dispersion of economic activities in the regions; imbalance in education since the transitional rate from primary to secondary education is relatively low, particularly in rural areas; and finally imbalance of property ownership which is concentrated among few groups of people.

1.3 The income gaps among the regions and between rural and urban areas have widened.

Per capita income gaps among the regions have increasingly widened because the income of people in Bangkok Metropolitan Region (BMR) has grown at a much higher rate than that of people in other regions. During 1981-1988, for instance, income per head of people in BMR rose by 10.9 percent a year, while that of the people in the South, the Northeast and the North increased by 7.3-8.5 percent annually. This resulted in the widening gap of per capita income between BMR and those in the regions. In 1981, per capita income of the people in the Northeast was the lowest, or 8.7 times lower than that of people in BMR. By 1988, the gap increased to almost 10 times.

With respect to rural-urban income inequalities, in 1976 income of the rural people was about 3,252 baht, while that of the urban people was 7,908 baht, on average, or 2.4 times of the income of people living in rural areas. By 1987/1988, rural income per head rose to 8,916 baht a year, and that of people in cities rose to 26,970 baht per annum, representing a 3 folds difference. The gaps, moreover, tend to widen further unless appropriate measures are enforced intensively.

The widening income disparities of income among the regions, and between urban and rural areas are mainly due to the transformation of production structures in urban areas which are increasingly industry and service oriented, especially in the BMR. This production base is not properly dispersed to provincial and rural areas, and has encouraged greater income and employment opportunities for the population in cities than those in rural areas.

2. Trend of Problems during the Seventh Plan Period

Apart from the various aspects of the income disparity problem mentioned earlier, it is projected that unless income distribution policies are rigorously implemented, the situation of income disparities may become more severe and lead to other urgent problems as follows:

2.1 Rural to urban migration will increase.

Income of the people in the agricultural sector tends to be uncertain because of several crucial problems. First, world commodity prices will continue to fluctuate as competition of agricultural products is high in the world market. Second, various types of natural resources, which used to form the major production

base, have become depleted, resulting in lower production outputs or higher production costs. All of these problems have forced an increasing number of agricultural workers to leave their farms in search of new job opportunities in cities.

2.2 Urban poverty will get worse.

Urban poverty will markedly increase as a result of the increasing migration of rural people since most of them are unskilled laborers, having low wages and low income which are insufficient for earning a basic living in urban areas. Meanwhile, they often face problems of housing, health, and education for their offspring who have to accompany their parents in search of urban employment opportunities.

3. Opportunities for Income Redistribution

When other factors are considered, including overall development expected to occur during the Seventh Plan period, there appear to be several opportunities for income redistribution as follows:

3.1 The economy is expected to sustain its growth momentum.

As a result of the substantial economic expansion during the Sixth Plan, and a projection of sustainable economic growth during the Seventh Plan of about 8.2 percent a year, the country's economic performance will help boost national income. Provided that proper measures are implemented to redistribute this higher national output, income inequalities among various occupations and among the regions may be reduced.

3.2 Employment opportunities are still plentiful.

Since the Thai economy will keep expanding and will become more oriented towards the industrial and service sectors, demand for manpower in these two sectors will remain high. Consequently, if the capability of unskilled laborers, especially those in rural areas and urban slum communities, is improved, they will be able to acquire better employment opportunities with higher wages.

3.3 The government has emphasized more concrete income distribution policies.

All relevant parties in society agree that income distribution is a basic problem which needs to be tackled to ensure social justice. Therefore, the government has an obligation to implement concrete policies and measures for a better income distribution to ensure that the target groups of rural and urban poor receive greater benefits.

From the aforementioned problems and opportunities, the Seventh Plan has resolved to carry out the following:

3.3.1 To enable the underprivileged to live in society with an adequate basic means of livelihood.

3.3.2 To enable the target groups to upgrade their living status.

3.3.3 To effectively reduce income disparities among various groups in the population.

3.3.4 To draw up a plan recommending concrete guidelines and measures for income distribution which will be used for coordinating various operational plans involving income distribution. In addition, the plan will be used as a policy framework for Ministries, Departments and other agencies in formulating their operational plans to ensure better income distribution.

4. Income Distribution Targets

In order to conform to the objectives to solve income distribution problems, as well as to encourage distribution of development benefits as presented above, income distribution targets are set as follows:

4.1 Target groups

The Seventh Plan has designated six target groups as follows:

4.1.1 Poor agricultural workers

4.1.2 Hired laborers in agricultural sector

4.1.3 Small self-employed workers and small-scale businesses

4.1.4 Low-income employees in private enterprises

4.1.5 Government officials and state employees

4.1.6 Those who can not help themselves

4.2 These target groups will be encouraged to earn a living which ensures adequate means of livelihood, including the ability to improve their living status.

4.3 The number of poor will be reduced to ensure that the proportion of people under the poverty line drops from 23.7 percent in 1988 to less than 20 percent by 1996, the last year of the Seventh Plan.

4.4 The inequality of income among various groups of people will be reduced through policies and measures to raise the income of the poor, particularly those in rural areas.

4.5 Target areas

4.5.1 Regional urban centers

4.5.2 New economic zones

4.5.3 Backward rural areas

5. Guidelines for Income Distribution

To attain the set targets, it is necessary to formulate socio-economic policies and measures to create opportunities, and increase capabilities of the target population so that they can participate in the national development process, and effectively derive a fair benefit from development.

In generating socio-economic opportunities, income distribution policies will stress the dispersion of the economic base to provincial areas to increase employment in non-agricultural sectors, with emphasis on access to production factors, such as farmlands, credit and basic services to increase production, raise income, and improve living conditions of the poor. Furthermore, development activities will be tailored to meet local demand by decentralizing development administration to provincial authorities.

With regard to the enhancement of the capability of the target groups, the Seventh Plan aims to extend educational opportunities, and training programs, as well as provide services in public health so that they can effectively utilize socio-economic opportunities for their own benefits. Policies and measures in this regard are as follows:

5.1 Fiscal, monetary and capital market development policy will be implemented to promote a better income distribution by decentralizing fiscal authority, dispersing stockholdings, and implementing fiscal measures and public expenditure programs to create more justice in society.

5.2 Policies and measures for the wider distribution of property ownership will be formulated to provide people with security in housing and farmland. Particular emphasis will be given to urban housing, which has faced increasingly severe problems.

5.3 The production system will be improved with emphasis on agriculture, industry and commerce to promote income distribution. The most important area is the agricultural sector which is set to grow by 3.4 percent a year on average. Production and pricing policies must be clearly formulated to minimize fluctuations in income of agricultural workers.

5.4 Urban development will be promoted together with distribution of socio-economic infrastructure to the regions including decentralization of development administration to provincial and local authorities so that they can make decisions to properly tackle their local problems in an appropriate manner.

5.5 Rural development will be promoted with emphasis on the decentralization of development administration to regional and local areas, by allocating budget to support provincial development aimed at raising income and improving living conditions of the rural poor. Meanwhile, measures should be formulated to promote the role of people's organizations, non-governmental organizations and private businesses to participate effectively in the rural development process.

5.6 Long-term human resources development policy should be formulated, providing appropriate education which will serve as a basis for future development of the country, especially the extension of educational opportunities at secondary education level for students in rural areas. Furthermore, attention should be given to the problems of public health, together with labor and social welfare. (For more details, please refer to the fourth part of the Seventh Plan.)

It may be expected that when the aforementioned policy guidelines and measures are rigorously implemented, income distribution should improve, or at least should not get any worse. This is because poor agricultural workers or other poor people will be able to improve their living status, and have their own farmlands, as well as have security in housing and income. Moreover, they will obtain appropriate education, training and health services to enable them to join in the development process of the country, and derive more benefits from national development. At the same time, development of regional urban centers and basic services will serve as a new economic base to generate income and employment for the rural poor, thus helping to reduce inequality of income among the regions and between the urban and rural areas.

Chapter 1

Guidelines for Fiscal and Monetary Policies Supporting Income Distribution

1. Past Development Outcomes

1.1 In the past, the government used mainly an expenditure policy to foster income and prosperity distribution, by allocating funds to disperse basic services to increase income and improve living conditions of people in rural areas, covering the sectors of agriculture, education, public health and other social services and so on. During the Sixth Plan, in particular, the government set an expenditure budget of 112,140 million baht directly for rural development and rural employment generation project, which was 6.6 times higher than that of the Fifth Plan. However, the expenditure budget in the Sixth Plan could not fully respond to the needs of people in rural areas because decision-making authority concerning budgetary allocations and project development was under the jurisdiction of the central administration, leaving only a limited role for local authorities.

1.2 Concerning assistance for the urban poor, although the government set aside an expenditure budget for housing development and the provision of necessary social welfare services for them, the budget was small and insufficient. For instance, during the Sixth Plan period, the budget of only 1,660 million baht was granted to the National Housing Authority (NHA) for construction of low-income housing.

1.3 With respect to tax policies to support income distribution, the implementation in this regard was quite limited. The present approach tends to emphasize revision of personal income tax rates and collection methods to lessen the burden on low incomes. There has hitherto been no attempt to collect property tax, which is a direct fiscal instrument for redistribution of income and property ownership.

1.4 In terms of monetary policies to promote distribution of income, the government not only provided loans to agricultural workers via commercial banks, but also granted credit to agricultural workers in rural areas to increase their production and income, by increasing the capital of the Bank for Agriculture and Agricultural Cooperatives (BAAC). In this regard, during the Sixth Plan period (up to end of March 1991), BAAC granted credit totalling 109,880 million baht to farm workers and agribusinesses. Furthermore, the government also set a condition for commercial banks to increase their services in rural areas and encourage banks to grant more loans to people in local areas. During the Sixth Plan period (up to end of March 1991), commercial banks granted loans of about 875,569 million baht, or 18.2 percent of the total deposit, which was slightly lower than the set target of 20 percent. However, implementation through these monetary policies was insufficient to cope with actual needs, and did not sufficiently reach agricultural workers at large.

1.5 With respect to income enhancement policy, the government undertook measures on a sustained basis to increase and maintain income levels of various groups of people in society. These measures involved, for instance, increases of income for agricultural workers and rural people, by emphasizing rural employment generation, rural development and increase of crop prices. With regard to assistance for fixed income earners, the pay of government officials and state employees were adjusted. However, the pay adjustment could not be implemented entirely as planned because of the greatly increased burden on government expenditures, resulting in the loss of some government personnel to private enterprises offering higher remuneration.

1.6 Consequently, monetary and fiscal policies to promote better income distribution in the Seventh Plan will give a higher priority to formulation of tax and monetary measures, decentralization of budget administration and development of local administration.

2. Fiscal and Monetary Targets to Promote Income Distribution

2.1 Decentralize and improve fiscal administration of local authorities.

2.2 Bring about a fairer distribution of property ownership and enforce expenditure policy to encourage income enhancement and quality of life for agricultural workers, employees, small-scale self-employed workers, government officials, state employees and those who cannot help themselves.

2.3 Increase credit and financial services, and promote capital market development in the regions, particularly to benefit small agricultural workers, small-scale self-employed workers, small-scale businesses and low-income employees.

3. Development Policy Guidelines and Measures

3.1 Decentralization and upgrading of capability of local authorities in fiscal administration.

3.1.1 The decentralization of fiscal and budget administration to government agencies in regional and local areas will be implemented through the following:

(1) Consider allowing regional authorities to submit directly their budget proposals, and urge them to consider allocating their annual expenditure budget in accordance with the criteria given by central agencies so that development projects in regional and local areas can be freely implemented within the provincial development plan framework.

(2) Amend rules and regulations concerning budget disbursements in provincial and local areas to promote greater flexibility.

3.1.2 Improvement of revenue collection, subsidization and fund mobilization in local areas through the following:

(1) Prepare a detailed map of the tax base and property registration, and improve land price valuation to reflect market prices, and rigorously enforce these prices.

(2) Consider increasing other tax categories to be collected in addition to excise taxes, and/or increasing tax rates.

(3) Improve laws related to the extraction of selected underground resources in order to allow for the local use of tax revenues for local development.

(4) Improve criteria for allocating tax revenues collected in local areas by central agencies, particularly taxes on natural resources. These revenues must be properly allocated for local authorities depending on tax categories to ensure justice within local areas.

(5) Improve criteria for subsidy allocation to local areas to be in line with their ability and effort in tax collections. This includes lumpsum subsidies which are proportionate to expenditures to be used in local development projects.

(6) Encourage the private sector to increasingly participate in the development of public services under the responsibility of local authorities, through contracting out, concessions, or joint ventures. As for public services that local authorities can carry out by themselves, the operation should be more business-oriented, based on the principle that beneficiaries should pay at rates which cover costs of production or provision of services.

(7) Support local authorities to mobilize capital for their investment projects by issuing bonds in the stock market.

3.2 Use of fiscal policy in support of distribution of income and property ownership.

3.2.1 Consider appropriate guidelines for enforcing inheritance tax to help widen property ownership.

3.2.2 Consider enforcement of the property tax system to replace local development tax and land and household tax, by using property value as tax base. Moreover, tax on unused land must be collected at a higher rate than that of the land which is actively utilized in order to increase the tax burden on land speculators. Finally, dispersion of land ownership must be fairly carried out.

3.2.3 Allocate budget to raise income, education, health and social welfare services to the underprivileged in rural areas and urban slum communities, particularly the expansion of basic educational opportunities to nine years, as well as occupational development for the underprivileged.

3.2.4 Enforce budgetary policy to raise production and income of farmers, by increasing production efficiency and diversifying agricultural production. In so

doing, agricultural subsidy policy, particularly price subsidy of agricultural products should be kept to a minimum.

3.3 Increase the availability of credit, financial services and capital market in the regions and for the underprivileged.

3.3.1 Grant more capital to the Bank for Agriculture and Agricultural Cooperatives (BAAC), and urge financial institutions for small-scale industries to increase credit facilities for farmers, agribusinesses and small-scale industries in the regions.

3.3.2 Consider guidelines to relieve informal debt burdens of agricultural workers.

3.3.3 Support allocation of medium and long-term credits for agricultural workers, as well as allocate credits for small entrepreneurs and those who start their self-employed occupations with economic potential, especially for the underprivileged in urban and rural areas.

3.3.4 Promote establishment of credit institutions for housing in order to mobilize long-term funds, and reduce housing procurement costs for families who can afford their own housing, and for low-income earners who seek permanent housing.

3.3.5 Revise policies involving opening of branches of financial institutions to encourage more flexibility by emphasizing opening of regional branches, including extension of the Bank of Thailand's branches in regional areas.

3.3.6 Expand investment base in the stock market to provinces, by promoting securities companies to open branches in the regions. Also included here is the dissemination of information and knowledge on investment in the stock market to people in the provinces to enable them to have equal opportunities with those in Bangkok. Furthermore, businesses in the regions should be given more opportunities to take part in capital mobilization in the stock market.

3.3.7 Encourage businesses to disperse more share holdings to employees via tax incentives.

3.4 Income and wage policies for the underprivileged.

3.4.1 Government officials and state employees

Set up a principle which considers payrolls and wages as part of investment in public sector manpower development, by designating a remuneration system which may be adjusted in line with current costs of living and specific characteristics of work, including administration, operation, and other supporting services. Emphasis will be on organization of a remuneration system based on

principle of professionalism, which is equivalent or as close as possible to remuneration in the private sector. Moreover, public sector manpower development must be promoted to retain personnel, and benefits should be improved for medium and low income government officials and state employees.

3.4.2 Agriculturalists

Consider implementing measures to properly maintain stability of commodity prices and farm income, by setting up an efficient organizational system and administration which will not place undue burden on the government.

3.4.3 Laborers

Determine wage rates and remunerations which are fair to the groups of economically underprivileged; taking into account their labor productivity so that they may increase their income and upgrade their standard of living.

Chapter 2

Distribution of Ownership Pattern

1. Existing Conditions of Property Ownership

1.1 At present, property ownership, especially land and housing, is mainly concentrated among medium and high income groups, whereas low-income people rarely have such opportunities. This is because prices of land and houses have risen sharply during the last few years, and continue to increase. According to basic data on rural development at village level (NRDC 2 C) in 1990, there were 552,977 landless households in rural areas, or approximately 8.0 percent of rural households nationwide. Furthermore, there were another 730,751 rural households which either had their own farmlands or had to rent part of the land, representing 10.58 percent of rural households throughout the country.

1.2 At the same time, urban low-income earners continue to face housing shortages, and some of them are obliged to live in slum communities. From a survey conducted by the National Housing Authority, it is projected that, during the Seventh Plan period (1992-1996), demand for housing of people at different income levels in Bangkok Metropolis and vicinity towns will be about 376,520 units. Of this demand, 203,838 units, or 54.13 percent of the total housing demand belong to those who cannot afford the necessary housing. Major contributory factors to the shortages of land and housing can be summarized as follows:

1.2.1 Property ownership distribution, especially farmlands, is still limited. A large number of agricultural workers do not own farmlands and lack ownership documents because, at present, the Department of Lands can issue land title deeds to only 23.7 million rai on average, as against the total areas outside the forest of about 160.7 million rai, leaving about 137 million rai without title deeds. Moreover, various forms of land ownership documents have been issued by a number of government agencies, causing some overlapping of ownership rights. In addition, the present Land Code freely allows unlimited holdings of land, resulting in highly unequal holdings, and unfair rental of land, which benefit only a few groups.

1.2.2 Growth of urbanization. As a result of the remarkable economic expansion during the Sixth Plan, selected urban communities serving as bases for development of industry, services and tourism have experienced rapid growth. Therefore, demand for housing has risen sharply, and coupled with highly active land transactions, resulting in higher land prices and speculations. A great number of plots of land were held for a brief period and quickly sold off for speculative profits, largely by industrial investors. Following these problems, shortages of land for housing have inevitably occurred, particularly housing for medium and low income earners.

2. Development Guidelines to Disperse Property Ownership Pattern

In order to tackle the above-mentioned problems, the Seventh Plan has initiated more concrete development policy guidelines as follows :

2.1 Land for agriculture

2.1.1 Expedite distribution of land ownership, by establishing financial institutions, and speed up land reform in 30 million rai to be completed within 7 years.

2.1.2 Accelerate the issuance of land ownership documents so that people can legally own plots of land in accordance with the Department of Lands' development projects, and expedite the issuance of land title deeds nationwide within 20 years (1985-2004).

2.1.3 Improve administration and management system concerning land reform for agriculture to ensure flexibility in operation, especially operations involving funds, purchasing and expropriation of land.

2.1.4 Supervise efficient enforcement of law governing agricultural land rentals by ensuring strict adherence to the Lease of Land for Agriculture Act B.E. 2524 (1981), in line with spirit of the law.

2.2 Land in general

2.2.1 Set up an appropriate system for holding of land in various categories to be consistent with economic development and income distribution of the country through legal measures, including land for agriculture, land for industry, land for commerce and land for housing.

2.2.2 Speed up cancellation of deteriorated forests from the National Forest Reserves in a gradual manner so that farmers can obtain land ownership documents in line with Land Code, while stressing utilization of land for agriculture.

2.2.3 Reduce number of land transactions for speculation purposes, by enforcing legal and tax measures, and setting up a non-partisan and independent agency to be in charge of land prices valuation. In addition, tax rates should be increased for lands which are left unutilized, and lands which undergo frequent changes of ownership.

2.3 Housing

2.3.1 Promote and support allocation of credits for housing for low-income earners, ease loan conditions for housing, and support operation of the Government Housing Bank.

2.3.2 Encourage private sector operations to provide housing at fair prices for low-income earners, by arranging incentive measures for low-cost housing construction.

2.3.3 Reduce burden of personal income tax by giving a higher rate of tax deduction for interests to be paid in housing installment payment.

2.3.4 Provide a greater supply of low-income housing in the form of rented housing to serve demand for temporary residences in line with the current industrial society.

2.3.5 Decentralize licensing authority to local agencies for development of land sub-division projects and remove unnecessary steps in the application of permit for land development to create flexibility and rapid issuance of licences.

2.3.6 Speed up enactment of Slum Improvement Act to protect residential rights of dwellers, and encourage the private sector, especially land owners to participate in alleviating slum and squatter community problems.

2.3.7 Supervise and control housing rents at fair rates, and assign the Consumer Protection Board to take this responsibility.

2.3.8 Promote the National Housing Authority (NHA) to jointly operate with the private sector in the form of integrated contract projects to build houses for low-income earners, by assigning NHA to set appropriate criteria and standards, such as building design and utility areas etc.

2.3.9 Improve existing slum communities and procure new housing for dwellers of any evicted communities under joint investment schemes among central agencies, local authorities, land owners and NHA.

2.3.10 Set up a fund and allocate capital to be used as loans for purchasing plots of land and houses, as well as encourage private financial institutions to increase credit services for low-income housing, especially those in slum communities.

Chapter 3

Agriculture Restructuring and Industrial Decentralization to the Regions

1. Restructuring of the Agricultural Sector

1.1 Past development results

The agricultural sector, which used to play a leading role in the national economy, is now no longer occupying the central stage. The proportion of production in this sector dropped markedly from 16 percent of GDP in 1986 to 11.5 percent of GDP in 1991. This situation is also true for agricultural exports, decreasing in values during the same period, from 41 to 23 percent of total export value. By contrast, the proportion of agricultural workers has not declined as rapidly as the production share. At present, 64 percent of the total labor force are still engaged in agriculture. Therefore, the agricultural sector is still significant as source of employment opportunities and income distribution for those working in this sector. Realizing this problem, the Seventh Plan will emphasize agricultural development, aimed at raising and stabilizing agricultural workers' income to bolster better income distribution. Also included here is a measure to enable farm workers in rural areas to seek supplementary jobs in non-agricultural sectors.

1.2 Targets for agriculture restructuring

1.2.1 Raise income of farm households, and protect and support agricultural workers to ensure that they are given fair treatment in the production and trade of agricultural produce.

1.2.2 Promote development of agricultural workers to ensure that they are ready to adjust their production system to be consistent with market conditions, and be able to choose appropriate agricultural technology.

1.3 Guidelines and measures for agriculture restructuring

In order to enable agriculture restructuring to attain objectives of raising income of agricultural workers, several guidelines and measures are formulated as follows:

1.3.1 Encourage the agricultural sector to have stability in terms of income and property, and promotion of justice in the production and trade system to ensure security in farmlands, upgrading of farm income, as well as enhancement of role of the market.

(1) Promote distribution and security of agricultural land ownership and prevent loss of farmland, via the following:

(1.1) Provide farmlands to poor agricultural workers through land reform.

(1.2) Speed up issuance of ownership documents for farmlands in depleted forest areas and the areas presently occupied by farmers. The document can be made in terms of land certificate in accordance with ALRO 401 (Certificate of land utilization issued by Agricultural Land Reform Office) and Land Usufructuary Certificate, including permission for land leasing by farmers.

(1.3) Supervise enforcement of Lease of Land for Agriculture Act not to hinder land leasing by farmers, and do away with farmland serving as mortgage collateral. In its place, land sale with right of redemption will be used to prevent unfair losses of land ownership.

(1.4) Consider reviewing or promulgating laws to determine size of land holdings to promote a better distribution of land ownership for agriculture.

(1.5) Accelerate a feasibility study and scheme to set up the Land Bank for capital mobilization and the distribution of long-term credits for procurement and development of farmlands.

(2) *Maintain stability of commodity prices and promote trend of higher prices* to tackle problems of uncertain farm incomes among small farmers, who constitute the majority of the population. This can be done through the following measures:

(2.1) Assist in slowing down the scale of crops during the early harvest season through measures, such as crop mortgage, crop storage in local areas, and development of warehouse system and public silo. However, the measures must not contravene international trade agreements.

(2.2) Develop marketing system in all forms, such as central market and forward market of specific commodities as well as improve rules and regulations which cause market distortions, for instance, the demarcation of trading zones for pork and tobacco leaves. This includes the development of basic marketing services in order to develop Thailand to be a center for international trade of agricultural products.

(3) *Promote formation of farmers' groups in various forms to develop production, improve quality of products and sales* to increase prices of agricultural produce and create justice through several measures as follows :

(3.1) Provide training services to give knowledge on administration and management covering production, product quality development, and marketing, together with provision of credits for farmers, leaders of farmer's groups and executives of agricultural cooperatives.

(3.2) Arrange marketing data and information system involving quality and characteristics of each produce needed in the market for dissemination to farmers' groups and agricultural cooperatives in a widespread manner and on a timely basis. This arrangement will be useful for decision-making in production and improvement of product quality to be consistent with market demand.

(4) Coordinate and promote mutuality of benefits between farmer's groups and modern agribusinesses to ensure fairness for farmers in jointly conducting agribusinesses in the form of "contract farming" between agricultural workers and entrepreneurs to jointly share profits and risks in the business. Measures in this regard are as follows:

(4.1) Support agribusinesses with the public sector as coordinator in promoting contract farming and joint investment in agro-industry between farmers' group and entrepreneurs in agribusinesses. The joint efforts should be geared towards expansion of agribusinesses to wider categories of products.

(4.2) Supervise arrangement of contracts and agreements between farmers and the private entrepreneurs to ensure prudence and justice for all parties concerned.

(4.3) Promote research on crop varieties and new culturing practice for interested private enterprises who want to carry out agribusiness on the basis of "contract farming", but lack technical capability to realize the opportunities and to promote varieties of activities.

(5) Reduce production risks due to natural disasters and epidemics by providing insurance system for crops and livestock with the following measures:

(5.1) Conduct studies and experiment with the insurance system for crops and livestock, and link it with agricultural credit system so that all parties can share burdens and profits derived from joint operations.

(5.2) Encourage the private sector to participate in providing insurance services for crops and livestock to expand services in this regard.

(6) Encourage agricultural workers to seek supplementary occupations in non-agricultural sectors. Several measures in this regard include the following:

(6.1) Organize training sessions for agricultural workers about knowledge on agricultural processing, product quality development for extended preservation and consistency with market demand, including provision of efficient production system.

(6.2) Promote production subcontracting between entrepreneurs and local agricultural workers, by emphasizing production of cottage industries.

(6.3) Provide marketing information services for agricultural workers involving sources of cheap raw materials, development of new product design and categories in harmony with market demand.

1.3.2 Promote readiness of agricultural workers to timely adapt themselves to changes in agricultural technology, commodity market conditions

and possibility of employment in non-agricultural sectors. Guidelines and measures on this matter are as follows:

(1) Disseminate knowledge on agricultural production and marketing information via the mass media, such as radio, television and distance education system to provide agricultural workers with accurate and up to date information.

(2) Consider including knowledge on agricultural development and application of chemical products in educational curricula in both formal and nonformal system to enable agricultural workers to have skills in conducting their own business activities and in choosing appropriate agricultural knowhow in line with their own requirements.

(3) Provide special assistance to farmers' groups or problem-stricken areas, such as impoverished areas under the national Rural Development Committee (NRDC) system, Pak Panang River Basin, areas devastated by natural disaster and small-scale agricultural workers, with the following measures :

(3.1) Improve quality of agricultural workers in response to production restructuring in rural areas where higher skilled personnel and workers are greatly needed to cope with development of agriculture, industry and service in rural areas. Emphasis will be placed on occupational training services, administration and management orientation for agricultural workers wanting to organize into farmers' groups in a widespread manner.

(3.2) Extend production and employment opportunities in rural areas by promoting rights of land ownership and provision of needed production inputs for farmers, such as fertilizer and seeds to carry out occupations to generate extra income for their families. This includes the intensive provision of small-scale water resources for them.

(3.3) Formulate projects which integrate work of relevant parties to upgrade deteriorated areas, such as saline soil, peat/muck soil, eroded soil, and any areas with slopes of more than 35 percent gradient, by giving special emphasis on small farmers.

(3.4) Establish criteria to clearly categorize impoverished small agricultural workers in order for the government to provide them intensively with services and assistance.

(4) Provide support to projects which enhance quality of life of agricultural workers to ensure their widespread implementation, such as small children development centers in villages.

2. Industrial Decentralization to the Regions

2.1 Past development outcomes

The industrial sector has experienced remarkably high growth rates, with the majority of industrial plants continuing to be concentrated in Bangkok Metropolis and vicinity areas. Some industries are beginning to be located in the outlying central and eastern regions. But decentralization of industries to remoter areas in the regions has been carried out at a slow rate despite the government's policy to increase promotional privileges, as witnessed by the high concentration of 52 percent of industrial factories within Bangkok Metropolis and vicinity areas alone. Factors accounting for low industrial expansion in the provincial areas relative to overall industrial growth include the shortage of needed basic services, financial obstacles, marketing and technological problems, including disadvantages in terms of transport and long distance from commercial areas. Consequently, the Seventh Plan will stress the encouragement of industrial decentralization to the regions to generate greater employment and income for rural people.

2.2 Targets for industrial decentralization to the regions

2.2.1 Emphasize provinces with development potential as well as promote development of local entrepreneurs to expand their businesses, including support for production subcontracting to boost industrial decentralization to the provinces.

2.2.2 Designate industrial development centers in various provinces in each region, including Chiang Mai, Phitsanulok, Nakhon Sawan, Khon Kaen, Nakhon Ratchasima, Saraburi, Ratchaburi, Surat Thani, and Songkhla.

2.3 Guidelines and measures for industrial decentralization to the regions

2.3.1 Provide support and assistance to provincial industries as a general rule.

(1) Decentralize administrative and decision-making authority to government agencies at regional and provincial levels to increasingly represent central agencies in handling various responsibilities, such as authority to grant and renew industrial licences to promote operational flexibility.

(2) Develop administrative and managerial capability of local entrepreneurs by providing training courses on marketing, finance and administration, as well as provide assistance on production techniques, and urge local entrepreneurs to organize into groups to tackle problems by themselves.

(3) Promote greater application of production subcontracting system, such as subcontracting among factories by setting up industrial groups comprising a leading factory and other subsidiary factories to be responsible for sub-contract work. Another option is subcontracting between factories and cottage industries, aiming at the target groups facing problems of low income and under-employment.

(4) Develop marketing system for small-scale and cottage industries, by upgrading product quality standard, product design, as well as promote greater market diversification.

(5) Encourage commercial banks, public and private financial institutions to expand credit to provincial industries, especially to cover a greater number of small-scale industries and cottage industries. Moreover, establishment of an independent small-scale industrial credit guarantee institute should be speeded up to support entrepreneurs, as well as ensure operational flexibility and efficiency. Institutions for small-scale industries must be set up as an independent organization to freely support local entrepreneurs.

(6) Disseminate industrial and marketing information to entrepreneurs in the provinces, by promoting the role of private organizations in both central and provincial areas, together with extension of information services currently conducted by some public agencies which may be useful for business decision-making. Moreover, businessmen in local areas should be made aware of such services as well.

2.3.2 Promote and strengthen provinces with high industrial development potential to be centers for decentralization of industrial activities to the outlying areas. These provinces include Chiang Mai, Phitsanulok, Nakhon Sawan, Khon Kaen, Nakhon Ratchasima, Saraburi, Ratchaburi, Surat Thani, and Songkhla. The following promotional policies are proposed:

(1) Speed up development of public infrastructure facility and demarcate economic zones to adequately support industrial expansion in an appropriate manner.

(2) Expand public support services for industries, such as training for entrepreneurs, product development, dissemination of investment and marketing information to cover all the above mentioned provinces.

2.3.3 Develop industries in the new economic zones, such as the Southern Seaboard and the Upper Central Region using similar pattern of development to that of the Eastern Seaboard. The public sector, in particular, should coordinate investment projects in these areas, and provide basic services, together with setting up of a specific responsible organization to oversee the operations as well as ensure clear and flexible decision-making process.

Chapter 4

Decentralization of Urban Development and Infrastructure Service to the Regions

1. Results of the Past Performance

1.1 In many recent years, dispersion of infrastructure facilities to the regions was quite limited despite the fact that regional urban centers, the Eastern Seaboard and the upper south have been developed to support efforts to disperse economic activities to the regions, and to present alternatives to Bangkok. Consequently, expansion of infrastructure services to support regional urban centers is still crucial as there are still bottleneck problems in many areas. This will require improvement of managerial efficiency and increased investment to encourage more flexible operation, as well as promote greater private sector investment and participation in the provision of infrastructure services.

1.2 Labour migration from rural to urban areas in search of employment continue to be significant for enhancement of production efficiency of regional urban centers. However, the majority of migrants into the regional urban centers are inexperienced and in need of skill training. Consequently, these migrants are likely to have low income, lack job security and unable to earn basic living in towns. The problems are responsible for emergence of urban poverty which will get worse unless appropriate measures are carried out.

1.3 Decentralization of authority and local fiscal capability were limited and unable to cope with investment to expand basic services in municipal areas in all regional urban centers. Moreover, there were also limitations in program planning technique and development projects of the local areas.

2. Targets for Decentralized Urban Development in Regional Areas

Urban development and development of new economic zones of the Eastern Seaboard and the upper central region during the Seventh Plan aim at developing regional urban centers and other new economic zones to become major economic base in each region. Existing potential and opportunities in each region will be utilized to decentralize economic activities to regional areas, and reduce congestion in BMR. Moreover, regional urban centers will be encouraged to systematically redistribute development benefits to peripheral areas of the centers.

3. Development Guidelines

3.1 Development guidelines for the regions and new economic zones.

3.1.1 The North

(1) *Set main development guidelines* as follows:

(1.1) Promote tourism development in terms of natural attractions and unique traditions of the regions, as well as impose environmental protection measures and conserve watershed areas for the benefit of long-term tourism development.

(1.2) Promote handicrafts production, ready-made clothing industry, pottery and ceramic industries to respond to the demand of domestic tourist markets and export markets with development potential.

(1.3) Promote a more integrated agricultural production system, particularly the setting up of a central market for agricultural produce in local areas, and a center for direct exports of temperate climate fruits and vegetables.

(2) *Promote development of regional urban centers* as follows:

(2.1) *Develop Chiang Mai* as a center of trade, business, air transport and tourism of the Upper North to be linked with **Lampang** and **Chiang Rai** which will be developed into tourism cities and centers of local raw material processing industry, as well as develop a border trade point at **Mae Sai** district (Chiang Rai province).

(2.2) *Develop Phitsanulok* as a center of trade, services and local raw material processing industries, while **Nakhon Sawan** will be developed into a center of land and water transport of the Lower North to be linked with a border trade point at Mae Sod district (Tak province).

3.1.2 *The Northeast*

(1) *Set main development guidelines* as follows :

(1.1) Promote development of industrial estates using raw materials found in the region as well as from the neighbouring countries. The industrial estates will be promoted to serve as major economic bases of the region, which will be linked with the international markets via the country's new economic gateway at the Eastern Seaboard.

(1.2) Support regional trade and services, particularly promotion of tourism in areas of historical, artistic and cultural attractions which will be linked with world-class tourism destinations in neighbouring countries, such as Khao Phra Wiharn and Angkor Wat. In addition, trade and service centers should be developed to support the opening up of Indochina countries and to serve as a coordinating center of foreign financial, technical and technological assistance to rehabilitate Indochina.

(2) *Promote development of regional urban centres* as follows:

(2.1) *Develop Khon Kaen* as center of trade, services, transport and education of the region so as to support and coordinate assistance to be

granted to Indochina countries. Udon Thani will be developed into a center of trade and services to serve Indochina countries and to distribute products in the Upper Northeast to be linked with *Sakhon Nakhon*, and border trade points at *Tha Sadet* (Nong khai) and *Tha Kham* (Mukdahan).

(2.2) *Develop Nakhon Ratchasima* as an industrial center to be linked with the Eastern Seaboard and other urban centers in the lower part of the Northeast, including *Ubon Ratchathani*, *Roi Et* and *Surin*, and a border trade point at *Chong Mek* (Ubon Ratchathani).

3.1.3 The West

(1) *Set main development guidelines* as follows :

(1.1) Promote greater utilization of water resources in the Mae Klong river basin to realize its full potential, and particularly to increase productivity and values of agricultural outputs by providing marketing measures and agro-processing measures.

(1.2) Develop the Western region as a service center for fast-growing industries, particularly automobile assembly and agricultural machinery industries.

(2) *Promote development of regional urban centers*, particularly Ratchaburi to be a center of trade, services, and public administration, and to serve as development zones of agro-industry and machinery industry to be linked with Kanchanaburi and Phetchaburi.

3.1.4 The South

(1) *Set main development guidelines* as follows :

(1.1) Formulate measures for conservation and rehabilitation of natural resources and environment, emphasizing guidelines for coordinating coastal resources utilization to ensure continuation of uses for tourism, fisheries and other development activities, such as port construction and industrial estate development, as well as designation of mangrove forest and coral reef conservation zones.

(1.2) Expedite infrastructure development, particularly communications and transport networks to be linked with other regions to promote tourism development in both domestic and external markets, with emphasis on linking major tourist destinations, such as Phuket-Phangnga-Krabi zone, and groups of islands adjacent to Samui-Pha Ngan-and Ang Thong islands.

(1.3) Promote development of coastal cities and border provinces to be gateway for trade with neighbouring countries. Industrial estate development will be promoted to serve industrial requirements, particularly agro-industries, such as rubber, palm oil and sea food.

(2) *Promote development of regional urban centers* as follow :

(2.1) *Develop Surat Thani* as a center of trade and industry to serve industrial development along the Gulf of Thailand and natural gas utilization in the Gulf to be linked with major industries in the Eastern Seaboard. *Phuket* will be developed as a deep-sea port and center of international trade, tourism, services and export-oriented industries of the *Upper South* which will be linked with development of Nakhon Si Thammarat.

(2.2) *Develop Songkhla-Hat Yai* to be a center of trade, services, tourism and public administration of the *Lower South*, by promoting Songkhla to be a seaport tourism town and a center of public administration. Hat Yai, on the other hand, will be developed to be a center of transport, trade, business, and services to be linked with Pattani and several border trade points, such as Sadao (Songkhla), Sungai Kolok (Narathiwat), and Betong (Yala)

(3) *Preparation of Southern Seaboard Development (SSB)*

(3.1) *Target areas*

Currently, studies are on-going to examine the conceptual framework to connect the east (Gulf of Thailand) and west coasts (Andaman sea) through construction of a "land bridge", comprising roads, rails and pipeline system. A master plan will be formulated, together with feasibility studies of various investment projects to take place on both sides of the bridge.

(3.1.1) *Krabi area* will be economic base on the side of the Andaman sea.

(3.1.2) *Khanom area* will be a new economic zone on the side of the Gulf of Thailand.

(3.2) *Development targets of the SSB*

Develop the SSB to be a part of the international shipping routes, by using a strategic location of the South and the country's comparative advantages in terms of land and labour force so that development of Thailand's economy can become more internationalized.

(3.3) *Guidelines for further implementation*

(3.3.1) Study and formulate a master plan to set up framework for SSB development taking into account land use, investment and environmental protection measures.

(3.3.2) Analyse and formulate a preliminary operation plan when the government has approved the master plan.

3.2 Guidelines for distribution of infrastructure services to the regions.

3.2.1 Develop infrastructure facilities in the regions to link economic base of urban centers with outlying towns and rural areas in order to diversify production and redistribute income in the cities and rural areas, particularly basic social services to upgrade quality of life, and serve as mechanism for income distribution to the rural areas.

(1) Transport

(1.1) Land transport

(1.1.1) Develop expressway networks between cities, or special highways with controlled entries and exits to promote efficient transport system and redistribution of development benefits to the regions.

(1.1.2) Develop land transport network to be linked with neighbouring countries to ensure low transportation costs across the borders, as well as rapid and convenient transport of people.

(1.1.3) Build, reconstruct and upgrade standards of national highways and provincial highways to enable the road system to fully handle traffic and transport volumes. In so doing, a drainage system should be built along the routes to prevent flooding.

(1.1.4) Improve and reconstruct rural highways and local highways for all-seasons transport, by giving emphasis to impoverished rural areas and border villages.

(1.1.5) Modernize and enhance efficiency of train services by developing high speed train services in major economic areas. Service quality should be improved, particularly on security aspects, punctuality and convenience, and application of modern technology, as well as promotion of private sector participation to increase operational efficiency.

(1.1.6) Stress importance of control measures and law enforcement to ensure strict adherence to land transport laws and regulations, particularly overloaded trucks and use of stimulants while driving.

(1.1.7) Encourage either public or private organizations to build bus terminals in all provinces to facilitate people's travel all over the country.

(1.2) Water transport

Promote fuller utilization of coastal ports and coastal freight transport, as well as improve dredging and maintenance of water channels in the shipping routes, with high priority to ensure adequate depth and water volume suitable for vessels.

(1.3) Air Transport

(1.3.1) Improve capability and upgrade standards of regional airports which are not international airports, particularly concerning security and facilities to support air transport development plans of both national and private airline companies to be consistent with plans for development of tourism, services, industry and commerce sectors.

(1.3.2) Construct new airports in the regions taking into account consistency with economic and marketing conditions in the relevant regions to ensure cost-effectiveness, and provide opportunities to the private sector for joint investment and operations.

(1.3.3) Maintain air travel services at the international standard by adjusting air fares system to fully reflect the costs.

(2) Communications

Speed up expansion of radio, television and broadcasting networks to cover the entire country for effectively disseminating news and information.

(3) Water supply

Speed up expansion of water supply to cover all the rural areas by determining roles of relevant agencies, and by formulating clearer operation plans for development and procurement of raw water resources, including construction of production and distribution system of water supply, as well as formulate systematic monitoring and evaluation system.

(4) Electricity and energy

(4.1) Distribute electricity services in both quality and quantity terms to new economic and industrial zones in the regions, and rural areas lacking electricity supply.

(4.2) Develop energy resources in the regions to stimulate industrial development, such as utilization of natural gas at Khanom district etc. Additionally, benefits derived from energy development such as royalty fees, should be allocated to local areas to ensure justice in income distribution.

(5) Housing development

Decentralize authority to grant permits for land sub-division projects to local agencies, and reduce unnecessary and duplicated steps for application of permits, as well as improve mechanisms and steps in granting licenses and permits to make the procedure more like routine work. Furthermore, personnel in both central and local agencies should be trained to have greater technical knowledge and better licensing skills.

3.2.2 Develop infrastructure networks in cities to be linked with land and environmental administration by accelerating development of public utilities and amenities, town-planning improvement and preservation of historical sites. Furthermore, development plans for waste water treatment, garbage and waste disposal, and environmental control must be urgently carried out.

(1) *Set administrative system for environment and town planning* as follows :

(1.1) Expedite expansion of municipal areas to be compatible with urban development zones based on land use plans. Development of public utility and amenity networks must also be implemented to be in line with urban expansion and supportive of development of new urban areas to relieve congestion in rapidly expanding urban centers.

(1.2) Encourage local authorities, particularly the target municipalities of the Seventh Plan to improve the land use planning, and speed up formulation of districts plans to preserve historical sites and recreational areas, and control areas facing critical problems.

(1.3) Urgently formulate a master plan for waste water treatment, and construct a waste water treatment plant, together with waste and garbage disposal facilities. In so doing, relevant parties should consider appropriateness of collecting treatment charges to recover some costs. Furthermore, land should be prepared for this purpose emphasizing use of public land.

(1.4) Draw up a master plan for water pollution control and waste water treatment at the national level for subsequent implementation.

(1.5) Set standard of waste water discharged from households and communities to be in line with economic capability and environmental administration in local areas. Issuance of local bye-laws should be accelerated to control standards of discharged waste water.

(2) *Provide urban infrastructure networks* as follows :

(2.1) *Urban traffic and transport*

Speed up construction of ring roads and bypasses, and improve efficiency of urban, and inter-city traffic system public transport services stressing alleviation of congestion problems in urban business districts.

(2.2) *Water supply services and management of raw water resources*

Accelerate expansion of production capacity and improve service quality in regional urban centers in line with local demand and urban expansion, by increasing managerial efficiency to reduce water losses. Furthermore,

support should be provided in terms of operational and maintenance equipment, as well as upgrading of personnel quality, while water charges should be reset to ensure cost-effectiveness in both production and distribution, as well as to reflect the differential costs in each areas. In addition, private participation should be promoted in the provision of water supply system, together with formulation of a master plan for raw water resources development, and their conservation, water allocation and water management at the national level.

(2.3) Communications and electricity

Set up modern and efficient telecommunications networks in regional urban centers, and improve efficiency of electricity transmission and distribution to be compatible with industrial and urban expansion.

3.2.3 Accelerate industrial decentralization to regional urban centers based on the following measures :

(1) Place emphasis on nine industrial urban centers, namely Chiang Mai, Phitsanulok, Nakhon Sawan, Nakhon Ratchasima, Saraburi, Ratchaburi, Surat thani, and Songkhla-Hat Yai. At these centers, industrial estates should be set up, together with public utilities and amenities to serve industries with high development potential. This includes an establishment of a center to provide a wide range of industrial services, such as promotional privileges and labour training.

(2) Promote development of local entrepreneurs to enhance their managerial efficiency and use of technology, as well as identify industries with development potential in each areas. Furthermore, production subcontracting should be encouraged and industrial credit services should be granted on a wider basis.

(3) Demarcate specific development zones for pollution generating industries to facilitate control and management of pollution, as well as to economize on the costs of pollution control.

3.2.4 Decentralize fiscal and monetary administration to local authorities.

(1) Improve local expenditure administration system by controlling expenditure to ensure effective administration. Development expenditure should be increased, together with preparation of development programs and projects in line with the additional development expenditures.

(2) Promote wider opportunities for local authorities to seek loans for development of local infrastructure facilities, by setting up local development fund and environmental development fund under supervision of the Ministry of Finance and other agencies concerned to provide credit for expansion and improvement of various local services. Furthermore, local authorities should be assisted to formulate development projects, by mobilizing capital from local areas, the government, private financial institutions and foreign sources.

3.3 Guidelines for occupational development and living conditions of the urban poor.

To tackle urban poverty, the Seventh Plan has drawn up main guidelines to raise income and security in occupations, improve and provide housing, upgrade quality of life and environment, and increase efficiency of community development organizations. Details of each issue are as follows :

3.3.1 Promote small-scale self-employment in informal sectors in urban areas in an integrated and systematic manner, by aiming at various groups of self-employed workers, such as hawkers and vendors, contractors, subcontractors, and home-based workers, particularly those in slum communities.

3.3.2 Promote small and medium businesses to become employment base for the urban poor, and to form an integrated part of the production system of large businesses.

3.3.3 Encourage procurement and improve housing for the urban poor to ensure security in housing, better quality of life and environment in communities.

3.3.4 Strengthen people's organizations in slum communities to increasingly participate in community development.

3.3.5 Encourage private organizations to participate in urban poverty alleviation efforts.

3.3.6 Promote skill training to upgrade ability of the underprivileged to gain better knowledge and occupational skills for better employment opportunities and income, as well as security in occupations, together with fair wages, appropriate working conditions, safety at work and adequate welfare services.

3.3.7 Improve quality of life of people, especially the underprivileged to receive as required, social welfare and basic social services necessary for living so that they can develop themselves and contribute to national development.

3.4 Guidelines for distribution of basic social services to rural areas.

Apart from provision of infrastructure services for economic development, basic social services are also considered essential. The Seventh Plan, therefore, aims to improve and distribute wider basic social services to the regions, including education, training, public health, safety and security in life and property, justice process and other social services to be sufficiently provided in both quality and quantity for people in the regions. Development guidelines in this regard are as follows:

3.4.1 Education and training services

(1) *Extend basic education services* to encourage readiness, increase knowledge and occupational skill through the following:

(1.1) Expand education at pre-school and kindergarten levels to be accessible to a greater number of children in remote rural areas.

(1.2) Provide compulsory education (6 years) to cover a greater number of children in remote rural areas, children who have to accompany their parents to work in many places, hilltribes children, and children of "Chao Lay". (A gypsy type of sea-faring people commonly found along the southern sea coasts.)

(1.3) Extend compulsory education from 6 to 9 years in both quality and quantity so that children in rural areas who finish grade six can further study at a higher level, especially those in remote and poor rural areas.

(2) *Develop medium and high-level manpower* in qualitative and quantitative aspects in needed fields at the existing and newly established universities and colleges, by providing opportunities to children and youths in local areas to pursue higher education.

(3) *Provide life-long continuing education* to cope with people's needs in the regions by using instructional media in both formal and informal education for the provision of services.

(4) *Promote short-term skill training courses* for unskilled workers and laborers in the agricultural sector to upgrade their skills and promote greater opportunities for supplementary employment, with cooperation from labor skill training institutes of both public and private sectors in various provincial areas.

3.4.2 Public health services

(1) Allocate public health resources in terms of personnel, medical equipment and supply to be in line with quality and efficiency improvement in health services at various levels of health stations in the regions, particularly health centers and community hospitals etc.

(2) Develop knowledge base concerning traditional health care services, such as herbal medicine to be harmonized with modern medical science in order to increase health services in rural areas.

(3) Develop and expand basic health services to be consistent with changing needs of new economic zones, by improving local health centers, or building new ones to serve the increasing local demand.

(4) Develop existing health insurance system, such as voluntary health insurance system, and welfare services for low-income earners and the elderly in all target areas.

(5) Promote rural people's well-being by ensuring sanitary housing conditions, hygienic and adequate food supply, adequate physical exercises and

recreation, knowledge on nutrition, cleanliness of the housing compound, provision of small public parks, and day-care centres etc.

3.4.3 Social welfare services and upgrading of quality of life.

(1) Promote day-care center establishment in rural areas, including provision of child-care training for child-minders, parents, and staff responsible for children development.

(2) Promote formation of youth groups and youth camps, as well as develop youth centers and volunteer groups to take a key part in children's and youth's development. In this regard, public libraries and stadiums at the provincial level should be widely developed.

(3) Provide occupational and skill training for women in rural areas.

(4) Provide services to ensure safety and security in life and property and promote peace in society, by establishing small police sub-stations at local level, as well as set up a patrol unit and formulate a joint project between community and relevant officers to ensure safety at the local level.

(5) Provide educational and training services for the elderly with public and private cooperation to provide housing and knowledge to properly adapt their living conditions in line with their ages.

(6) Promote people's organization into groups in local areas to carry out spiritual development activities to strengthen their cooperation and assistance in occupational and local development.

Chapter 5

Development of Quality of Life and Living Conditions of Poor People in Rural Areas

1. Results of Past Performance

Rural development in the past mainly emphasized development of people, especially impoverished people and the economically underprivileged, and has led to better quality of life and self-reliance of people in some rural areas. For instance, the illiteracy rate among rural people dropped from 11 percent in 1985 to 9 percent of rural population in 1990. Rural people have attained better health as mortality rates of people of all ages fell from 5.1 per 1,000 population in 1982 to 4.3 per 1,000 population, while serious malnutrition among children markedly declined and has almost disappeared at the present time. Meanwhile, rural people had more convenience in life because basic services had been more widely dispersed, including electricity, roads leading to villages, water supply, schools, hospitals and health centers, etc.

However, some problems still exist in rural areas which need to be solved, such as irregular farm outputs in rain-fed areas, and uncertain crop prices, thus affecting income of rural people. Moreover, other new problems are emerging which are likely to be increasingly serious in line with the rapid economic changes, such as pollution problems as a result of pesticide uses, contamination of water for agriculture and consumption caused by industrial plants located in rural or outlying urban areas, and shortage of skilled agricultural workers who have migrated to cities or who have switched occupations. All of these problems adversely affect development of quality of life and living conditions of rural people. In addition, in terms of development administration in the past, provincial authorities had limited opportunity to initiate their own development projects, manage and make decisions by themselves. Consequently, the Seventh Plan will not only emphasize rural development as a continuation of previous plans, but will also promote a more unified administrative system in rural development, and decentralize authority in administration and decision-making to provincial agencies, while quality of rural people will be upgraded to obtain basic knowledge and education to promote a greater entrepreneurial spirit among rural people. People's organizations and the private sector, in particular, will be encouraged to participate in rural development to improve quality of life and security of income of the rural poor.

2. Targets of Rural Development

To develop quality of life and living conditions of the rural poor, development targets are as follows:

2.1 Develop quality of life of all rural households to attain standards of basic minimum needs, including adequate means of livelihood, good health, safety and security in life and property, and participation in national development.

2.2 Generate income and employment opportunities among poor target groups of people in rural areas, such as landless agricultural workers and about 1 million households of low-income hired workers nationwide to have higher income with stability.

2.3 Conserve and rehabilitate the natural resources and environment with participation of people's organizations.

3. Rural Development Guidelines

3.1 Improve administrative system in rural development by decentralizing authority for rural development to the regions.

3.1.1 Speed up implementation of government's policies to create unity in rural development administration by improving the administration of Rural Employment Generation Project and other rural development projects under the system of the National Rural Development Committee (NRDC).

3.1.2 Allocate budget in support of decentralization of administration authority in rural development by setting up special subsidies for provinces to support development projects or any activities which solve local problems, or develop local areas in accordance with provincial development plans.

3.1.3 Increase role of provinces, by allowing them to initiate development programs and projects in line with needs of the local people and government policies under the guidelines of provincial development plan to cover both rural and urban areas.

3.1.4 Improve steps in coordinating operation plans in a systematic manner, such as development programs, manpower plan and financial plan, by using long-term development plan of each province as an instrument for coordinating development activities. Moreover, information system for rural development administration must be improved to handle newly-improved administrative system, and develop evaluation and monitoring system to be in line with rural development policies which aim at decentralizing administration authority to the regions.

3.1.5 Grant subsidies to non-governmental organizations and increase roles of people's organizations and private enterprises to cooperate with the public sector and communities in developing rural areas at all levels, particularly at village level.

3.2 Upgrade income and generate employment opportunities in rural areas.

3.2.1 Formulate an operational plan to develop low-income households in rural areas, by considering it as part of a provincial development plan to utilize the subsidies to boost decentralization of development administration authority to provinces. Main points of the operational plan must consist of target groups, characteristics of development activities and development administration.

3.2.2 Promote government agencies and the private sector to develop capability of rural people to seek opportunities to improve production, marketing and occupations, as well as starting other new occupations in terms of regular occupations and supplementary jobs.

(1) Increase basic education for people to have occupational alternatives.

(1.1) Extend educational opportunities in both formal and informal systems for the poor.

(1.1.1) Formal education system. Extend educational opportunities at a pre-school level and at a higher level appropriate to each local area.

(1.1.2) Non-formal education system. Provide non-formal education and training services for interested children and youths.

(1.2) Emphasize occupational training and skill development to be in line with labor market demand.

(2) Develop employees' group in rural areas to increase production and income by promoting both public and private sectors to continuously develop employees' groups in agricultural and non-agricultural sectors, aiming at increasing productivity and income security.

3.2.3 Restructure rural economy to ensure greater diversification to a wide range of production activities in agriculture, non-agriculture and marketing via the following:

(1) Promote production in agricultural and non-agricultural sectors:

(1.1) Develop agricultural occupations in normal and problem-stricken areas to diversify production activities from cultivation to other activities, such as integrated farming.

(1.2) Develop agro-industries to generate greater employment opportunities.

(1.3) Develop handicrafts/cottage industries and small-scale industries in the regions to increase income and employment in provincial and rural areas.

(1.4) Upgrade tourism and services in local areas with potential for further development as new tourist destinations of the local areas.

(2) Set up marketing system to handle production outputs in rural areas by encouraging the private sector to create market for the products.

(3) Promote employment in both agricultural and non-agricultural sectors by providing an efficient job-search system.

(4) Support non-governmental organizations, private enterprises and farmer institutions to increasingly participate in rural economic development from the commercial point of view, particularly in the formulation of production and marketing plans.

3.2.4 Disperse infrastructure facilities conducive to occupational development.

(1) Construct and maintain road networks between villages and districts or market places to ensure adequate conditions for all-seasons uses.

(2) Extend electricity services to all villages and households for better living conditions and occupational development.

(3) Develop water resources for agriculture at village level and promote utilization of those resources in agricultural production.

(4) Encourage setting up of farmer institutions and credit sources to serve production needs in an adequate manner.

3.3 Upgrade quality of life of rural people

To achieve desirable outcomes in line with criteria of basic minimum needs, development guidelines are set as follows:

3.3.1 Promote people's participation in quality of life development to improve living conditions of rural people.

(1) Promote people's potential in identifying problems of their own households and communities, and find proper solutions to their basic problems based on potential of people and communities.

(2) Promote self-reliance of people by mobilizing local resources via setting up of village development fund.

(3) Strengthen people's organizations at tambon and village levels to join in the planning process.

(4) Set up monitoring and evaluation system to assess project implementation and impact on people's quality of life development on an annual basis, utilizing information from basic minimum needs data.

3.3.2 Increase efficiency to solve sanitation problems in rural areas stressing the following:

- (1) Procure clean water for consumption.
- (2) Promote food sanitation activities, disease carriers control, waste water treatment, housing sanitation, garbage and waste disposal.
- (3) Provide sanitation education to communities, as well as promote health and sanitation studies in primary schools, and research and development (R & D) for sanitation and environmental information system.

3.3.3 Improve public health services to be in line with pattern of diseases, especially illnesses due to social and economic changes via the following:

- (1) Adjust health service system to be consistent with specific disease conditions in local areas.
- (2) Promote cooperation in preventing and alleviating pollution problems caused by factories and use of chemical products in agriculture.
- (3) Control and prevent local disease in the North, Northeast and South.
- (4) Promote sports development and physical exercise among children, youths and the general public.

3.3.4 Promote moral and cultural development, as well as ethical conduct to preserve unique characteristics of communities and create peace in society, by the following:

- (1) Promote the public to appreciate cultural values, and participate in preservation of cultural characteristics at national and local levels.
- (2) Create public awareness about the importance of joint responsibility for upholding and preserving cultural heritage of the country.
- (3) Create public awareness of duties and responsibility to community and society.

3.3.5 Promote participation of non-governmental organizations, people's organizations and the general public to alleviate and develop rural society via the following:

- (1) Emphasize roles of non-governmental organizations which undertake activities beneficial to local society.

(2) Stress activities of non-governmental organizations which result in local development and are in line with people's requirements in local areas.

(3) Encourage participation of people's organizations and communities by stressing efficient management to mitigate local problems, social welfare and prevent community problems on a continual manner.

(4) Encourage setting up of a permanent organization for coordinating activities of people's organizations and local people.

(5) Promote family, community, and religious institutions to have a role in solving family problems of rural people by creating effective means to disseminate knowledge and understanding about how to properly adapt their ways of life in line with the changing environment.

3.4 Develop natural resources and environment to serve as base for long-term rural development.

3.4.1 Promote role of the public and people's organizations in conserving and utilizing natural resources, as well as preventing natural disasters by the following:

(1) Encourage agricultural workers to solve problems of land unsuitable for farming, such as saline soil, acid soil, and soil infertility. In addition, they should learn how to correctly prevent soil erosion with minimum cost, while the public sector should promote research and development activities and transfer practical methodologies to farmers.

(2) Provide knowledge to agricultural workers concerning conservation and utilization of water resources for agriculture where the government has already spent a large amount of money for construction, emphasizing optimum utilization of water resources.

(3) Emphasize community forest development projects and community's role in forest conservation.

(4) Create community's awareness involving natural resources and environmental conservation based on joint cooperation between people's organizations, non-governmental organizations and private enterprises in the local area.

3.4.2 Decentralize development administration in natural resources and environment to provincial authorities.

(1) Formulate natural resources and environmental conservation plan at the provincial level, by allowing provincial authorities to initiate and alleviate natural resources and environmental problems by themselves.

(2) Increase role of provincial and district authorities in natural

resources management in conservation areas outside forest reserves outside conservation areas, and public areas.

(3) Provide budgetary support for provinces to mitigate the problems concerning natural resources and environment under the budget to support decentralization of power to regional and provincial authorities.

3.5 Develop areas facing specific problems, such as backward and remote border areas, security sensitive areas and areas facing natural disasters through the following measures:

3.5.1 Set up coordinating mechanism between government agencies, the private sector and people to solve immediate problems.

(1) Improve composition and responsibilities of joint committees to solve immediate problems in local areas to ensure operational flexibility.

(2) Promote roles of private organizations and the public to arrange preventive measures for any immediate problems that are expected to happen.

3.5.2 Establish a specific development system in problem-stricken areas, such as a system to link development of border areas with other areas.

(1) Improve implementation of development activities at the local level by coordinating development plans among central agencies, including the security development plans and ministerial plans by using provincial development plans as coordinating point to operationalize plan concepts from the national to the regional and local levels.

(2) Strengthen role and capability of provincial authorities in preparing solutions to emergency and immediate problems by providing necessary personnel and preparing guidelines for solutions of problems in the provincial development plan.

(3) Improve management process and practice concerning development projects and activities to solve specific problems by allowing provincial authorities to initiate possible solutions and participate at any stage.

(4) Implement projects aimed at restoring the original geographical conditions which have been transformed by nature in order to maintain the original territory of the country.

(5) Promote research and development of a system and process to prevent accidents and natural disasters.

3.5.3 Increase capability of people's organizations to mitigate immediate problems and continuously participate in economic, social and security development.

(1) Constantly provide training courses for private organizations in local areas stressing continuous practice and learning from successful examples, and carry out evaluations at regular intervals to increase efficiency.

(2) Provide necessary technical knowhow to be ready for solving immediate problems.

(3) Set up people's networks with coordination among people's organizations in villages based on characteristics of occupations so that they can help each other in preventing and rehabilitating the communities, as well as receive assistance from the government in an efficient manner.

(4) Acknowledge and emphasize importance of the potential role of local wisdom in every process of development, and promote the role of natural local leadership.

Part IV

**Guidelines for Development of Human Resources,
Quality of Life and Environment**

Part IV

Guidelines for Development of Human Resources, Quality of Life and Environment

Introduction

1. Development of human resources, quality of life and environment directly involve people, who are promoters and supporters of development programs and projects according to the set objectives and targets. As active supporters of national development they directly reap the benefits of development. But as ordinary people they are also directly and invariably affected by any negative impacts of development activities. Therefore, development of human resources, quality of life, and environment are critical to the success of the Seventh Plan in bringing about balanced and sustainable development in terms of quantitative expansion, qualitative improvement, and social justice.

At the present time, Thailand's development is at a critical juncture. The economy is becoming increasingly internationalized, requiring constant upgrading of production capacity to stay competitive in the international arena. At the same time, rapid structural transformation has brought about an economy which is increasingly industry and service oriented, while the traditional rural agricultural society is giving way to a more urbanized society. Therefore, in order to promote the people's role in determining and bringing about growth and development, it is vital to raise people's capabilities and develop human potential to the fullest in harmony with the rapidly changing environment.

A key issue facing the country at this time is that human resources development thus far has not been able to support the process of national development in an efficient manner. Thailand's traditional comparative advantage in human resources has gradually been eroded as wage rates rise steadily, and as Thailand faces labor shortages in quantity and quality terms, particularly at the basic, medium and high skill levels in science and technology-related fields. At the same time, it is expected that during the Seventh Plan period there will continue to be a surplus of unskilled labor which will be underemployed in the agricultural sector. This latter group of workers will need to be given skill upgrading and training services in line with changing and rapidly modernising agricultural and industrial production structures.

2. When the social impacts of rapid economic development on the people are taken into account, it is clear that people's quality of life is being affected by the economic and social transformation from a rural agricultural society to a more urbanized and modern society. The constant flow of rural-urban migration and the associated instability of the family institution have led to a number of problems typical of urban ways of life, such as problems among children and

youths, drug addiction, prostitution, problems related to safety and security of life and property, health problems associated with urban society and the changing age group structure characterised by larger proportions of the middle-aged and the elderly, and a smaller proportion of children.

Furthermore, there are impacts of development on quality of life as related to the Thai way of life, moral and spiritual well-being, the value and belief system and culture. Finally, the impacts of development are significant in the environmental field, as once abundant natural resources have been intensively exploited in order to raise agricultural and industrial outputs and to alleviate rural poverty problems.

3. Consequently, the following four objectives for the development of human resources, quality of life and environment have been set out during the Seventh Plan period.

3.1 Organize educational and skill training systems to enable the various target labor groups to realize their full potential and to raise their capability so that they adjust to the rapidly changing economic environment.

3.2 Prevent, as well as solve problems arising from social conflicts during the transitional period, paying particular attention to raising the capability of the underprivileged who cannot help themselves, and who have difficulties adjusting to changes.

3.3 Reduce negative impacts on the quality of life from environmental degradation caused by rapid urbanization, industrialization and deterioration of natural resources.

3.4 Encourage and support development of the quality of life in line with the nature of problems and needs of the various age groups, from childhood, youth, working age to the old age, by providing life-long education.

4. In order to attain the above objectives, it is necessary to formulate the following policies for the development of human resources, quality of life and environment.

4.1 Increase role of the government in development of human resources, quality of life and environment by assisting the underprivileged to realize their potential and to help raise their capability in various ways. This includes granting subsidies and scholarship programs for education of the underprivileged, provision of welfare services in education and medical services for the poor, the elderly, the handicapped, as well as allocation of budget or subsidies for prevention and solution of environmental problems as a matter of high priority.

4.2 Improve and relax rules and regulations in order to increase efficiency and to attract greater private investment in developing human resources, quality of life and environment. This includes review of imposition of tuition ceilings in private schools, adjustment of fees per course unit and tuition at university level, particularly in fields of high market demand to better reflect the costs,

greater and wider cooperation between the public and private sectors in skill and occupational training, greater mobilization of private investment in providing skill training services, as well as the application of the "polluter-pays-principle" during the Seventh Plan period, etc.

4.3 Support mobilization of efforts among the family institution, communities, private organizations, religious institutions and the government in preventing and solving environmental problems, and upgrading of quality of life in regard to spiritual and cultural development. In this respect, it will be necessary to strengthen the family institution to assist private organizations and non-governmental organizations, to broaden the scope of cooperation between the public sector and people's organizations in various forms, such as primary health care system, community work and community relations, volunteers for preservation of artistic and cultural heritage, as well as set up a tripartite organization, comprising communities, enterprises and the government to monitor and maintain environmental quality at an acceptable level.

Details of the policies and measures will appear in later chapters including a chapter on development of human resources, education and health, followed by a chapter on moral, spiritual, cultural and social development, a chapter on environmental development for quality of life, and a final chapter on administration and management of natural resources.

Chapter 1

Development of Human Resources, Education and Health

1. Development issues

Given a review of past economic and social changes and expectation of the future trends, the following major development issues during the Seventh Plan period may be identified.

1.1 The population growth rate has constantly declined with some remaining problems in selected areas.

Although Thailand has been highly successful in reducing population growth rates to about 1.4 percent by the end of the Sixth Plan, in some locations the growth rates remain high, particularly in the northeast, and the south among some hilltribes and Thai nationals of distinctive cultures who are in the low-income group.

1.2 The age-group structure has changed with a declining share of children, and rising shares of the working men and women, the middle-aged and the elderly.

The lower population growth rates have led to changes in population structure. The share of the children's age group (0-14 years) has tended to decline to 33 percent, while the share of the young men and women and the middle-aged category (15-59 years) has increased to 61 percent, leaving the elderly group (over 60 years) also with an increasing share of 6.2 percent. These changes have significant impact on education planning, job opportunities, and provision of health and public welfare services.

1.3 Human settlement pattern has shifted from a largely rural society based to a more urbanized society.

As the majority of industrial and service activities are concentrated in urban areas, this stimulates rural to urban migration. However, although some people may have better job opportunities and higher income, there are impacts on the way of life and other social problems associated with an urbanized life. These include shortages of housing and education and health services, crimes, drugs, slums, traffic congestion in big cities, deterioration of quality of life from worsening pollution problems, problems of security and safety of life and property, problems of children and youth, mental health, labor and prostitution problems, as well as urban poverty-related problems.

1.4 The comparative advantage of Thai human resources are being eroded in terms of quantity, quality and wage level.

Changes in economic and social environment and population structure have led to a gradual decline in Thailand's comparative advantage in human resources. There have been increasing shortages of labor both in terms of quantity and quality at the basic, medium and high skill levels in science and technology related fields. This has resulted in increasing wage rates, affecting the international competitiveness of the Thai economy. At the same time, the education and training system has not been sufficiently flexible to increase production of manpower in response to the changing demand in a timely manner. Characteristics of demand and shortages of manpower at various levels may be summarized as follows:

1.4.1 Manpower at the basic level.

The rapidly expanding industrial and services sectors have led to a greatly increasing demand for labor with higher than primary education, while the rate of participation in the labor force of this age group has tended to decline, leading to tightening of the labor market.

1.4.2 Manpower at the medium and high skill levels.

Business enterprises have an ever increasing demand for skilled and experienced technicians in specialized industrial areas, but the supply of labor with appropriate quality is not forthcoming. At the same time, there is also unemployment of graduates of vocational education whose skills and education background are not in high demand. With regard to shortages of science and technology manpower, the problem is particularly serious in the fields of mechanical and metallurgical engineering, electrical and chemical engineering, measuring and testing instrument, as well as civil and computer engineering. Shortages are also felt in the fields of marketing, management, tourism business, environment, medicine, and modern agriculture, all fields in which the education system is not capable of producing the above manpower in a sufficient quantity and in a timely manner.

By contrast, during the Seventh Plan period, it is also expected that there will continue to be underemployment among agricultural workers, particularly those with low education and low skill, who cannot adjust themselves to the requirements of modern agricultural and industrial production.

1.5 The people's pattern of illness has changed.

Changes in age-group structure, as well as changes in the economic and social environment have tended to reduce the pressure of demand on selected medical care services, particularly maternal and child care, and children's immunization. At the same time, the pattern of demand for health care tends to be increasingly occupationally related, particularly to modern industrial and service sectors. Furthermore, there is a higher incidence of diseases associated with the middle-aged and the elderly, such as heart disease, cancer, gastro-intestinal tract disorder, as well as environmentally related illness, such as mental illness, nervous breakdowns, AIDS and food-related illnesses. Contagious diseases, and poverty related illnesses also continue to be problems to be addressed.

2. Development targets

The above-mentioned development issues, make clear the importance of bringing about a population that possesses moral integrity, technical capability and sound health. This will promote and support the national development process by enhancing the international competitiveness of the economy, and create opportunities for the underprivileged groups of people to upgrade their knowledge base, labor skills, and working experience to enable them to earn a better living. In order to attain the above objectives, the following development targets have been set.

2.1 Population

2.1.1 Reduce population growth rates to 1.2 percent by the end of the Seventh Plan period (with a population of 61 million), with special focus on the target groups in the northeast, and the south, and the special target groups, such as hilltribes people, Thai nationals of distinctive cultures in the south, slum dwellers, and industrial workers.

2.1.2 Organize human settlement pattern in both urban and rural areas to encourage orderly growth, while preventing pollution problems and protecting the environment.

2.2 Education and training

2.2.1 Expand basic education from 6 to 9 years in a gradual and systematic manner and increase the transition rates from primary to lower secondary education from 46.2 percent to no less than 73 percent by the end of the Seventh Plan, with special emphasis on rural poor areas with low transition rates.

2.2.2 Set new university student admission ratio of science to social science students at 30 : 70 by the last year of the Seventh Plan, emphasizing development of medical doctors, dentists, pharmacists, engineers, scientists and other manpower fields consistent with national development.

2.2.3 Encourage the people to have wide and continuous access to both formal and non-formal education system.

2.3 Upgrading of income and labor welfare services

2.3.1 Increase employment opportunities for another 2.8 million workers during the Seventh Plan period, thereby increasing the number of employed persons from 32.02 million in 1991 to 34.85 million by 1996.

2.3.2 Provide skill training services to the economically underprivileged group to enable them to upgrade their capability, raise their income, improve their well-being, and to encourage them to engage in self-employment and small-scale business in the urban informal sector. Furthermore, there should also be additional farm and non-farm employment opportunities to raise incomes of agricultural workers in rural areas.

2.3.3 Ensure provision of job security, fair wages, proper protection against occupational health hazards, reasonable working conditions and widespread labor welfare services to the economically underprivileged, particularly hired agricultural laborers, low-income urban workers, child and female laborers and Thai workers in foreign countries.

2.4 Development of health and physical well-being

The ultimate target is sound health for all by the next decade, while within the Seventh Plan period, the medium term targets will be as follows:

2.4.1 Reduce the rates of morbidity and mortality from various diseases as follows.

(1) Reduce rates of infant mortality from 29 per 1,000 live births to 23 per 1,000 live births.

(2) Ensure that at least 90 percent of the 0-5 age group of children receive necessary immunization services.

(3) Reduce incidences of morbidity and mortality of all age groups from major diseases including gastro-intestinal tract disorder, heart disease, cancer and AIDS.

2.4.2 Encourage the people to have nutritious and hygienic food in an adequate amount, together with appropriate housing and environmental conditions as follows:

(1) Reduce the rates of second and third degrees malnutrition among the 0-14 age group to lower than 1 percent.

(2) Provide adequate health care services to the over 60's.

2.4.3 Ensure adequate supply of public health care services, particularly among the poor, the elderly, children and the handicapped.

3. Guidelines and measures for development of human resources, education and health.

In order to attain the above-mentioned objectives and targets, the following guidelines and measures are formulated for the development of human resources, education and health during the Seventh Plan period.

3.1 Population

3.1.1 *Reduce population growth rates* to attain the set targets, via the following:

(1) *Expand family planning services* to cover all target groups and maintain the high acceptance rates in areas where family planning services are already widely available via the following measures:

(1.1) Increase the capability and efficiency of personnel and promote volunteer system to assist in expanding family planning services in slum communities, together with the improvement of maternal and child care services.

(1.2) Integrate family planning services with other development activities.

(1.3) Improve information system on fertility conditions and the practice of family planning among the special target groups.

(2) *Carry out public relations campaigns* on family planning and population and development.

(2.1) Carry out public relations campaigns on the costs and disadvantages of having too many children, as well as on instilling through the formal and non-formal school systems the proper value of having a two-child family. Furthermore, improve teaching methods of population studies in the school system to make the subject more interesting to students at all levels and to include subject matters on promotion of quality of the population and the environment.

(2.2) Promote roles of private and community organizations, as well as cooperation and coordination among public agencies, private organizations and communities, particularly community leaders in carrying out campaigns on family planning, and creation of understanding concerning impacts of population on development.

(2.3) Carry out campaigns to create understanding among newly married couples concerning their readiness to raise a child, and the roles and joint responsibilities of both parents in bringing up children.

3.1.2 Encourage and promote distribution of people and their settlement pattern in harmony with economic and social development and employment situation, via the following:

(1) *Support local authorities* (municipality and sanitary district) in planning and improving provision of infrastructure services to serve existing and new urban communities by decentralizing power and authority of urban community development to local authorities.

(2) *Improve population information system* to include data on urban population and urban communities, particularly new urban communities, where official records do not exist as yet by designating relevant agencies and provincial authorities to collect such information on a continual basis.

(3) Stop migration of hilltribes people with intent to settle down in Thailand, and relocate those who have already settled in the country, as well as prevent migration into the forests of lowland villagers. Relevant public agencies at the national and regional levels must be encouraged to formulate plans for orderly development of hilltribes villages, as well as to carry out campaigns to point out advantages and disadvantages of migration to create correct understanding among villagers and hilltribes people.

3.2 Education and training

3.2.1 Place high priority on expansion of basic education to ensure preparedness, increase education, and upgrade skills for subsequent occupational development, particularly among the underprivileged, who cannot adequately help themselves, via the following.

(1) Promote child development from birth to the age of compulsory education.

(1.1) For children of 0-5 years, emphasize role of family institution in bringing up children, as well as encourage communities, enterprises and public agencies to expand the availability of pre-school child care centers.

(1.2) Expand and promote nursery education for caring of infants and young children within and without the system by providing incentives for greater private sector participation.

(2) Ensure that the six years compulsory education cover all of the age group, particularly children in remote rural areas, children obliged to migrate with parents, as well as youths and women who are unfairly exploited, emphasizing the following:

(2.1) Expand and develop appropriate teaching and learning pattern for underprivileged children in remote rural areas, for children in urban slums, for physically and emotionally abnormal children, as well as for children with exceptional talents.

(2.2) Improve teaching and learning process to reduce repetition and drop-out rates, as well as improve the effectiveness of the referral system.

(2.3) Review and improve operational efficiency of the school lunch project and to provide wide and continuous access for the target groups.

(2.4) Amend laws, rules, regulations and restrictions hindering further education of children and youths, particularly the initial enrollment procedure, and education programmes after the compulsory level. For instance, civil registration law and government regulations at present do not allow primary school graduates under 15 years old to participate in non-formal education programs.

(3) *Expand basic education from six to nine years* in a gradual and systematic manner, emphasizing both quantitative expansion and qualitative improvement, particularly in remote rural areas with low continuation rates.

(3.1) Provide incentives to underprivileged parents to send their children to lower secondary schools by offering subsidies to compensate for the opportunity costs, or by using educational vouchers.

(3.2) Improve curriculum to promote skill and occupational development in harmony with local conditions, as well as apply folk wisdom to the teaching and learning process.

(4) *Develop methods and principles of teaching science, mathematics and linguistics*, via the following.

(4.1) Speed up development of teachers and provision of pre-service and in-service training for teachers at all levels, emphasizing production of teachers with quality, professional ethics, and technical capability in imparting knowledge to the students in an effective manner.

(4.2) Improve and modernize school equipment, laboratories, and libraries, and carry out campaigns to promote regular and continued use of facilities, as well as emphasize organization of specific activities, such as organization of exhibitions, and invention contests, etc.

3.2.2 *Develop medium and high skill manpower* in quantity and quality terms in fields experiencing shortages, and in line with market demand as following:

(1) *Speed up production of medical doctors, dentists, pharmacists, engineers, architects, scientists, technologists, and technicians*, by increasing output targets of existing public educational institutions, and of institutions which are being set up in the regions.

(2) Develop an information system with up to date data on labor market situation in order to improve curriculum and teaching and learning process consistent with employment opportunities. In order for the system to function effectively, there must be a systematic and widespread follow-up of graduates from educational institutions about their job search and actual employment experiences. This information may be used for revision of curricula to reflect requirements of the labor market. The labor market information will also be useful in improving the quality of educational counselling services, and career guidance services.

(3) *Speed up development and training of teachers in shortage areas* based on the following guidelines.

(3.1) Emphasize development and training of teachers in existing institutions by seeking technical assistance from foreign countries. Further-

more, emphasis will be on quality development in terms of moral integrity, high ethical standard, technical skills, management capability, and ability to impart knowledge to students.

(3.2) Coordinate with enterprises in skill training and occupational development, and develop an information system to keep abreast of technological progress.

(3.3) Encourage rotation of personnel among educational institutions, public technical institutions and private establishments to provide opportunities to gain wider experience and enhance individual capability at work.

(3.4) Provide incentives in various forms to teachers in areas facing shortages, particularly in engineering, science, medicine, dentistry, and pharmacy, such as provision of scholarships, subsidies in the form of bonus income, increase in the hourly pay rate of teaching, as well as allow retired teachers/professors to continue to teach until 65 years old, etc.

(4) Encourage public higher education institutions to have greater independence and self-reliance.

(4.1) Allow universities to have freedom in managing the publicly allocated budget by issuing universities' own regulations on use of money, with the exception of personnel administration regulations which continue to be under the government system.

(4.2) Alternatively, universities may opt to follow the example of Suranaree University of Technology, which is considered to be a public university, but not a part of government bureaucracy. In operational terms, the university will receive a grant from the government in order to best achieve its potential. However, it will be obliged to generate the rest of its income, while the University Council has complete authority in issuing rules and regulations on budgetary administration.

(5) Promote provision of higher education which encourages students to seek knowledge, respect orders, have discipline, and professional ethics, as well as greater international experiences, via the following:

(5.1) Develop interdisciplinary curriculum which allows for integration of science and social science subjects, such as a joint program in engineering and economics.

(5.2) Organize technical cooperation programs with foreign educational institutions, such as exchanges of professors and offers of joint programs.

(6) Adjust level of fee per course unit, and tuition fee of public higher education institutions in areas where shortages exist or there is a high level of demand to better reflect the actual costs together with provision of scholarship program for the poor, or granting of education loans, or assistance in other forms.

(7) **Encourage higher education institutions to carry out extensive research and development**, and support the private sector in setting up a research and development fund, while emphasizing greater commercialization of research results.

3.2.3 Encourage and support a greater private sector role in providing education and training services, emphasizing the following:

(1) **Liberalize the education sector** by improving and relaxing rules and regulations, as well as restrictions to reduce unnecessary steps to attract greater private participation in the provision of education and training services, via the following:

(1.1) Remove tuition ceilings in private schools at all levels to allow for flexible fee adjustments of each institution as appropriate.

(1.2) Allow private school operators greater degrees of freedom in preparing the finer details of curricula under guidelines of official curriculum structure to encourage flexibility in administration and management.

(1.3) Offer promotional status to private sector investment in providing education services, emphasizing locations in the regional urban centers, such as the new economic zones of the Eastern Seaboard and the Southern Seaboard, as well as ensure that production of manpower will reflect needs of the regions.

(1.4) Encourage the private sector to produce manpower which is in short supply, such as engineers, medical doctors, and dentists with support from the Ministry of University Affairs and professional associations.

(2) **Encourage cooperative efforts between public education and training institutions and private enterprises** in organizing skill training programs in various forms in a more widespread manner, such as cooperation in the form of apprenticeship, and school-cum-factory, as well as modify the teaching method by integrating the theoretical aspect with the practical work, together with practical experience in industrial and business enterprises etc.

3.2.4 Improve provision of life-long education for the people in quantity and quality terms to ensure continuity for all the target groups from pre-school children to the elderly, and to ensure consistency and balance with education services at all levels, via the following:

(1) **Decentralize decision making power in setting direction and policy** of the education sector, including administration of personnel and budget to the regions and local authorities.

(2) **Provide linkages between the formal and non-formal school systems**, including provision of informal education to cover all the target groups.

(2.1) Improve efficiency of teaching and learning method to effectively instill moral and ethical values in children and youths, as well as promote sports activities and physical exercises, respect for discipline, and appreciation of beauty and art through associations and groupings such as the boyscout movement, red cross youths, military cadet training, as well as organization of activities in children and youth center etc.

(2.2) Provide education to the public to facilitate improvement of quality of life by integrating local folk knowledge with knowledge of modern technology. For instance, the local people may be taught techniques about how to use fertilizer, insecticides, use of energy and how to protect natural resources and the environment. Similarly, correct attitudes and understanding about the political and administrative system may be propagated among the people in a systematic and continual manner.

(3) *Encourage children both within and outside the system to have access to education and to have opportunities to sit in public examinations to determine their educational qualifications and to have public accreditation in consistency with their ages and levels of education* by laying down rules and regulations to promote education appropriate to each target group as follows:

(3.1) Provide opportunities for the people to have self-education so that they may get certified and awarded with public accreditation for their educational qualifications.

(3.2) Speed up expansion of adult education in a widespread manner to cover all the target groups of the underprivileged.

(3.3) Organize teaching and learning method appropriate to children of exceptional ability to enable them to complete their formal education sooner. At the same time, older children should also have a chance to pursue adult education.

(4) *Improve quality of primary and secondary school teachers* through training, aiming at raising their capability to teach according to the curriculum, paying particular attention to teachers who have to deal with physically and emotionally abnormal children.

(5) *Develop the information system for dissemination of news, information and knowledge* through the mass media by formulating a mass media utilization plan for benefit of the education sector and for promotion of common understanding regarding national development policies and projects.

3.3 *Upgrading of income and improvement of labor welfare.*

3.3.1 *Promote training and labor skill development* to raise capability of the underprivileged groups of people to enable them to have knowledge, and occupational skills so that their job opportunities and income levels may be enhanced, via the following:

(1) *Encourage short-term training* for the unskilled to raise their capability and efficiency, together with improvement of curriculum and training system to ensure production and training of manpower which is in in market demand, through cooperation efforts between government training centers and private establishments.

(2) *Speed up promulgation of the Promotion of Career Practice Act* to encourage private establishments to have a greater role in skill training in cooperation with public skill development centers.

(3) *Expand pattern of cooperation, as well as increase private sector fund mobilization for skill training* by providing incentive packages in various forms which are appropriate to enterprises of varying sizes.

(4) *Encourage public and private cooperation in setting up area specific training centers* to offer joint training programs in fields requiring high skill and expertise, with budget from the private sector in the form of training development fund.

(5) *Improve efficiency of the planning and coordination system of various public training centers* at the provincial level to minimize problems of duplication of training programs and to economize on government budget.

(6) *Develop labor market information system* to be capable of offering accurate, speedy and up to date information to the people down to the tambon (below sub-district but above village levels, as well as increase of career advisory and job placement services to increase employment opportunities among the people.

(7) *Encourage setting up of centers for development of labor and management education* for benefit of laborers, self-employed workers, and entrepreneurs in order to increase management efficiency and labor productivity.

3.3.2 Encourage provision of basic necessities for small-scale urban informal operators and self-employed urban workers, as well as provide supplementary employment to rural agricultural workers in the dry season and during the pre-harvest period, via the following:

(1) *Encourage relevant agencies to set up a modern business information system*, including information on marketing, sources of funds, and production for use in coordinating production plan in line with demand of both domestic and external markets in quantity and quality terms, as well as encourage exchanges of the above information among interested parties.

(2) *Encourage coordination among concerned public agencies and the private sector to reduce duplication of work*, and support a more integrated production system among the self-employed and those in the informal sector by promoting the Small-Scale Handicrafts Business Center to coordinate activities

in occupational development, production technology, capital, and marketing, as well as encourage organization of savings groups for businesses.

(3) Encourage employees who have acquired sufficient skills and experiences to set up their own businesses by providing advice on project preparation to seek financial assistance from public or private financial institutions.

(4) Support systems of sub-contracting, contracting, and home-based work, such as jewelry cutting, artificial flower making, and other industrial activities which have growth potential by encouraging the private sector to be the leading party in securing raw materials, markets, in giving advice, developing skills, as well as improving production techniques.

(5) Revise and relax rules, regulations and operational procedures which are obstacles for informal sector and self-employed businesses, such as encouragement of a greater private sector role in skill training, reduction of unnecessary steps for registration of businesses, and opportunities for joint loan guarantee schemes between public agencies, or financial institutions and the business operators.

(6) Ensure coordination among concerned agencies to provide support in terms of occupational development, finance, marketing and raw materials to agricultural workers to ensure that they have supplementary employment during the dry season, as well as encourage workers in poverty areas with regular drought problems to be able to carry out non-farm activities.

3.3.3 Promote and support the economically underprivileged groups including rural agricultural laborers, urban poor workers, female and child laborers to have more job security, with fair wages, appropriate and safe working conditions, and labor welfare services by carrying out the following.

(1) Encourage a fair and appropriate determination of wage levels for the economically underprivileged.

(1.1) Provide a fair allocation of income between entrepreneurs and laborers by ensuring a fair wage level which is consistent with income levels of other groups of workers, such as agricultural workers, and government officials.

(1.2) Support the Wages Committee to enable it to efficiently determine level of wages and incomes of various labor groups.

(2) Support appropriate and standardized labor welfare system, via the following:

(2.1) Amend laws, rules and regulations to facilitate private sector cooperation in providing temporary housing with appropriate sanitary conditions for construction workers, and provide educational opportunities for workers' children in the form of education or mobile education units, and provide nursery units for children of factory workers.

(2.2) Expand rehabilitation opportunities for workers who have been disabled at work to find employment, including self-employment appropriate to individuals' health, physical conditions and abilities.

(2.3) Support child and female labor that has attained the legal minimum working age to recognize their legal rights and duties according to the labor laws, and encourage them to upgrade their working skills, as well as promote physical, mental and emotional development among this group of workers.

(2.4) Provide registration of hired agricultural laborers to facilitate provision of labor welfare services, and encourage employers to provide a wide coverage of welfare services to their workers.

(3) *Speed up work on labor protection, and expand coverage.*

(3.1) Modify the Labor Protection Act by expanding coverage to include hired agricultural laborers, in terms of working conditions, welfare, safety, and fair wages, increase the minimum working age from 13 to 15 years in line with international standards, and adjust the rights of female workers to take maternity leave for delivery of babies and care of infants.

(3.2) Expand scope of the compensation fund to cover employees who have been injured, disabled and taken ill as a result of work in establishments with more than 10 workers.

(3.3) Supervise procedures for sending Thai workers abroad, emphasizing prevention of workers' exploitation, protection of workers' rights, reduction of expenses involved in travelling to destination countries; ensure fair labor contracts, fair wage rates, and appropriate working and living conditions in foreign countries; and develop information system on occupations and housing status of workers who have returned home.

(4) *Promote efficient labor relations system, via the following:*

(4.1) Support improved bilateral labor relations system at the business level to promote closer cooperation between employers and employees and to avoid serious conflicts which could have negative impacts on the overall economy.

(4.2) At the national level, support improved tripartite labor relations system including government, as well as develop and strengthen employers' and employees' organizations to be truly representative and to support national economic and social development in an efficient manner.

(4.3) Support intensive tripartite training programs in labor relations to encourage employers, employees and government representatives involved in labor relations work to have appropriate and shared understanding about philosophy of labor relations, which should contribute to a more harmonious working relation and a lessening of potential conflicts.

(4.4) Include in curriculum of public and private training programs efforts to instill among trainees a sense of discipline, respect for order, organizational responsibility, and mutual recognition and respect at the work place.

(4.5) Carry out public relations campaigns to educate new entrants to the labor market about work discipline required in modern production systems.

(5) Promote safety and improve conditions of the working environment, via the following:

(5.1) Expand scope of workers' protection and promote safety at work to cover labor in the agricultural, industrial and service sectors, particularly with regard to uses of modern machinery, and chemical products in the agriculture sector.

(5.2) Develop information system on safety precaution and to provide guidance on how to handle dangerous incidents causing damages to enterprises nationwide.

(5.3) Support research activities on the nature of dangers, and health hazards, as well as damages caused by working conditions, chemical products, and use of machinery in order to formulate appropriate preventive and protective measures, and improve safety standards.

(5.4) Amend laws concerned with safety of the work environment, and occupational health protection, use of chemical products and protection against dangers from their use consistent with changing economic, social, and technological conditions.

3.4 Development of health and physical well-being

3.4.1 Promote good health for all the population and encourage the general ability to take basic care of one's health, including preventive health education. The quality and availability of primary health care in rural areas will have to be further improved, together with expansion of primary health care in urban areas. The following measures are proposed.

(1) Encourage diversity in the pattern and form of people's participation in public health services to promote closer consistency with differing needs in different localities.

(2) Support greater participation by people decision making in health care, to determine level of requirements, and mode of operation, in the management of resources mobilized from local communities and elsewhere, together with reorientation of people's behavior to take better care of their health for example, refraining from smoking and drinking.

(3) Develop knowledge base in traditional curative health care, such as traditional Thai medical care, herbal medicine, massage, in coordination with modern health care services.

(4) *Set up a central agency to coordinate urban health care services* to ensure more effective operations.

(5) *Amend relevant laws, rules, regulations, and restrictions to encourage decentralization of power to municipalities* in order to enable them to efficiently solve local public health problems by themselves.

3.4.2 Develop health service stations at all levels to be capable of providing quality services efficiently by implementing the following measures:

(1) *Allocate public health resources* covering personnel at various levels, medical equipment and supplies in sufficient quantity to support expansion and improvement of quality and efficiency of health service stations at various levels in the regions, particularly at the level of health centers and community hospitals.

(2) *Allocate public health resources more widely*, and mobilize cooperation from all parties including the public and private sectors for prevention of illness, and promotion of health, both physical and mental, as well as rehabilitative efforts. Emphasis will be on tackling some selective key diseases and illnesses which are preventable at their root causes, such as mental illness, cancer, heart disease, AIDS, illness related to disabilities caused by accidents and disease, or illness caused by unsafe working conditions in the industrial and agricultural sectors.

(3) *Increase private sector role in provision of services*, including health promotion, preventive health care, medical and nursing services, as well as participate in development of public health personnel in areas facing shortages and requiring high investment.

(4) *Develop referral system of patients among public health centers*, and between public and private institutions to increase efficiency in the provision of services, and reduce congestion in large urban hospitals.

(5) *Set up a system to regulate import of foreign technologies*, while ensuring appropriate dispersion of these technologies in all areas, as well as develop local technology emphasizing maximum self-reliance.

3.4.3 Develop and expand basic public health care services to cater to the needs of the new economic zones, particularly in the Eastern Seaboard based on the following measures:

(1) *Classify land into zones and set targets and guidelines for development of public health sector according to specific requirements of each zone*, emphasizing preventive measures and solution of occupational health problems, which are likely to become more serious during the Seventh Plan period.

(2) *Encourage the private sector to set up medical care centers in large cities and in the new economic zones*, with the government to expand and improve public health services in the remaining needy areas.

3.4.4 Develop the existing health insurance system, such as voluntary health insurance, and subsidized health services for low-income groups to be in harmony and consistent with the Social Security Act.

3.4.5 Speed up implementation of public health programs for the prevention, control, and solution of health problems related to people's occupations, to the polluted environment and to safety in consumption, via the following:

(1) **Coordinate planning** for activities under the jurisdiction of various agencies, such as environmental control, consumption safety, and occupational safety, etc.

(2) **Set up a new organization, or make use of existing ones**, such as the Joint Public and Private Sector Consultative Committee for Public Health Development, to promote effective and sustained public and private sector cooperation.

(3) **Amend laws, rules and regulations** to ensure efficient enforcement, and to promote development of quality of life of the people.

(4) **Encourage people and communities to have a role in prevention and solution of problems**, through the dissemination of useful news and information.

(5) **Regulate quality of food** considered to be people's staple diets, such as fish sauce, mackerel ("pla-too"), salted fish, vegetables, etc.

3.4.6 Continue campaign and programs for the prevention and control of AIDS by undertaking the following:

(1) **Mobilize cooperation from both the public and private sectors** in education the people about prevention and control of the disease, and to have correct understanding of working and socializing with AIDS patients without having negative attitudes and reactions.

(2) **Provide medical and social services to AIDS patients** to enable them to lead a normal life without spreading the disease to other people.

(3) **Continue programs aimed at reducing the number of prostitutes** and provide sex education appropriate to each age group.

(4) **Promote education** and research activities on AIDS.

3.4.7 Promote a better standard of living among the people to encourage them to have sanitary housing conditions, to consume hygienic and nutritious food, and clean water, and to have regular physical exercise for health and relaxation, via the following:

(1) *Accelerate implementation of programs in nutrition, environmental sanitation, and provision of potable water, in continuation from the Sixth Plan, particularly in rural areas.*

(2) *Adjust fluoride content in potable water to prevent tooth decay and fluorosis, and regulate side effects arising from too much or too little fluoride.*

(3) *Support public relations campaigns to educate the people about consumption of food with appropriate nutritional value, as well as promote production and wide distribution of food to ensure adequate supply for consumption.*

(4) *Develop existing information system for food and nutrition surveillance so that the information may be used for formulation of policies and guidelines for effective implementation of development activities.*

(5) *Prevent and solve problems of obesity in urban children and youth, by emphasizing nutrition education and physical exercise.*

(6) *Encourage organization of sports and recreational activities, as well as physical exercise, and greater provision of public parks in Bangkok Metropolis and the regions.*

3.4.8 Prepare contingency plan to cope with public disasters caused by nature or accidents, via the following:

(1) *Coordinate relevant public and private organizations, together with international organizations.*

(2) *Amend laws and relevant regulations to keep up to date with the present situation, as well as rehabilitate and develop areas damaged by disasters.*

Chapter 2

Moral, Spiritual, Cultural and Social Development

1. Development issues

During the past decade of rapid economic growth, the Thai society, culture, family institution and particularly the people's spiritual and moral well-being have suffered. Therefore, it is crucial that during this critical transitional period of Thailand's development, more attention is paid to moral, spiritual, cultural and social development to ensure continued stability of Thai society.

Major issues relevant to moral, spiritual, cultural, and social development include the following:

1.1 The family institution has become less stable and less secure.

As a result of lower population growth rates, the Thai family structure has undergone drastic changes, and has become smaller. From the typical extended families with several generations of family members living together, the increasingly common occurrence is the prevalence of nuclear families of various types, such as families where the heads migrate to cities leaving behind the children and the elderly, or single-headed households where one spouse is either dead or more likely separated, particularly households headed by a female. The smaller family size and the emergence of nuclear family have affected the stability of the family institution. The traditional way of life, guided by values, beliefs and cultural systems of the past, is giving way to economic rationality resulting in problems of lack of family warmth, of sense of sharing, and of caring for children and the elderly.

1.2 The rapid economic expansion has affected the social peace and tranquility.

The rapid economic growth which has transformed Thailand into a country with increasingly higher economic status, has, at the same time, caused greater social disparities between groups which greatly benefit from results of development, and groups, which comprise the majority, which hardly benefit from past development. These disparities have led to numerous undesirable social conflicts, such as crimes, drugs, problems of safety and security to life and property, problems of children and youths and prostitution, etc.

1.3 Problem of lifestyle, spiritual, and value readjustment to cope with rapid changes of development.

Development in an increasingly internationalized economic system, with greater emphasis on material development has led to unbalanced development from the emphasis on material development has led to unbalanced development from the point of view of moral and spiritual concerns, and of the highly treasured cultural values of Thailand. Presentday Thai people have greater difficulties integrating and or choosing between a modern way of life and highly treasured traditional values.

2. Targets of spiritual, cultural and social development

From the above development issues, it is necessary to promote spiritual development to bring about future generations who have ethical values and moral integrity as well as discipline. The people should also be inclined to conserve and protect art and culture, and help reduce the negative impacts from economic and social changes in order to upgrade the quality of life of the target groups, particularly the underprivileged, who have not been able to adjust to changes. The following targets have been set.

2.1 Promote spiritual development to bring about moral people who have high ethical values, commendable behavior, integrity and strict discipline. Encourage them to adapt to changes in a timely manner, and play a productive role in national development; support conservation and development of art and culture, to be balanced with economic and social development.

2.2 Strengthen stability and security of the family institution to promote its key developmental role, as well as its role in preventing and solving social problems.

2.3 Upgrade quality of life of the people, particularly the underprivileged who cannot help themselves. Special emphasis will be on low-income groups, poor children, the marginalized groups of people, and the deserted elderly to ensure that they have better and fairer access to social welfare and basic services necessary for living, for self-improvement and to serve as important developmental forces.

2.4 Create peace and calm in society to bring about safety and security of property and life and to ensure provision of efficient justice system for both the urban and rural population.

3. Guidelines for spiritual, cultural and social development

In order to attain the above targets, the following guidelines and measures for spiritual, cultural and social development during the Seventh Plan have been formulated.

3.1 Spiritual and cultural development

3.1.1 Designate the religious institution as the center for spiritual and moral development, via the following:

(1) *Increase efficiency in the management* and governing religious education, particularly of monks.

(2) *Set up a public institutional mechanism for coordinating* and supporting work and activities of households, monasteries, schools, communities as well as ethics-related and religious organizations in spiritual development.

3.1.2 Promote spiritual development based on the ideal concept of Golden Dharma, Golden Land, by encouraging groupings of local people who practice spiritual development as a basis for mutual assistance in occupational and local development.

3.1.3 Develop social environment to be conducive to spiritual development and creation of virtuous and noble values, via the following:

(1) **Improve curriculum, teaching and learning method,** emphasizing use of scientific and analytical approach. Students should be taught to use logical reasoning and stress importance of independent practice. Teachers must also be trained to be qualified in their own fields and to be able to instill moral, ethical and social values in the process of teaching their students.

(2) **Improve curriculum concerning studies of religion, ethics and moral principles at all levels of educational institutions,** including arrangement of activities to promote religious morality, ethical conduct, and noble and virtuous values among children and youths, such as organization of youth camps for spiritual development, and ordination of novices during the summer.

(3) **Improve quality of public mass media, and provide incentives to private mass media** to encourage them to produce and disseminate programs in support of spiritual, artistic and cultural development.

(4) **Encourage adults to serve as role model** of ethical conduct and cultural values by continuous campaigns to heighten awareness among adults about importance of setting virtuous examples for children, strengthen the stability of the family institution, and promote social values which recognize and respect virtuous and morally upright people.

(5) **Support, honor, and provide public awards and citations** to people from all professions who have moral principles and ethical conduct based on religious beliefs.

(6) **Provide recreation grounds to promote better social environment** such as public parks, sport centers, playgrounds, and public libraries.

(7) **Control and crack down on places of socially unacceptable activities,** and vice dens and which generate immoral behaviour as well as illegal activities, and slow down public and private operations, which may promote indulgence in and pursuit of these morally and legally objectionable activities.

3.1.4 Improve operational efficiency of spiritual and cultural development, via the following:

(1) **Encourage associations, foundations, Buddhist associations, other religious unions, private clubs, as well as other social institutions involved in spiritual development** to form an overall organization for spiritual development, with the Social Welfare Council of Thailand, and relevant public agencies as coordinators.

(2) Encourage ministries, government departments, educational, and social institutions, as well as state enterprises to conduct regular spiritual development training or "retreat" programs for government officials, teachers, educational administrators, state enterprise employees and other key target groups, emphasizing administrators, sector chiefs, officers who have to provide services to the people, community and youth leaders, heads of households, housewives and politicians. Furthermore, in other training programs, conferences, and meetings, the subject of spiritual development should also be included whenever appropriate by coordinating with the central organization for training development

(3) Decentralize administrative power and responsibilities to local authorities in the regions, and encourage greater people's participation in conservation of artistic and cultural treasures.

(4) Set up a central organization for coordination and monitoring of activities related to spiritual development.

3.1.5 Emphasize importance of culture hand in hand with economic development, via the following:

(1) Encourage acquisition, application, and dissemination of local wisdom, and folk knowledge to ensure that the local wisdom and folk knowledge continue to contribute to development of the local people's quality of life in harmony with the changing social environment.

(2) Support the role of children, youth, women, and the people in artistic and cultural development efforts by encouraging public awareness that cultural development is the concern and responsibility of everybody.

(3) Expand scope of cooperation between public and private sectors and the people in general in conserving and developing national artistic and cultural heritage, and coordinate with international organizations in the exchange of information, resource mobilization and experience in conservation and promotion of art and culture.

(4) Promote archeological knowledge, and develop archeological sites to serve as sources of knowledge and tourist attractions, while ensuring effective conservation of the art, culture and national heritage.

(5) Develop network of information system in art and culture to serve as an information center for research for specialists in the field, and the general public, as well as promote higher quality of research and their widespread application in the field of art and culture to be comparable to research capability in other fields.

(6) Improve and update relevant laws, rules, and regulations for effective conservation of the art, culture and national heritage, and to be in line with the changing economic and social conditions.

3.2 Strengthening of family institution

3.2.1 Encourage all parties concerned to cooperate and to recognize the importance of the family institution, as well as stress the primary role of the institution in preventing and solving social problems as follows:

(1) Encourage close cooperation and coordination between schools and households to monitor closely latest development as well as problems of children.

(2) Encourage communities and private organizations to have a role in providing welfare assistance to single-parent households and family members with problems.

(3) Include family studies in curriculum at all education levels.

(4) Support production of various media for dissemination of information on family and family responsibilities.

3.2.2 Strengthen stability, security, and sense of warmth of the family institution, via the following:

(1) Set up public and private counselling centers to provide advice on marriage and family life, family planning, family problems, and work related problems, as well as legal advice in case of divorce.

(2) Enhance occupational skill development for families with economic problems, and provide financial assistance to single-parent households

(3) Encourage fathers and mothers to educate themselves and to seek correct understanding about proper way of bringing up children, including nutritional regimes and psychological aspect of children. Both parents should also help promote intellectual, emotional and social development of their children in line with their ages, with close involvement of fathers.

(4) Campaign continuously to heighten men's and women's awareness of their respective roles as fathers and mothers, and their joint responsibilities in generating a sense of love and warmth within the family, particularly the role and responsibility of fathers in bringing up children.

3.3 Organization of social welfare system and upgrading of people's quality of life.

3.3.1 Improve the structure and social welfare system to increase efficiency, via the following:

(1) *Change the underlining concept of social welfare services* provided by both public and private sectors, from primarily welfare-oriented to a development approach, emphasizing strengthening the potential of the underprivileged to enable them to rely on themselves in the long run.

(2) *Support role of the National Welfare Promotion Committee* in coordinating work of public and private agencies and non-governmental organizations at the national and provincial levels by carrying out systematic operational plans, as well as encourage cooperation among private organizations to increase the efficiency of their work for the underprivileged.

(3) *Reduce steps necessary for registration* of non-governmental organizations to facilitate their speedy establishment, as well as consider giving corporate tax exemption to non-governmental organizations, and provide personal income tax deduction to those who make public donations.

(4) *Encourage setting up of funds*, the interests on which may be used to finance activities of private organizations. For projects with high priority, the government may provide financial assistance, as well as assistance in personnel development, and dissemination of activities of the private organization.

(5) *Develop and improve information system*, as well as keep up to date public relations services on social welfare activities and the underprivileged groups, together with monitoring and evaluation services to increase operational efficiency.

(6) *Develop and improve social security system and welfare services* on health for low-income groups so that they can be integrated into the social security system in the long run.

3.3.2 Improve efficiency in the prevention and solution of social problems, via the following:

(1) *Support greater roles of educational, religious, and family institutions, as well as the mass media, and community organizations*, particularly village committees, community committees, and various volunteer groups in the prevention and solution of social problems.

(2) *Develop and increase efficiency of personnel in social security services field*, such as social welfare specialists, psychologists, and counsellors, in line with economic and social development.

(3) *Amend laws, rules and regulations* concerning assistance, and public welfare services so that they are more appropriate for assisting the underprivileged, particularly the Suppression of Prostitute Act, B.E. 2503 (1960), Begging Control Act, B.E. 2484 (1941), Nationality Act, B.E. 2508 (1965), Announcement of the National Executive Council No 294 and 337 (laws on nationality acquisition, and law on rendering aid to children and youths).

3.3.3 Promote protection of welfare of children, youths and women, via the following:

(1) Expand development centers for toddlers and small children in urban and rural areas, as well as provide training on supervision and caring of toddlers and small children to childcare workers, housewives, fathers, as well as personnel involved with the development of toddlers and small children.

(2) Support establishment of youth groups, youth camps, and youth centers and volunteer groups to enable them to have a role in developing the potential of youths. Furthermore, other facilities and services, such as public libraries at various levels and sports facilities should also be improved to provide adequate services for the youths.

(3) Support the family institution, public and private agencies, community organizations, religious institutions, and the mass media in their role to prevent, and solve problems, as well as help develop children in difficult circumstances to lead a peaceful life, together with prevention and solution of increasing problems of child labor, and child prostitution of both sexes.

(4) Provide employment training and skill development services for women more widely in urban and rural areas, while ensuring that the pattern of training programs is in harmony with changing local economic and social conditions. At the same time, the problem of discrimination of women in various dimension must be speedily tackled to enable women to develop themselves and realize their full potential.

3.4 Maintenance of safety and security of life and property, via the following:

3.4.1 Enhance operational efficiency in prevention and control of crimes.

(1) Speed up in a resolute and continual manner solution of problems, and control of crimes caused by local influential people.

(2) Expand work on community and public relations, as well as organize training programs to educate the people, community organizations, and local leaders about crime prevention measures, so that the people and communities can participate more broadly in prevention and solution of crimes.

(3) Develop capability of implementing agencies in prevention and control of crimes to ensure greater operational efficiency, amend relevant rules and regulations to facilitate conduct of work and continue to uphold the principle of justice for all.

(4) Encourage coordination of work among agencies concerned with prevention and solution of crime-related problems, including public agencies, various volunteer groups, community leaders, and local leaders to ensure efficient and coordinated implementation of work programs.

3.4.2 Increase capability in prevention and crackdown on drugs and addictive materials, as well as solve problems and crackdown on use of children as sales agents, via the following:

(1) *Increase efficiency on crackdown of drugs and addictive materials*, particularly of inhalable materials and amphetamine types of drugs, by coordinating work on intelligence as well as personnel development.

(2) *Campaign to prevent widespread use of drugs, and addictive materials* by educating children, youths, and the people at large about serious consequences of drug use, as well as widely disseminate information on drug laws. Furthermore, families, communities, private sector, and volunteer groups should be encouraged to participate on a more regular basis in prevention of drug use.

(3) *Speed up crackdown on child prostitution of both sexes* by strict inspection of establishments offering entertainment services to strictly abide by the laws and regulations and severely punish those who lure children into prostitution.

(4) *Carry out campaigns to educate, as well as create correct understanding among fathers, mothers, children*, and the people about degree of seriousness of child prostitution, particularly in areas where incidence of child prostitution is high in order to prevent further worsening of this problem.

3.4.3 Increase efficiency of the system for prevention and alleviation of public disasters and ensure its consistency with the changing economic and social and technological conditions, via the following:

(1) *Encourage public agencies and relevant private organizations* to formulate coordinated plan of operation in preventing, stopping, and alleviating problems from accidents and public disasters, including land transport, business establishments, fire accidents, and accidents in public buildings and housing compounds to ensure effective implementation.

(2) *Speed up enactment of the Act on Protection of Person Suffering from Car Losses* to assist the third party in case of accidents.

(3) *Amend relevant laws, rules and regulations* to be consistent with the present situation, as well as strictly enforce laws related to accidents and public disasters in a resolute and continual manner.

(4) *Upgrade operational capacity of personnel*, as well as secure necessary equipment and facilities, and ensure that they are in the ready stage for immediate use.

(5) *Carry out public relations campaigns* aimed at specific target groups, particularly students, pedestrians, workers in enterprises, construction workers, employers, and people in densely populated areas in order to create understanding about preventing and alleviating accidents and public disasters.

3.4.4 Increase efficiency, and speed, as well as develop system for administration of justice, via the following:

(1) Improve coordination of agencies involved in administration of justice to expedite the work and reduce unnecessary operational steps.

(2) Encourage resolution of conflicts and disputes through arbitration to reduce the number of cases passing through the court system.

3.4.5 Increase efficiency in safeguarding and protecting people's legal advantages, via the following.

(1) Support the people as consumers of goods and services in their rights to have protection as stipulated by law, and specify penalties for violators.

(2) Expand legal services and legal education for the people, and resolve problems arising from provision of laws which may cause difficulties to the people.

Chapter 3

Environmental Development for Better Quality of Life

1. Environmental development issues

During the past years of rapid economic growth, as the economic structure has become increasingly oriented towards the modern industrial and services sectors, and as the traditional rural agricultural society is steadily being transformed into urban industrial society, environmental quality has deteriorated, with increasingly serious pollution problems. Therefore, development of the environment during the Seventh Plan period will have to take account of the following issues:

✓ 1.1 Water pollution

1.1.1 Water quality in the major rivers, particularly the Chao Phraya and Tha-Chin rivers, along coastal areas where industrial establishments are located, and in tourist destination areas, has deteriorated below acceptable standards for consumption, industrial use, and fisheries.

1.1.2 Water pollution is generated from waste water from communities, service businesses, industrial plants and agricultural establishments. Industrial plants are the prime source of water pollution, taking into account growth of different types of industries, their generative capacity, efficiency of waste treatment, and supervision.

1.1.3 Past attempts at control and alleviation of water pollution problems have been handicapped by lack of appropriate investment in the construction of comprehensive waste treatment plants to serve large communities such as Bangkok Metropolis, regional urban centers and other new urban communities.

✓ 1.2 Air and noise pollution

1.2.1 Air quality and noise level from vehicles in Bangkok Metropolis and other major cities with heavy traffic are generally below acceptable standards, in areas such as volumes of dust particles, carbon monoxide, and concentration of lead levels which is on the rise in line with gasoline use and injurious to health. Furthermore, air quality and noise levels generated from selected industrial plants such as weaving factories, and petrochemical plants, etc. transportation of cargoes and energy consumption in various forms are at levels harmful to human health.

1.2.2 The most important source of air pollution during the Seventh Plan period are industrial plants, such as cement plants, tobacco curing factories and the use of lignite for electricity generation etc.

1.2.3 Quality of gasoline is too low, as benzine, diesel and fuel oil presently available in the market generate excessive air pollution. There are also no adequate measures to control the quality of lignite and to restrict the level of air pollution, coupled with a lack of investment in an efficient mass transit system.

1.2.4 There are no controls of standard noise levels, vibration (communities, traffic, and industrial plants), and no inspection of noise levels of vehicles.

✓ 1.3 *Pollution from solid wastes*

1.3.1 Garbage collection in Bangkok Metropolis and other major cities is generally deficient, resulting in problems of uncollected trash. Furthermore, there is no classification of types of garbage, resulting in inefficient disposal. There is also a high incidence of illegal discharge of untreated water from households and other activities into the public sewerage system and water resources.

1.3.2 Solid wastes causing pollution problems, which will become more serious in the future, generally involve hazardous industrial wastes. In 1991, there are about 2 million tons of hazardous industrial wastes, and this is expected to increase to 3.5 million tons, 95.5 percent of which is generated by the industrial sector, with the rest from communities and hospitals. It is estimated that 70 percent of all the hazardous wastes is generated within Bangkok Metropolis and vicinity areas.

1.3.3 At present, there is a lack of technically appropriate management of solid and hazardous wastes, from the stages of collection, transportation, utilization, to the stage of disposal, as well as a lack of location for waste disposal facilities. Furthermore, there is also a lack of a system, as well as technical expertise for handling disposal of hazardous chemical wastes, such as harmful industrial wastes, and infectious wastes from hospitals.

✓ 1.4 *Pollution problems from toxic and hazardous chemicals*

1.4.1 Economic and social development in the past has resulted in a great increase of hazardous chemical imports for use in agriculture and industry, particularly the use of such chemicals as pesticides and insecticides, as well as production and use of chemicals in industrial plants.

1.4.2 At present, management of toxic and hazardous chemicals from the stages of import, storage, transportation, utilization, to the stage of disposal is still not systematic, nor safe for life and property.

1.4.3 There is no contingency plan to deal with accidents, public disasters, or calamities as caused by toxic and hazardous chemicals, either in terms of proposed solutions, or preparation of preventive and rehabilitative plans.

1.5 *Global warming phenomenon*

There has been a gradual rise in temperature in the earth's atmosphere. This global warming problem has been getting more serious, and may have direct impact on agricultural productivity, as well as causing higher tides which may affect coastal towns. Factors causing global warming include large-scale forest destruction, and increasing use of chlorofluorocarbon (CFC) in numerous types of industries.

1.6 Administrative mechanism and environmental management systems are not conducive to efficient management of the environment.

1.6.1 Prevention and solution of pollution problems have been the primary and principal role of the government in the past, while polluters were generally not required to be responsible, or were not obliged to shoulder sufficiently the burdens of pollution problems. Financial and fiscal measures in the past have not been adequately used to stimulate or induce polluters to find effective means of reducing pollution.

1.6.2 Environmental management as currently practised is under the jurisdiction of a number of public agencies, under different ministries, at the national, as well as local levels. Successful implementation of environmental programs is highly dependent on the effective coordination and supervision of programs to ensure consistency of work. At the present time, there is no such mechanism for efficient supervision and coordination of work in the environmental field.

1.6.3 Development of manpower and technology for controlling and solving pollution problems is lagging behind, and has not kept pace with the extent and seriousness of the problems.

1.6.4 Up till now, there has not been specific legislation which directly deals with prevention and solution of pollution problems. The closest one is the Improvement and Conservation of the National Environmental Quality Act, B.E. 2518, which is difficult to enforce. With regard to other relevant laws, they invariably have different objectives from environmental concerns. Therefore, it is hardly feasible to appropriately amend those laws for a more efficient solution of pollution problems.

1.6.5 Prevention and solution of environmental problems require cooperation from all parties, especially wide participation by the population at large. But to date, there has been a lack of mechanism and process to stimulate and attract people's participation, particularly in surveillance and monitoring of environmental quality preservation efforts in line with the set standards.

2. Targets of environmental development for better quality of life

In order to upgrade environmental quality to ensure human safety and higher quality of life, hand in hand with national economic and social development, the following environmental development targets of the Seventh Plan with reference to pollution problems have been set.

2.1 Water pollution : Reduce BOD (Biochemical Oxygen Demand) loadings discharged into water resources not to exceed 4 milligrams per liter in the following target areas.

(1) The lower part of the Chao Phraya river from the estuary to kilometer 100, which is within the boundaries of Bangkok Metropolis and vicinity towns.

(2) The lower part of Tha-Chin river from the estuary to kilometer 150, which is within the jurisdiction of Nakhon Pathom and Samut Sakhon.

(3) Coastal areas and tourist destinations, such as Pattaya, Chonburi and Phuket etc.

(4) Canals, ditches, ponds, lakes and other water resources in regional urban centers with critical water pollution problems, such as Sakhon Nakorn, Khon Kaen, Hat-Yai, Songkhla, Chiangmai etc.

2.2 Air and noise pollution

2.2.1 Reduce air pollution level in Bangkok Metropolis and vicinity towns, as well as other regional urban centers, not to exceed the standard level, particularly pollution in the form of dust particles, carbon monoxide, sulphur dioxide and lead.

2.2.2 Discontinue sales of leaded premium gasoline by the end of the Seventh Plan.

2.2.3 Reduce and control noise level, particularly as generated by motor vehicles, and construction activities to a level not harmful to human health, i.e., not to exceed 85 decibels.

2.3 Solid wastes

2.3.1 Reduce rate of garbage generation in Bangkok and regional urban centers to less than 0.8 kilogram per person per day.

2.3.2 Encourage collection and disposal of harmful, as well as harmless, solid wastes based on technically appropriate method.

2.4 Toxic and hazardous chemicals

2.4.1 Set up an integrated system for professional management of toxic and hazardous chemicals from the stages of import, storage, transportation, utilization, to the stage of disposal, based on technically appropriate method.

2.4.2 Encourage less reliance on toxic and hazardous chemicals in the industrial and agricultural sectors.

3. Guidelines for environmental development for quality of life

In order to attain the set targets, the following operational guidelines and measures for control, prevention and solution of environmental problems during the Seventh Plan period have been formulated.

3.1 Water pollution

3.1.1 Reduce water pollution generated by communities, industrial, as well as agricultural activities, via the following:

(1) Support relocation of pollution-generating industries within Bangkok Metropolis Metropolis and vicinity towns to designated areas.

(2) Enforce domestic effluent standards for all buildings based on the Building Control Act, or other existing laws, as well as enforce effluent standards from livestock farms, and aquaculture farms to ensure strict adherence to the set standard.

(3) Collect water fees for agricultural and industrial activities, and levy effluent charges to encourage economical use of water and to stimulate application of appropriate technology.

(4) Encourage use of clean or pollution free technology in the production process or in business operations.

(5) Encourage waste recycling for productive use, and promote utilization of recycled water.

(6) Control and supervise reduction of pollution level, with emphasis on pollution generating sources, and particularly in locations outside the target zones serviced by the comprehensive waste treatment system, taking into account the absorptive capacity of the environment and water resources.

3.1.2 Enforce control measures and ensure that there are no additional discharges of effluents into water resources currently facing critical pollution problems, via the following:

(1) Control construction and expansion of industrial plants which generate water pollution problems, as well as control location and expansion of communities in the target water resources.

(2) Support establishment of industrial estates, industrial zones, flats and condominiums for industrial factories by encouraging private sector investment or joint investment.

(3) Designate land use zones for livestock and aquaculture farms, and support business and industrial operations in the form of estates, groupings, or associations which have a system of basic facilities, such as salt water protection dam, waste water treatment system, and drainage ditches in the case of aquatic farms, etc.

(4) Separate the sewerage system from storm water drainage system in newly developed communities and industrial areas to increase efficiency of pollution control.

3.1.3 Encourage investment and make preparations for investment in construction of waste water treatment system as following:

(1) Construct comprehensive waste water treatment system for

communities and industrial plants in target areas, such as Bangkok Metropolis, municipalities of vicinity towns, regional urban centers, tourist destinations, etc.

(2) Conduct feasibility studies for the construction of comprehensive waste water treatment system for communities and industries in other areas in order of priority.

3.2 Air and noise pollution

3.2.1 Reduce and control air pollution as caused by traffic via the following:

(1) Reduce lead content in benzine from 0.4 grams per liter to 0.15 grams per liter by January 1st, 1992, and speed up distribution of unleaded gasoline nationwide by the end of 1991 in order to facilitate installation of catalytic converter in new cars by January 1st, 1992.

(2) Improve quality of benzine by addition of oxygenates to reduce carbon monoxide in urban areas.

(3) Set standard of air pollution which may be emitted by motor vehicles and new motorcycles from 1992, and require new gasoline-driven motor vehicles from 1992 onward to install a catalytic converters. In the event that it is not feasible to have an across-the-board enforcement for all new motor vehicles, fiscal incentives should be provided to encourage installation of catalytic converters on a voluntary basis. Mandatory installation may subsequently be imposed after car producers have appropriate lead time for necessary adjustments.

(4) Set standard permissible level of exhaust fumes emitted by vehicles, and ensure strict enforcement in annual inspection of currently used motor vehicles and motorcycles.

(5) Set standard of energy efficiency for new cars.

(6) Improve quality of high-speed diesel to reduce problems of emission of black smoke and toxic fumes by (a) reducing level of sulphur from 1 percent to 0.5 percent by 1 September 1993, and consider possibility of further reduction of sulphur content to an appropriate level by the end of the Seventh Plan; (b) reduce oil refining temperature at the 90 percent refining point from 370 degrees celsius to 357 degrees celsius by September 1st, 1992 at the latest by providing necessary incentives to stimulate oil users, traders and oil refineries to take urgent actions.

(7) Encourage wider use of fuels which emit lower volumes of pollution, such as liquefied petroleum gas in motor vehicles, and compressed natural gas in public buses, etc.

(8) Speed up provision of efficient public mass transit system, particularly the mass transit electric rail system to alleviate traffic problems, as well as to reduce pollution problems.

(9) Invest in solving air pollution problems to set socially constructive examples and to demonstrate government sincerity in this regard, especially investment in solving pollution problems of the public transport sector, such as the Bangkok Mass Transit Authority, the Express Transportation Organization of Thailand, and the Transport Company Limited, by improving conditions, careful maintenance of the buses, and replacing older fleets of buses with newer ones based on international standards.

(10) Reduce volumes of oil transport by trucks from Chong Nontsee oil depot and reduce the size of Chong Nontsee oil depot in order to relieve traffic congestion and environmental conditions of Bangkok Metropolis.

(11) Strictly enforce measures for controlling falling of debris, and other objects on road surface, and strictly enforce laws for controlling the operations of earth and other types of overweight trucks.

(12) Encourage regular monitoring of air quality and strictly enforce all the legal measures to maintain the set standard.

3.2.2 Reduce and control air pollution caused by industrial plants, via the following:

(1) Set standard, as well as enforce control measures for the maximum allowable level of toxic chemicals, particularly sulphur dioxide and dust particles, to be emitted from chimneys, or as generated by industrial plants, or groups of plants (such as in industrial estates) and electricity generators, while taking due account of the local conditions and development stages.

(2) Encourage sales of fuel oil with low sulphur content, and control quality of lignite to enable industrial plants and electricity generators which have no sulphur dioxide treatment system to use lignite without exceeding standard limits for the emission of toxic chemicals. Fiscal incentives and pricing measures may be used to ensure effective implementation.

(3) Set standards of energy efficiency, and emission of toxic chemicals of boilers in new industrial plants.

(4) Require newly established lignite-fired electricity plants of the Electricity Generating Authority of Thailand to install a sulphur dioxide treatment unit.

(5) Reduce the impact from lignite mining and quarrying activities.

(6) Encourage air pollution generating industries to be relocated to industrial estates or other designated zones.

(7) Conduct feasibility studies on the use of pollution free energy, such as import of natural gas, and international cooperation in hydro power development for electricity generation, etc.

(8) Set standards of air quality in industrial zones and other related areas, and encourage regular monitoring of air quality.

3.2.3 Reduce and control noise pollution

(1) Set standards of noise level for domestically produced and assembled motor vehicles and motorcycles, as well as ensure strict compliance with the regulations.

(2) Formulate measures for prevention of noises and vibrations in industrial and business establishments and in the transport sector, particularly from airports and construction as well as renovation activities.

3.3 Pollution from solid wastes

3.3.1 Support application of technology which helps reduce volumes of solid wastes, as well as encourage recycling of solid wastes, such as garbage, nightsoil, and discarded materials from various activities, for productive uses, which represent effective conservation of resources and reduction of expenses for collection and disposal of the solid wastes.

3.3.2 Set up a technically appropriate management systems of solid wastes, from the stages of wastes collection, transportation, utilization, to the stage of final disposal by encouraging joint investment and granting concessions to the private sector.

3.3.3 Support implementing agencies, particularly at the local level, such as Bangkok Metropolitan Administration, municipalities, and sanitary units, in formulating solid wastes disposal plans for the future to keep pace with the increasing volumes of solid wastes.

3.3.4 Educate the public on how to store, and reduce the daily supply of garbage, in line with collection and disposal methods of implementing agencies, and set appropriate level of service fees.

3.3.5 Procure land for garbage disposal using sanitary landfill method, for a period of at least five years for communities of all sizes, and consider the feasibility of using incinerators in the future.

3.3.6 Impose controls and strictly enforce laws and regulations covering both public and private institutions concerning the use of correct methods of disposal of hazardous wastes from agricultural and industrial production, such as containers of toxic chemicals, used batteries, broken fluorescent lights, and infectious wastes from hospitals.

3.3.7 Encourage investment in the construction of central hazardous wastes treatment plants for industrial factories in locations with heavy factory concentrations via joint ventures with the private sector, or granting of concession to the private sector, or implementation of pilot projects by the public sector.

3.4 Pollution from toxic and hazardous chemicals

3.4.1 Formulate measures for management of toxic and hazardous chemicals in an integrated manner from the stages of import of hazardous chemicals, setting standard for storage of the products, standard for transportation, and disposal of the hazardous wastes, as well as strictly enforce all control measures.

3.4.2 Encourage greater safety precautions for utilization, storage, and transportation of oil by strictly enforcing safety measures, as well as urge concerned public and private agencies to procure all the necessary equipment for the efficient prevention of oil leakages. These agencies should also be encouraged to prepare contingency plans in case of accidental leakages, as well as review and revise inappropriate safety precaution measures, particularly in the use of liquefied petroleum gas.

3.4.3 Reduce use of toxic and hazardous chemicals in agricultural and industrial activities by encouraging use of other substitutes, such as use of organic fertilizers, prevention and control of pests and insects via natural methods, and production process improvement in industrial factories etc.

3.4.4 Encourage preparation of plan for the prevention of accidents caused by poisonous chemicals and other hazardous materials, particularly in industrial zones in the Eastern Seaboard area and other depots for storing poisonous and toxic chemicals.

3.4.5 Encourage setting up of an information center for the exchange of information, public relations activities, and training services to educate concerned agencies and the public about proper storage, the use of hazardous chemicals, and instructions to follow in the event of an accident caused by these poisonous products.

3.5 Global warming problem

3.5.1 Carry out studies quickly to help determine Thailand's position for cooperating with the world community in tackling the global warming problem. as well as emphasize reforestation efforts via development of plantations to help absorb carbon dioxide.

3.5.2 Prevent problems associated with global warming and the greenhouse effect, caused by increase in carbon dioxide from fuel combustion, by encouraging planting of trees and reforestation, and carry out public relations campaigns to create understanding by the public about the serious impacts and to seek cooperation in solving the problems.

3.6 Improvement of development mechanism and administration and management of the environment.

3.6.1 Enforce the "polluter-pays-principle" to ensure that polluters

indeed are required to shoulder the burdens of treatment and disposal of pollution within the Seventh Plan period.

(1) Enforce collection of fees for pollution treatment and disposal in the form of pollution taxes, fees or service charges, at rates which may be determined in accordance with types of activities and products causing damages to the environment. This money should then constitute a fund for investment in environmental management.

(2) Set up an environment fund with initial endowment from the government. In the beginning, existing public agencies may be assigned to administer the fund until appropriate legislation has been prepared. With a proper legal basis, an independent organization, which has status of a juristic person, may be set up to administer this fund.

(3) Encourage enterprises with proper environmental management to mobilize capital from the stock market, and encourage financial institutions to set up funds to mobilize resources from the public for investment in projects or activities concerning the environment.

3.6.2 Improve organization, administration and management, as well as amend laws, via the following:

(1) Encourage formulation of plans and systematic coordination of urban environmental development plan, together with clear definition of the respective roles of the central, regional and local authorities, and encouragement of private sector participation.

(2) Improve organizations responsible for policy formulation and coordination at the central and local levels, and set up national and local organizations for the supervision and coordination of rehabilitation and development policies concerning environmental conditions (for Bangkok Metropolis and vicinity towns, and each province).

(3) Require the construction of infrastructure facilities with impact on the environment to set up a system for the prevention of environmental problems, and include the costs of such systems as part of the original investment cost.

(4) Provide partial or total public subsidies for construction of waste water treatment and disposal systems, as well as garbage disposal to the local authorities, which may include procurement of land, equipment, and vehicles necessary for the management efforts.

(5) Improve and strengthen the role of local authorities to enable them to manage waste treatment systems in an independent manner. The local authorities should have the flexibility to manage the treatment services, as provided by the local authorities themselves, or by sub-contracting to the private sector, and may determine service charges as appropriate.

(6) Set up a tripartite organization including communities, enterprises and the government to supervise and maintain environmental quality at an acceptable standard, particularly in urban areas, industrial zones, and tourist destinations.

(7) Develop manpower and technology for the reduction and treatment of pollution by speeding up development of manpower at the university level in the fields of sanitary and environmental engineering, and environmental science, emphasizing studies of pollution, as well as development of technicians at the levels of lower and higher diplomas in the fields of pollution control to supervise activities at treatment plants. Furthermore, speed up research and transfer of pollution control and pollution reduction technology which allows for possible design and construction of the system and production of pollution control equipment.

(8) Improve and amend the Improvement and Conservation of the National Environmental Quality Act, B.E. 2518 to cover prevention, control and management of the environment in all aspects, including establishment of an environment fund, which may be efficiently used for effective environmental control.

(9) Promote public relations services to educate the public, and to disseminate information on various kinds of pollutants to the public at all levels, as well as carry out campaigns to mobilize cooperation for the prevention and solution of environmental problems.

Chapter 4

Management of Natural Resources

Major policy guidelines for management of natural resources during the Seventh Plan period will emphasize upgrading of the administrative and managerial capability of the sector to ensure that the natural resources indeed serve as a basic means of livelihood of the rural people, as part of the national heritage for later generations, and as a foundation for sustainable development.

1. Results of past development

The rapid economic expansion in the past is partly a result of intensive exploitation of natural resources, without systematic management and rehabilitation of the resources leading to greater conflicting resource uses. Thailand's natural resources, which had once served as key contributing factors to national economic prosperity, have now become constraints for future development which must be carefully taken into consideration during the Seventh Plan period as follows.

1.1 Land resources have deteriorated through inappropriate and incorrect land use. Surveys of the Department of Land Development indicate that rice cultivation in inappropriate type of land accounts for about 13.5 million rai (1 acre equals about 2.5 rai), representing about 22 percent of total rice land. The surveys further show another 14.6 million rai of field crops being grown in unsuitable land, together with another 1.7 million rai of tree crops. At the same time, areas under existing agricultural development projects have not been properly maintained, and land use is also not technically appropriate, resulting in extensive soil erosion amounting to over 107 million rai. Furthermore, there is another 182 million rai of problematic land, unsuitable for agricultural activities, such as acid soil, saline soil, peat and muck soil, sandy soil, shallow soil, and mountainous soil. Finally, another urgent issue is that a great deal of fertile agricultural land has been bought and sold, and has now been used for other purposes, such as housing, golf courses, and industrial factories.

1.2 Forestry resources have greatly deteriorated and have been encroached upon to a significant degree. The total land area covered by forests has dwindled to less than 90 million rai, or less than 28 percent of the national total as a result of the strong demand for land for agricultural and other purposes, which has increased with population growth. At the same time, the administration and management of forestry resources has not kept pace with the above changes.

1.3 Mineral resources have been wastefully utilized. Resource use in the past has not reflected national needs as there have been no plans for production, utilization, and exploration of mineral resources to serve the increasing demand of domestic industries. Consequently, production of some minerals is still geared toward the export market. At the same time, there have been increasing conflicts between objectives of utilization and conservation as land endowed with mineral deposits is getting scarcer and land prices are higher.

1.4 Water resources are limited, and their uses are characterized by conflicts among users with different objectives, including water for agriculture, for household consumption, and for industrial use. An important factor accounting for the increasing conflicts is the extremely rapid economic expansion, which has led to greatly increased demand for water in the non-agricultural sector, while the administrative efficiency and the water procurement capability have not been sufficiently improved.

1.5 Fishery resources including fresh water fisheries coastal aquaculture and marine fisheries have deteriorated, resulting in lower volumes of both fresh water and marine catches. At the same time, with regard to coastal aquaculture, particularly prawn farming, the farmers are still not sufficiently knowledgeable about proper management techniques, resulting in pollution of the environment and negative impacts on the ecological system along the coastal areas.

1.6 Coastal resources are rapidly losing their characteristics and fertility. In particular mangrove forests, have been encroached upon, and used for other purposes. Similarly, coral reef resources have also been damaged because of natural and economic factors, such as tourism and fisheries etc. In addition, coastal resources in the form of sandy beaches on islands, or along the coasts on the mainland, have also deteriorated significantly.

2. Targets for upgrading management of the natural resources

In order to conserve the natural resources to serve as an important part of the national heritage for later generations, and to utilize the resources in such a way as to strengthen foundation of the national economy to promote sustainable development, the following targets for management of the natural resources during the Seventh Plan have been set.

2.1 Land resources

2.1.1 Speed up land reform covering an area of 30 million rai within seven years.

2.1.2 Speed up issuance of land ownership documents to cover 810,000 plots of land annually, or about 4 million rai per year.

2.1.3 Set up an integrated land resources information system covering both the central and regional levels.

2.2 Forestry resources

Set forest conservation target at 25 percent of the total land area.

2.3 Mineral resources

Designate zones of mineral resources development based on results of aerial geophysical surveys, concentrating primarily on zones with high potential.

2.4 Water resources

Systematize development of all the water resources nation-wide to cover all the 25 river basins.

2.5 Fishery resources

Formulate land use plans along the coasts to maintain balance between coastal farming and conservation of mangrove forests.

2.6 Coastal resources

2.6.1 Conserve coral reef resources in all national marine parks to maintain their original state of fertility.

2.6.2 Conserve and rehabilitate the remaining 1.1 million rai of mangrove forests to maintain their state of fertility.

3. Development guidelines and measures for management of natural resources

In order to achieve the set targets for administration and management of natural resources during the Seventh Plan period, the following guidelines and measures are proposed.

3.1 Principal guidelines

3.1.1 Encourage the people to cooperate with the government in natural resources conservation efforts by promoting the role of people's organizations, and non-governmental organizations, from the central and local areas in determining natural resources management projects, as well as in monitoring, supervising and evaluating success of such projects.

3.1.2 Control and ensure program implementation based on existing natural resources management plans, such as the national park management plan, and development plans covering wildlife sanctuaries, mangrove forests, and coral reef resources. Emphasis will be on provision of adequate budget and personnel for protection of the environment, and cultivation of a sense of awareness among the interested and affected parties. Furthermore, public relations campaigns through the media and open evaluation of the rate of natural resources destruction at regular intervals will be carried out, and measures to enhance effectiveness of environmental conservation programs will be formulated and implemented.

3.1.3 Reduce conflicts of future natural resource use by speeding up formulation of land use plan from the beginning, such as designation of rocksalt production zone in the northeast, and designation of mineral resources development zones in national forest reserves. In this respect, information for planning and implementation should be open and accessible to the public. Finally, the role of responsible agencies should be improved to enhance their efficiency and effectiveness in decisively solving conflicts over natural resources use.

3.1.4 Employ monetary and fiscal measures in natural resources management to create a sense of social justice, and to ensure a fairer distribution of benefits from natural resources in a more widespread fashion. Some of these measures include review of water rates for the private sector, and big-volume

users of irrigation water, establishment of a fund for post-mining rehabilitation, and readjustment of land tax to reduce land speculation, as well as occupation of unutilized and large plots of land.

3.1.5 Set up a natural resources information system to serve as a basis for reliable and efficient planning and to reduce confusion on sources of information from different agencies as is the case at present. Furthermore, forest reserve zones must be clearly demarcated, together with designation of land use along coastal areas to develop fishery resources, hand in hand with conservation of mangrove forests and coral reef resources.

3.1.6 Accelerate enactment of laws to ensure appropriate natural resources conservation in line with the changing situation, such as law on community forests to enable the people and non-governmental organizations to have a legal role in forest conservation.

3.2 Area specific guidelines and measures

3.2.1 Land resources

(1) Accelerate solution of land ownership problems, via the following:

(1.1) Improve administrative system and management of agricultural land reform to promote greater operational flexibility, particularly with respect to funds, purchases and expropriation of land.

(1.2) Set up a coordination system on land management among various responsible agencies to ensure mutually supportive and consistent operations.

(1.3) Reduce speculative land deals through legal and fiscal measures, and set up an independent central land valuation office, and revise rates of land taxes, particularly on unutilized land, as well as land with brief ownership periods.

(2) Prevent and solve land deterioration problems, via the following:

(2.1) Designate appropriate land use zoning in line with local soil conditions and development potential of each locality, emphasizing the use of incentives.

(2.2) Expand scope of services and public subsidies for improvement of soil conditions, such as acid soil, saline soil and sandy soil, etc.

(2.3) Speed up programs of soil and water conservation, emphasizing clear and low-cost methods which can be implemented in practice, with the government providing technical services in areas facing severe problems.

(2.4) Set up soil and water conservation villages, or land

development villages in every district in the country to serve as centers for technology transfer to agricultural workers.

(2.5) Control spreading of saline soil to prevent deterioration of land as a result of improper land use, emphasizing greater use of natural methods.

(2.6) Speed up designation of zones and appropriate method for production of rocksalt in the northeast.

(2.7) Encourage application of research results on environment and ecological aspects for the improvement of soil quality.

(2.8) Seek and transfer knowledge on proper land use to agricultural workers and the people to raise awareness of the importance of correct land use, along with conservation and development.

(3) Solve problems of land utilization

(3.1) Set up an organizational system to formulate policies and ensure consistency of programs related to the utilization of land resources, as well as review and amend laws concerning land resources in order to be consistent with the set policies.

(3.2) Support setting up of an integrated land resources information center covering both central and regional areas to ensure appropriate recommendations with respect to land utilization. Furthermore, support should be provided in terms of tools and equipment for operation, technology, as well as personnel training in computer use in the form of networks which may be linked together.

(3.3) Study utilization of land for various activities which are under supervision of public agencies by speeding up preparation of maps indicating boundaries and types of land use at the provincial level nationwide.

(3.4) Speed up improvement of land use plans and ensure nationwide enforcement with clear measures to enable public agencies to effectively implement the plans.

(3.5) Speed up studies and planning for utilization, conservation, and development of high land totalling 96 million rai nationwide.

3.2.2 Forestry resources

(1) Guidelines and measures for administration and management of forestry resources within and without the forest conservation zones are as follows:

(1.1) Speed up formulation of plans for administration, management and protection of conservation forests by encouraging various public agencies, and local leaders to participate in the planning process in each area.

(1.2) Ensure implementation of plans for administration and management of existing forest preserves, emphasizing open evaluation of rates of natural resources destruction in such areas at regular intervals, as well as provide necessary budgetary support.

(1.3) Demarcate areas within and without forest conservation zones with clear signs.

(1.4) Speed up enactment of a law for conservation of watershed areas.

(2) Guidelines and measures for administration and management of general forestry resources consist of the following:

(2.1) Encourage local people to participate in administering and managing forestry resources by speeding up enactment of a law on community forests to encourage local people and people's organizations to have a legal role in reforestation efforts, in protecting, preserving, as well as benefitting from their community forests.

(2.2) Speed up enactment of Plantation Act to provide security to private investors engaged in reforestation efforts so that they will receive appropriate returns on their investment.

(2.3) Encourage timely monitoring of forest conditions with the help of modern technology, such as satellite images and geographical information system (GIS) to form important data base for administration and management of forests and other resources.

3.2.3 Mineral resources

(1) Emphasize utilization of mineral resources to increase value added, as well as to form a basis for domestic industrial development, via the following:

(1.1) Speed up formulation of mineral resources production and utilization plan in harmony with industrial expansion, and to serve as an administrative and managerial framework for production, utilization, as well as environmental preservation.

(1.2) Support research and development activities concerning mining and utilization of mineral resources by setting up a research center for development of mineral resources to promote conservation in the production process, and to enable cost effective use of modern technology, while taking due consideration of environmental impacts.

(1.3) Improve and systematize basic information on mineral resources economics, and mineral resources marketing to proving up to date information and knowledge for entrepreneurs in the field and to facilitate further investment.

(1.4) Formulate measures to conserve mineral resources which have potential to serve as production inputs to domestic industries in the future by considering price trends of mineral resources, as well as amount of mineral reserves within the country and in neighboring countries.

(2) *Designate mineral resources development zones in line with mineral resources production structure* to reduce potential conflicts arising from utilization of mineral resources as opposed to development or conservation of other resources, via the following:

(2.1) Speed up exploration of mineral resources, and estimate amount of national mineral reserves for designation of mineral resources development zones in continuation from aerial geophysical surveys in order to serve as basic data base on mineral resources in Thailand. In this regard, the private sector should be encouraged to participate in exploration activities under government supervision to speed up the work.

(2.2) Make use of the geographical information system to set priority on type of land use, and its management to generate economic benefits which will help reduce conflicts over land use.

(3) *Speed up estimation of domestic mineral reserves, as well as carry out joint ventures* for mineral resources development in neighboring countries, via the following:

(3.1) Set criteria for disseminating mineral resources information, and results of aerial geophysical surveys to public and private agencies.

(3.2) Encourage and increase role of the private sector in introducing modern technology for exploration of mineral resources, and evaluation of potential commercial value of mineral resources in unrestricted areas.

(3.3) Encourage strengthening of private sector capability in mineral resources exploration to be ready to handle expansion of foreign investment.

(3.4) Formulate criteria so that mining concessionaires may prepare plans for production and distribution of minerals within an appropriate timeframe after being granted concessions.

(4) *Improve development mechanism and amend laws* to reduce conflicts and solve problems of mineral resources development, via the following:

(4.1) Speed up amendments to the Minerals Act, B.E. 2510 (1967) and the Mineral Royalty Tariff Act, B.E. 2509 (1966), as well as other relevant rules and regulations in line with the changing mineral situation.

(4.2) Carry out studies to determine standard of environmental quality, as well as standard of waste water in line with mining methods, and monitor and control mining operators to ensure that they undertake programs to solve environmental problems.

(4.3) Formulate measures and regulations for the establishment of funds for rehabilitation of the environment in and around the mining areas, as well as formulate guidelines to enable local organizations to participate in rehabilitation of the environment.

3.2.4 Water resources

(1) Prepare budgetary allocation plan for development of all the water resources in the form of groups of projects arranged by river basin systems, by setting priorities according to the nature of problems.

(2) Require medium-scale water resource development projects to consider from the planning stage hydrological suitability, geographical conditions, and environmental impacts. As for construction design, there should be an operational plan giving details about the stages of work. Reservoirs with high potential should be constructed first, to be followed by distribution systems.

(3) Allocate budget for small-scale water resources development, while ensuring that they are dispersed in all geographical areas, emphasizing areas with relatively less rain and areas outside irrigation systems.

(4) Designate pattern of administration and management of the already constructed water resources projects for agriculture, and for household consumption by encouraging role of people's organizations to share in the administration and maintenance of projects, with government agencies providing technical support services.

(5) Accelerate setting up of a national organization under the law to formulate plans for administration and management of water resources, emphasizing water resources management of river basins.

(6) Formulate work programs for procurement of water resources for water supply production, and formulate measures controlling water quality to cope with growth of communities.

(7) Encourage detailed studies concerning the potential of various sources of ground water, as well as formulate a master plan for ground water resource development.

(8) Encourage setting up of water resources information system to support planning and policy formulation with respect to water allocation, as well as prevention and alleviation of flood problems.

(9) Revise rates of water fees as collected from the agricultural and non-agricultural sectors in line with volume of use and rights to use the water. Within the agricultural sector, the fees should reflect only maintenance costs of the distribution system, while in the non-agricultural sector, the fees should take account of construction and maintenance costs of water distribution system.

3.2.5 Fishery resources

(1) Speed up amendments of laws, rules, regulations and restrictions, particularly the disparate regulations concerning control of fishing activities and fishing fleets that cause problems for conservation and development of fishery resources, and that hinder effective enforcement.

(2) Improve quality of natural water resources, as well as prevent and solve pollution problems which may have impacts on fisheries, and fish farming activities.

(3) Formulate area-based master plans for fishery resources management.

(4) Improve quality of coastal aquaculture activities, taking into account coastal land utilization plan and coastal area development.

(5) Speed up coordination among public agencies concerned with administration of national raw water resources to ensure maximum benefits for agriculture, irrigation, fisheries, as well as electricity generation, etc.

(6) Encourage formation of associations among small-scale fishermen to develop fishing technology, and to disseminate knowledge to fishermen, fishery-related operators and the public about conservation and utilization of aquatic resources to ensure maximum benefits.

3.2.6 Coastal resources

(1) Speed up planning for management of coastal resources in local communities and at the provincial level, as well as set up a coastal resources information center.

(2) Speed up demarcation of coral reef zones and formulate criteria for undertaking any activities along coral reef zones, as well as issue rules and restrictions on possession of corals.

(3) Speed up implementation of programs for rehabilitation of mangrove forests and coral reef resources.

(4) Formulate management plans for national marine parks in all areas.

(5) Prepare projects or publicity campaigns, and prevent encroachment on coastal resources, emphasizing participation of local private organizations and the people in conserving coastal natural resources.

(6) Designate zones which may be utilized in coastal areas nationwide, and determine quality of water along the coasts in line with utilization, emphasizing conservation in areas with coral reefs, aquatic reserve areas, and areas of historical importance and tourist areas.

Part V

Guidelines for Development of Law, State Enterprises, and Bureaucratic System

Part V

Guidelines for Development of Law, State Enterprises, and Bureaucratic System

1. Law

1.1 Thailand's past economic and social development has been successful in a number of ways. However, in the development of the law, there have been insufficient improvements and amendments of the existing body of legislation, as well as new professionally prepared laws which keep abreast of rapidly changing modern legal principles, together with a lack of efficient law enforcement mechanisms, within the justice system. The fact that the legal framework has been a major constraint on development is understandable. This is because a country's body of laws determines the organizational arrangement of public agencies. Furthermore, the scope of authority and accountability of public officials, as well as rights and duties of the private sector in conducting economic and social activities also have to be within the legal framework of the country. This is why past legal constraints have invariably impeded government's effort in the management of economic and social development and in the pursuit of social justice.

1.2 Similarly, subordinate laws, such as ministerial regulations, Royal Charters, and ordinances, and various rules and regulations, which play a key role in determining operational methods and details of the legislation, tend not to specify their objectives and resolutions in line with the spirit of the law. In some cases, there are ample opportunities for extreme discretionary power without limits, which encourages public officials to seek personal gains by means of the loopholes. By contrast, in other cases, there may be so many rules and regulations which public officials must strictly follow that there is no room for discretion in the conduct of their work, which is another type of bottleneck in national development effort.

2. State enterprises

2.1 During the latter part of the Sixth Plan, demand for infrastructure services has increased significantly, leading to bottlenecks in several areas, particularly in telecommunications, transport, electricity and water services. In order to promote Thailand as the economic, financial and telecommunications center of this region, state enterprises will have to invest more than 760 billion baht during the Seventh Plan period to speed up expansion of services to meet rapidly increasing needs.

2.2 While the majority of state enterprises continue to be plagued with problems of operational efficiency, the government's efforts to mobilize funds and to encourage joint ventures with the private sector were only slowly carried out, and with great limitations. Therefore, it is necessary to improve guidelines for development of state enterprises to promote investment expansion, funds

mobilization, greater managerial efficiency, increased role of the private sector in joint development of state enterprises, to improve control and supervision of state enterprises' operations, and to improve the internal organizations of state enterprises for greater efficiency.

3. Bureaucratic system

3.1 The government has been faced with the phenomenon of braindrain from the public to the private sectors. Research conducted by Office of Civil Service Commission on "Problems of Loss of High Quality Manpower in the Civil Service System" indicated that a great number of top civil servants have left government service. During 1985-1989, 1,684 of high quality civil servants had left the service. Out of this number, 1,171 had qualifications which are in short supply in the labor market. Some had masters degrees, while others were in the science and technology areas. Most were in their prime working age, and the majority were men. The research also indicated that the major reasons for leaving the service were low remuneration, limited opportunities for promotions, and lack of flexibility in the government's administrative system. Finally, it was also found that the newer generation of high quality graduates had lost interest in joining the service.

3.2 There are internal and external factors accounting for the loss of high quality manpower within the civil service system as follows:

3.2.1 Factors external to the system, which attract high quality personnel to the private sector, are as follows:

(1) As the economy continued to maintain its growth momentum during the Sixth Plan period, demand for highly skilled and highly educated manpower has increased accordingly, while manpower supply has not kept pace with the strong demand, particularly in areas, such as engineers, doctors, computer specialists, etc.

(2) Salary differentials between the public and private sectors have widened greatly. For jobs requiring comparable qualifications and skills, the salary scales of the civil service system are far lower than those of the private sector and state enterprises. These differentials start from the recruitment stage, and become increasingly apparent at later stages.

(3) In comparison with the public sector, the administration and management of the private sector is relatively more flexible and less hindered by rigid rules and regulations. The working environment and supporting equipment are also more modern.

3.2.2 Factors internal to the civil service system which "push" high quality personnel out of the system are as follows:

(1) The public administration system lacks flexibility and is governed by a myriad of rules, regulations, and restrictions. Therefore, highly

qualified and capable public officials do not feel encouraged to freely propose innovative ideas in a working environment which is neither challenging nor stimulating.

(2) The present image of government service has suffered as the sense of professional pride in the service has deteriorated. The younger generation of highly capable people are no longer attracted to government service as in the past.

(3) The organizational structure and system of personnel management lack flexibility, and appropriate decentralization of authority, and are characterized by little prospect of rapid promotion along the career ladder. Furthermore, there are very limited top positions, given the prevailing pyramidal form of organizational arrangements.

4. Guidelines for development of law

In order to ensure appropriate amendments of major legislation in line with the direction and on-going process of national economic and social development during the Seventh Plan period, the following guidelines for development of laws are formulated.

4.1 Set up an organization for law reform. This body should be entrusted with responsibilities in providing learned opinions, and analytical, as well as critical viewpoints concerning the enactment of new laws, and amendment of existing ones, including Acts, subordinate laws, and ordinances to cover laws which are in need of immediate amendments, in line with rapidly changing economic and social conditions. This organization should have a supplementary and supportive role to the legal process as undertaken by the Government and Parliament. The organization, which should be non-partisan, independent, and under the law, will have to be made widely acceptable among the population at large, and comprise representatives from all concerned agencies.

4.2 The government should provide all the necessary support in terms of budget, personnel and other things to such an organization to ensure systematic law reform. Research studies, covering problems and vested interests of various social groups, should be carried out to encourage Government and Parliament, as parties responsible for enactment of laws, to carefully consider the rationale of laws, as well as all the relevant issues. Finally, it is also vital to understand the importance of pattern of organization, scope of authority and responsibilities of public officials, as well as rights and duties of private citizens under provision of the law.

5. Guidelines for state enterprise development

State enterprises will need to mobilize a great deal of funds for expansion of infrastructure services during the Seventh Plan period to effectively support the internationalization of the Thai economy, and to promote Thailand as the regional economic, financial, and telecommunications center. In this regard, it is

estimated that the additional funds needed amount to 760 billion baht, representing a two-fold increase from the Sixth Plan period. Therefore, it is necessary to lay down guidelines for funds mobilization, increase of equity, and increase of private sector role in joint development of state enterprises in a systematic manner to support the Seventh Plan objective of sustaining economic growth while ensuring stability. The guidelines are as following:

5.1 *Improve supervisory mechanism*, via the follows:

5.1.1 Reduce official supervision and control of state enterprises, confining the supervisory role to only the critical aspects of government policies, such as debt creation, delivery of revenue to the government, review of financial budget, size and pattern of investment, monitoring and evaluation, and the increased role of the private sector. The internal administration of state enterprises should be appropriately left to the respective executive boards, and the administrators of each state enterprise.

5.1.2 Emphasize importance of state enterprises, corporate plans, which may be used by relevant ministries as instruments for supervision of state enterprise operations to ensure that the overall national development targets are adequately met.

5.1.3 Amend relevant laws, rules and regulations for supervision of state enterprises to promote greater flexibility for state enterprises.

5.2 *Improve system of state enterprise operations*, via the following:

5.2.1 Improve organizational structure, administrative system, and operation of state enterprises to ensure greater flexibility, a more business-oriented approach by stressing the importance of information system, preparation of corporate plans and long-term plans.

5.2.2 Improve internal rules and regulations of state enterprises to increase operational efficiency, and to facilitate the increasing private sector role in joint development of services.

5.2.3 Encourage internal evaluation of state enterprises.

5.2.4 Formulate personnel development and remuneration plans in line with the rapidly changing labor market, and technological development.

5.3 *Employ pricing policy* to enable state enterprises to determine prices of goods and services which reflect production costs, based on efficient operations with high quality, by comparing the set prices with international standards.

5.4 *Increase joint operations with the private sector.*

The various modes by which the private sector role may be increased include the following:

5.4.1 Provide opportunities for private sector operation in activities which have hitherto been under government monopoly.

5.4.2 Joint ventures with the private sector.

5.4.3 Contract out some activities or services to the private sector, or alternatively, employ the private sector to manage selective services of state enterprises, as well as provide opportunities for private sector investment and management of state enterprises, new projects under the condition that project ownership will be transferred to the government after expiration of contract agreements.

5.4.4 Diversify state enterprise shares, partially or totally for sale in the securities market, or alternatively arrange to sell shares directly to the employees or the public without going through the securities market.

In order to increase private sector role in state enterprises, all the four modes above may be used in some combination. Nevertheless, the choice of any mode will require careful study, together with the formulation of criteria, and steps of operations to be conducted with clarity and transparency by agencies with direct responsibilities.

5.5 Implement measures which are necessary for success of projects to increase private sector role.

In order to increase the private sector role, the following measures will have to be implemented.

5.5.1 Build up cooperation and support from all concerned parties through the dissemination of knowledge and facts, as well as through publicity campaigns to educate the public about advantages and disadvantages of increasing private sector role. Ultimately, it is critical to secure broad-based support from key groups, such as business communities, academic circles, politicians, government officials, mass media, and ordinary people.

5.5.2 Improve work programs for greater clarity by preparing operational plans, with clearly defined methods and steps to be taken to ensure effective implementation.

5.5.3 Provide incentives for the affected and concerned parties by devising various methods for determining incentives and levels of benefits, such as agreement for employees to have partial ownership of state enterprises, establishment of a fund to provide compensation for those who leave service on a case by case basis, together with the provision of skill retraining services to facilitate switching to other jobs.

5.5.4 Promote business-oriented operation by amending relevant laws which restrict private sector role in certain activities, by reducing level of public subsidies, and by changing status of state enterprises into limited companies.

5.5.5 Create appropriate understanding among the public and state enterprises.

Creation of better understanding through publicity campaigns about state enterprises, role among the public and the state enterprises will help ensure success and attainment of the targets of state enterprise development. The central agencies which supervise state enterprises will have to formulate plans for publicity campaigns, and dissemination of information concerning policies, strategies and various work programs of state enterprises in a continuous manner. In particular, the publicity campaigns should stress to the management of state enterprises and their employees on a regular basis an overview of state enterprise development, advantages and disadvantages, major obstacles and guidelines for solution of problems.

6. Guidelines for development of the bureaucratic system

Improve the bureaucratic system by restructuring the organizational framework and the government administration system, and keeping a compact and efficient government workforce conducive to career advancement and development of professionalism in government service. At the same time, the quality of the government workforce must be improved, together with adjustment of salary structure and compensatory awards to reflect changes in the labor market. In other words, improvement of the bureaucratic system and manpower development in the public sector must be considered as an important and necessary investment. The following measures are proposed.

6.1 Organizational structure and administrative system

6.1.1 Transform the role of government from being regulatory with emphasis on control to being supervisory with emphasis on promotion.

6.1.2 Adjust size and organizational structure of the public sector to bring about more compact government personnel, by employing various supplementary measures, such as sub-contracting some activities or services to the private sector to reduce the work burden and the need for government officials and employees.

6.1.3 Overhaul the bureaucratic system to bring about professionalism in government service so that public officials may be encouraged to perform their duties, and be promoted according to their capabilities. It is also important to have a system of checks and balances with respect to the political control mechanism.

6.1.4 Improve government administrative system, revise rules and regulations, and licensing procedure, do away with superfluous steps, and cut down on delays to ensure faster, more convenient, and fairer services to the people and the business sector.

6.1.5 Improve environment, and modernize system of work to promote efficiency and speed of operation by using appropriately management information systems, and procure all necessary equipment to facilitate the work.

6.1.6 Improve the administrative system by delegating more decision making power to the implementing level.

6.2 Manpower system

6.2.1 Quantitative aspect

(1) Promote Manpower planning for efficient utilization of human resources, and provide appropriate incentives to induce public agencies to support such activities.

(2) Control the proportion of personnel expenditures to the total budget to be no more than 40%.

(3) Set limits for increase or decrease in the size of personnel based on the primary responsibilities of agencies, and set priorities for policies and activities to be accomplished.

(4) Devise a mechanism to facilitate redeployment of manpower from agencies with surplus of human resources to those with shortages, such as the allocation of a special budget to facilitate the redeployment.

(5) Devise a mechanism to facilitate the transfer of manpower between the public and private sectors.

(6) Encourage and induce a number of public officials and employees to seek early retirements.

(7) Encourage research on how to utilize public human resources to best advantage.

6.2.2 Qualitative aspect

(1) Devise an incentive system to encourage highly qualified and capable people to join government service, such as the provision of scholarships, recruitment of personnel through special means, granting remuneration based on education, capability and experiences.

(2) Determine direction of government personnel development by indicating target groups, pattern, methods, and essence of the development in line with guidelines of economic and social development.

(3) Support allocation of budget for training and development of government personnel by according it a high priority, and to be considered as a public investment program, emphasizing maximum effectiveness.

(4) Encourage the central personnel administration units to systematically organize regular training programs for government personnel in a

continuous manner from the time of recruitment, promotion, or transfer, as well as encourage self-development.

(5) Encourage all public agencies, including ministries, departments etc., to emphasize personnel training and development, and to treat human resource development as part of both organizational responsibilities, and of public duty performance.

(6) Encourage and support public agencies to apply the "Quality Control Development" System to promote administrative efficiency, and upgrade quality of human resources.

(7) Encourage public agencies to set up appropriate manpower information systems, setting of performance standard, and manpower utilization plans to serve as guidelines to enhance human resource quality and ensure comparable performance standard.

6.3 Remuneration

6.3.1 Designate 5 percent of government annual budget for development of the public organizational structure and remuneration system as follows:

(1) Adjust public salary scales in line with changes in the labor market.

(2) Improve remuneration system of public officials to ensure flexibility, as well as solve personnel management problems regarding recruitment and retention of high quality and scarce manpower.

(3) Consider the possibility of having separate salary scales based on nature of work, such as the group of general officials, the technically and professionally oriented officials, and the group of administrators, emphasizing flexibility in case of changes.

(4) Improve the welfare system to promote fairness and better living conditions for the low and medium income government officials.