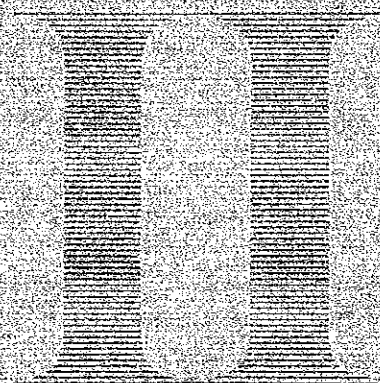
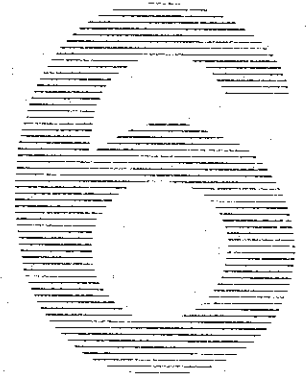


PART



REGIONAL DEVELOPMENT PLAN

CHAPTER



BASIC CONCEPT OF
REGIONAL DEVELOPMENT

6.1 REGIONAL CONTEXT

Basically the regional development concept should correspond to the context of Pelita III of East Java.

The main development program during Pelita III in East Java consists of 7 aspects, so called as "5P and 2K", in accordance with the concept of national equity.

These are:

- Food Development (Pangan)
- Employment Opportunity (Pekerjaan)
- Home Facilities (Papan)
- Infrastructure (Prasarana)
- Education (Pendidikan)
- Health, Sanitation and Nutrition (Kesehatan)
- Family Welfare and Family Planning Program (Kesejahteraan Keluarga dan Keluarga Berencana)

In the implementation of projects, the main development program comprise six priority programs and three supporting programs.

The priority program 5 are:

- Water resources development program
- Rural development program, and islandic area development program
- Industrialization program
- Madura agricultural development program
- Southern coast development program
- Community facility system development program.

The supporting programs are:

- Professional education program
- Vocational training program
- Family planning institutionalize program.

All efforts are in line with the National Development Strategy which is called "Trilogi Pembangunan" (Three Development Principles), and which in PELITA III consists of:

- Equity in Development and Distribution of Benefits of the Development
- A Sufficient Economic Growth
- National Stability

In accordance with these aims above, economic objectives and social cultural objectives are defined:

ECONOMIC OBJECTIVES

- Improvement of agriculture production including fulfillment of food demand, aiming to food self help. Improving food quality and increasing the availability of proteins. Food demands include rice, second crops, beans and horticulture crops,
- Improvement of commodities and export activity,
- Improvement of materials for industries,
- Improvement of fish production for export and domestic consumption,
- Improvement of animal breeding especially cattle and poultry, and prevention of the drastic decrease of their numbers.

- Improvement of small industries and home industries with emphasize to improve production quality, market demand, product protection, market competition (through promotion, exhibition etc.), and
- Development of low income businessmen in the framework of improving their participation in national development and income equality for groups of low income (i.e. farmers, breeders, fishermen, small workers and informal labours).

SOCIAL CULTURE OBJECTIVE

This aims to education and training programs, pursuing "self employment". Training of government officers is still executed through upgrading and short courses. Special attention should be given to elementary school i.e. the availability of reading books and school library.

Vocational training programs are given for drop-outs supported by village libraries in rural areas, in accordance with the instruction of Minister of Domestic Affairs.

Health, family planning, occupation and social welfare are integrated.

6.2 TARGET OF DEVELOPMENT PLANNING

6.2.1 AIMS OF REGIONAL PLANNING

In consideration of the national and regional context, it is recognized that the target of the development planning in GKS points to the establishment of two essential systems:

- Economic system for increase of national income and the acceleration and encouragement of industries in all the sectors.
- Distribution system of the development effects, goods, technology and so on including social culture.

6.2.2 GENERAL METHOD OF REGIONAL DEVELOPMENT

The establishment of two systems above needs the planning concept that any area can not exist without a socio-economic relationship with other areas. It is a basic concept to ensure the structure of that relationships and to develop the structure so as to realize fully the regional functions of those areas.

The system above is known as the "Regional Development System", and it comprises two sub-systems from a regional planning point of view:

COMPOSITION SYSTEM OF DEVELOPMENT UNITS

All of the areas as well as the study area should ensure their particular functions to form the total structure of East Java.

The Indonesia Government already has a regional development system concept formed by SWPs and WPPs, and these are reported in detail later.

The following points can also be considered:

- The extent of SWP is almost equivalent to the provincial area. The scale of SWP provides a self supporting system for social activities, but is a little small for economic activities.
- The boundary of WPP does not necessarily identify the administrative boundary and the actual activities do not follow the administrative boundary. The extent of WPP is too small to form an unified socio-economic community from a regional planning point of view. However from the extent of some autonomies intergrated considering the actual administrative execution, an integrated area of several WPP is better to have the same boundary as the administrative area.

The present system of SWP and WPP is a step in the process to the appropriate ultimate system and it is expected to be adjusted in consideration of these points above.

CORRELATION SYSTEM WITH URBAN AND RURAL AREAS

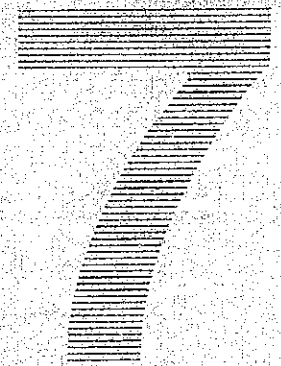
The urban area cannot be clearly distinguished from the rural area in Indonesia and this is also true in other Asian countries. The urban functions sometimes involve some rural functions. With increasing the socio-economic progress, the urban area will develop some particular functions different from the rural functions, but still both functions are to be supported mutually by each other.

From a regional structure planning point of view, there exists two significant subjects in this context:

One is how and what functions should be encouraged in the urban area and in the rural area, respectively. The other is how and what communications should be prepared between both areas.

Two subjects are to be integrated in the regional structure plan proposed in this Part II.

CHAPTER



REGIONAL DEVELOPMENT CONCEPT

7.1 REGIONAL DEVELOPMENT SYSTEM IN EAST JAVA

7.1.1 NECESSITY OF INTERMEDIATE REGIONAL UNITS

According to the regional development concept by the Ministry of Public Works, the city of Surabaya is the primary centre covering the whole region of East Java Province (known as a SWP-Satuan Wilayah Pengembangan).

From the macro-scope point of view, the region of East Java should be developed to form one unified social-economic community under an optimum regional network system. The regional network system means not only a transportation but also a socio-economic relationship between the city of Surabaya and the other major urban cores located in East Java which perform a role of supporting the function of Surabaya. In recognition of this, the Study Team considered that the socio-economic community of East Java should be classified into some regional units centring on the major urban centres.

Observing the composition of SWP and WPP, it is found that a WPP is not large enough in consideration of the extent of regional socio-economic activities. In regional planning it is recommended that an intermediate development unit should be prepared in order to fill such a conceptual gap.

These Units are to be intermediate units between the SWP and WPP (Wilayah Pengembangan Partial) and are groupings of SWP's into larger planning units.

The regional unit proposed should be developed as a semi-self-supporting system within the regional economic structure in the whole of East Java. The conceptual composition of the regional system is illustrated in Fig. 7.1.1 and Fig. 7.1.2.

The definition of optimum size and extent of the intermediate regional unit proposed should take account not only of physical and socio-economic conditions such as geography, transportation network and characteristics of economic activities, but also planning considerations as to what extent is desirable for the unified development. Moreover, the unit division has to be related and adjusted relative to some authorized existing plans such as the road betterment programme and industrial development projections.

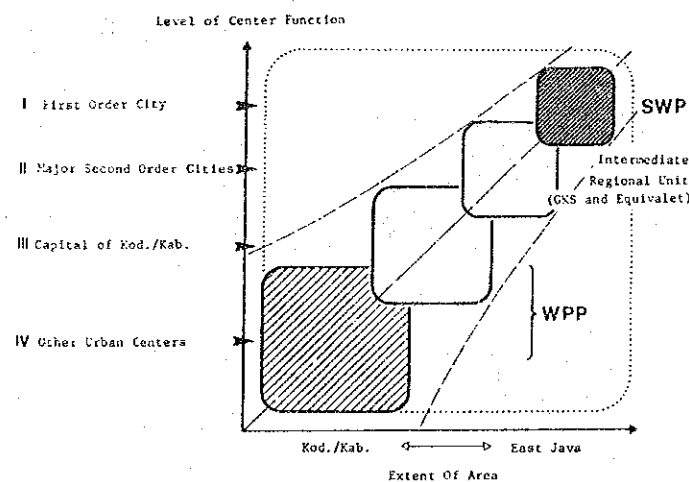


Fig. 7.1.1 CONCEPTUAL SCHEME OF REGIONAL STRUCTURE (1)

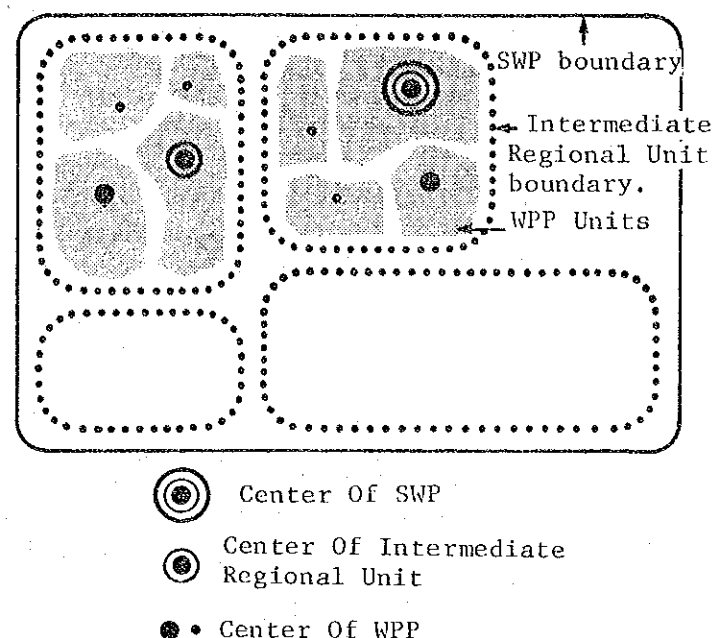


Fig. 7.1.2 CONCEPTUAL SCHEME OF REGIONAL STRUCTURE (2)

7.1.2 COMPOSITION OF REGIONAL DEVELOPMENT UNITS

Based on this concept for regional structure, the Study Team tentatively nominates 9 major cities as the intermediate regional units between the center of SWP and the centers of WPP. These were selected based on the geographical conditions, the trunk road network, the distribution of population, and the industrial accumulations.

The selected cities are :

- | | |
|----------------|------------|
| 1) Surabaya | 6) Tuban |
| 2) Banyuwangi | 7) Kediri |
| 3) Jember | 8) Madiun |
| 4) Probolinggo | 9) Sumenep |
| 5) Malang | |

The Gerbangkertosusila Region is almost the same as the intermediate regional unit centred on Surabaya, and all the other 8 cores belong to second order cities as defined by Ministry of Public Works. The composition of the above 9 units and WPP is illustrated in Fig. 7.1.3. As is evident from this figure, all of them have approximately the same area as GKS Region and are of 40–50 Km radius. This is evaluated to be an appropriate scale for efficient economic activities from a regional planning point of view.

The final decision on the intermediate regional centers should be studied further and discussed in consideration of the analysed results for actual socio-economic activities.

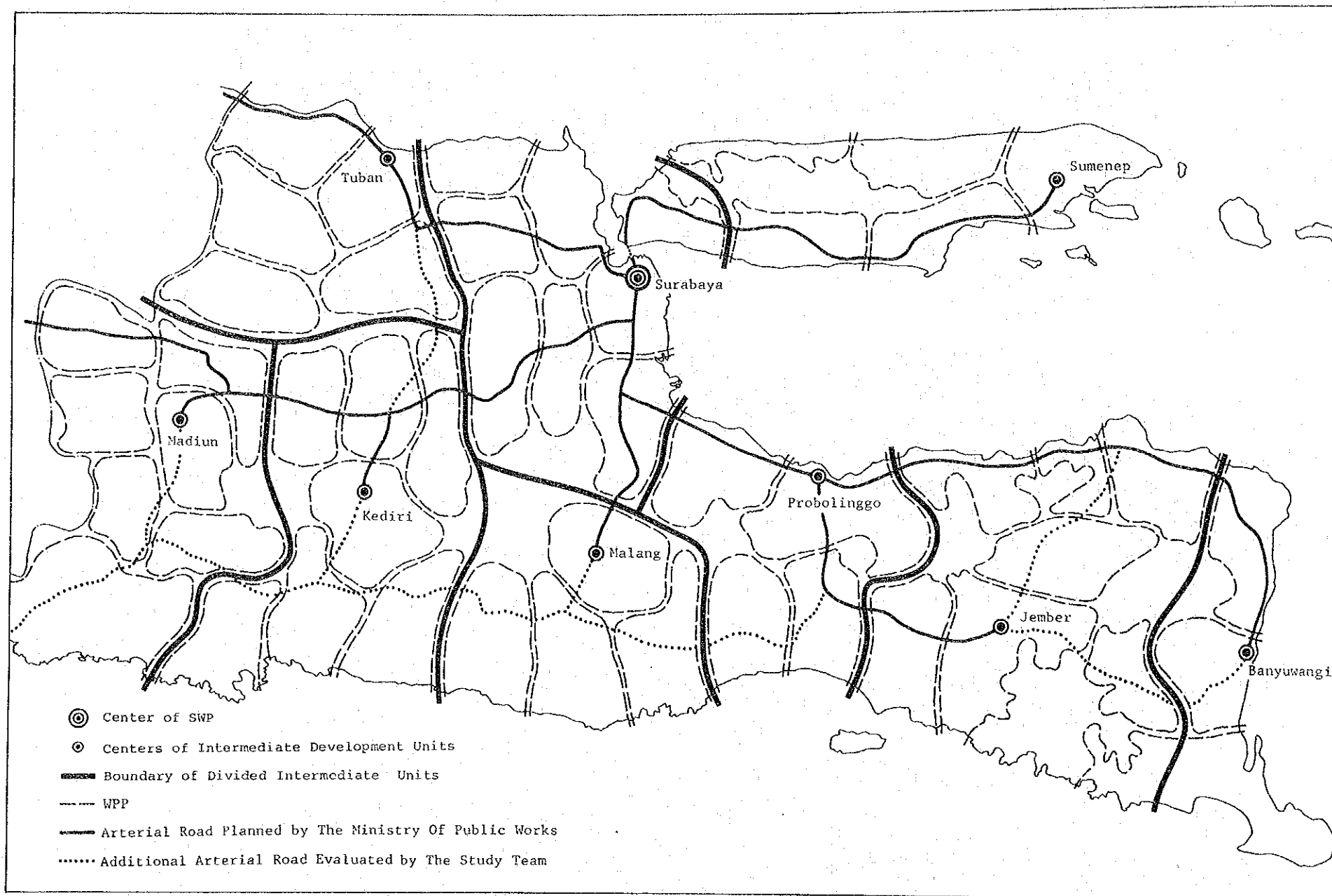


Fig. 7.1.3 CONSTRUCTION OF REGIONAL DEVELOPMENT UNITS IN EAST JAVA

7.2 REGIONAL DEVELOPMENT CONCEPT IN GKS REGION

7.2.1 GENERAL

First, from a regional planning point of view, the planning argument should be made clear. The discussion on the development of SMA should be based on an urban planning point of view, while that for the other development units should be basically based on a rural planning point of view, and there lies as essential difference between both concepts.

In the urban planning of SMA, the formation of an efficient and rational structure with contemporary high technology is required, and this structure is basically artificial. While in rural planning, the formation of a productive system making best use of the natural resources is necessary.

The former needs an allotment system of exclusively encouraged urban functions while the later needs a cooperative system of productive activities.

Accordingly, the discussion on regional development is divided into three terms; the urban development, the rural development, and a mutually supporting system between both.

7.2.2 URBAN DEVELOPMENT CONCEPT

The problems to be solved in the urban area, especially in the urban area, especially in SMA are identified as the following 6 points;

- To activate and utilize the existing accumulation of urban economic activities
- To encourage and modernize the industrial sector
- To establish an effective urban transportation network
- To obtain the urban amenity
- To develop the urban facilities serving the rural area as hinterland
- To educate and train high quality man-power

In terms of each factor, the following policies are proposed.

TO ACTIVATE AND UTILIZE THE EXISTING ACCUMULATION OF URBAN ECONOMIC ACTIVITIES

The existing accumulation of economic activity supporting the current urban activities will form a foundation for the future structure. Therefore if those happen to function as obstructions to the activation of the socio-economic activities, those should be removed and renewed with the addition of a new urban activity system. Especially the modernization and rationalization of goods distribution must play a significant role in order to develop the urban activity system.

TO ENCOURAGE AND MODERNIZE THE INDUSTRIAL SECTOR

Generally urban activities result from the encouragement of industry. Especially in the process of industrialization, intensification of the manufacturing sector is indispensable not only to produce employment opportunities but also for the stimulation of the tertiary sector. Moreover, industrialization requires a supply of well educated manpower and a well-developed infrastructure and distribution system for products in order to ensure efficient productivity. It should be taken into account that industrialization gives various impacts not only on economic growth but also on various social needs which have to be developed.

TO ESTABLISH AN EFFECTIVE URBAN TRANSPORTATION NETWORK

The urban activity consists of the transportation of material/cargo and also person trips. Essentially an effective transportation system should comprise the separation of one flow from the other, and therefore if the two kinds of transportation flow become confused, an enormous loss may appear from a regional economic point of view. The basic

concept of an effective urban transportation system must be to minimize the total cost of transportation. Therefore to realize this concept countermeasures should be established.

For cargo flows an appropriate distribution system should be developed by preparation of some kind of cargo terminal with a few levels and an efficient management system.

For person trips a mass-transportation network should be developed so that the maximum number of residents will use the system and thus not provide their own individual vehicle.

TO OBTAIN THE URBAN AMENITIES

It must be considered to be a minimum condition that every inhabitant can live without fear of epidemic disease.

The development of public health facilities and the betterment of dwelling conditions should be seriously considered and especially important is the development of urban utilities such as water supply, electric power supply, relief from flooding and the treatment of solid waste. These should be given a high priority in the future development.

TO DEVELOP THE URBAN FACILITIES SERVING THE HINTERLAND

The purchase of durable consumer goods, high-technology medical treatment and high-level education etc. should be provided in the urban area to serve all people living in the hinterland.

The development of intensive commercial districts with various opportunities for purchase, and also high level public service facilities should be considered as one of the significant urban functions.

TO EDUCATE AND TRAIN HIGH QUALITY MAN-POWER

Men of ability will be necessary to promote the modernization and rationalization of urban management. The education and training of man-power in accordance with the high degree of industrialization must be considered in development policies.

7.2.3 RURAL DEVELOPMENT CONCEPT

Basically, rural development consists of the problem of agricultural development and of maintenance of access to the regional centre and village community.

AGRICULTURAL DEVELOPMENT

- As mentioned before, GKS region is situated within the advanced agricultural area of East Java. Especially the productivity of rice is considerably higher than other areas due to the progress of irrigation and administrative enlightenment and controls such as "INMAS" and "BIMAS".
- In considering the production of vegetables and fruit, West Java and Central Java are more advanced. In GKS region, the land productivity for these harvests is not as high as the average for Java, and an advancement of land productivity in this area is therefore required.
- Observing the condition of livestock, East Java is the most advanced in Indonesia, and GKS region in particular has obtained a continuous increase of meat production. The production of cattle meat in Bangkalan, and the production of chicken and sheep meat in Lamongan are noteworthy characteristics. Furthermore, the fishery and plantation of sugar can not be ignored on discussion of agricultural activity in the study area. The development of a so-called multilateral agriculture system is in progress.
- However, some development ideas and improvements in the agricultural sector should be taken into account in the future. East Java possesses the role of not only being self-sufficient in production, but also of supplying products to all of Indonesia.

While maintaining the agricultural principal centering on rice production, the agriculture of East Java has also to aim at a more intensive and more multilateral management utilizing the existing uncultivated land. This is because the modernization of the production system, enlargement of production and the creation of employment opportunities are basic problems even in the rural area.

- The share of irrigated land area to the total agricultural land in GKS Region is estimated to be still about 34%. Considering the effective use of water, the irrigation projects should be further progressed in the rural area. However, the constitution of agricultural management should essentially be changed, with the aim of the establishing multilateral management. The areas adjoining the large urban core of SMA are assumed to have advantages for this change. The following measures to assist the change are possible when considering the agricultural potential:
- Increase in productivity due to improvements in breed stock and agricultural soil as well as the enlargement of the irrigation system and promotion of agricultural technology.
- Enlargement of the land harvested by effective utilization of the existing uncultivated and waste land for vegetable and fruit production.
- Encouragement of livestock and meat production based on the existing regional characteristics such as cattle in Bangkalan and sheep and chicken in Lamongan.
- Establishment of a consistent production system from agricultural products up to industrial products to increase the value of the produce. In particular, the food processing industry using local products, agroindustry, should be encouraged in order to activate the agriculture sector. It is recommended that a consistent production system from the original products, up to the processed products is managed by the existing cooperative bodies or organizations in the agricultural sector. The relevant administrative aids such as subsidy system and technology transfer should be continued in order to realize the system.
- Aggressive promotion of factory locations relevant to food production.
- Rationalization and modernization of product shipment systems to strengthen the agricultural management basis. In order to achieve this aim it is necessary to develop not only distribution facilities such as cooperative warehouses, shipment facilities and track yards, but also the management system to ensure the quality of products.
- Development of infrastructures contributing to agricultural activity and distribution of products. Especially appropriate improvements to the road network system at regional level, as well as the arterial roads connecting with the large SMA market, should be given high priority.

As an agricultural development policy, mechanization has been discussed, however, an immoderate mechanization should be avoided. While mechanization can contribute to increase labour productivity, excess mechanization will produce surplus labour forces in the agricultural sector. The rate of adaptation of mechanization in the agricultural sector should take into account the social structure of the rural area.

- Some agricultural areas will be converted to urban areas in future, and it is also necessary to try to increase the productivity and per capita income of farmers. Resultantly, to support the urban population and activities as well as to increase the income per capita in the agricultural sector in GKS region, the infrastructure in the countryside, especially feeder/local roads, should also be urgently developed.

REGIONAL CENTER AND VILLAGE COMMUNITY DEVELOPMENT

Commercial and social facilities should be developed in the central district to correspond to the size of the influence area and to ensure the convenience of inhabitants for their daily activities. The terminals of mass-transportation also should be aggressively developed in relation to SMA and the other areas.

Furthermore, it is proposed that high level educational facilities such as vocational centres, colleges and university should be allocated in order to produce the necessary agricultural engineers and agricultural managers.

As many educated youths as possible should be encouraged to contribute to their own agricultural developments. It is expected that agriculture will benefit from their efforts. From a social development point of view, the improvement of the village environment is also required. Social welfare, medical, primary education and commercial facilities, as well as electricity and water supply system, should be extensively provided.

7.2.4 MUTUAL SUPPORTING SYSTEM BETWEEN URBAN AND RURAL AREAS

The economic and industrial progress is carried out with the formation of appropriate relationships between the urban and the rural areas. It can be assumed that the basic policy of balanced development of each sector is the most important function of regional development.

Also, the comprehensive and balanced usage of available resources is an important policy for regional development. Taking note of the system on goods production and their distribution, it is essential to ensure a consistent mutually supporting structure between the urban and the rural areas. The Study Team's idea is based on this concept.

Fig. 7.2.1 shows a conceptional composition of the total system of regional development. Supposing three axes such as economic growth, social modernization and population growth to be on angular co-ordinates, major development problems to be considered can also be situated on these co-ordinates. Three problems supposed as axes are the essential planning factors in not only GKS region but also in all of the Indonesian nation and therefore these co-ordinates can be regarded as a basis of regional socio-economy. This diagram consists of the following concepts for the formation of a total regional system.

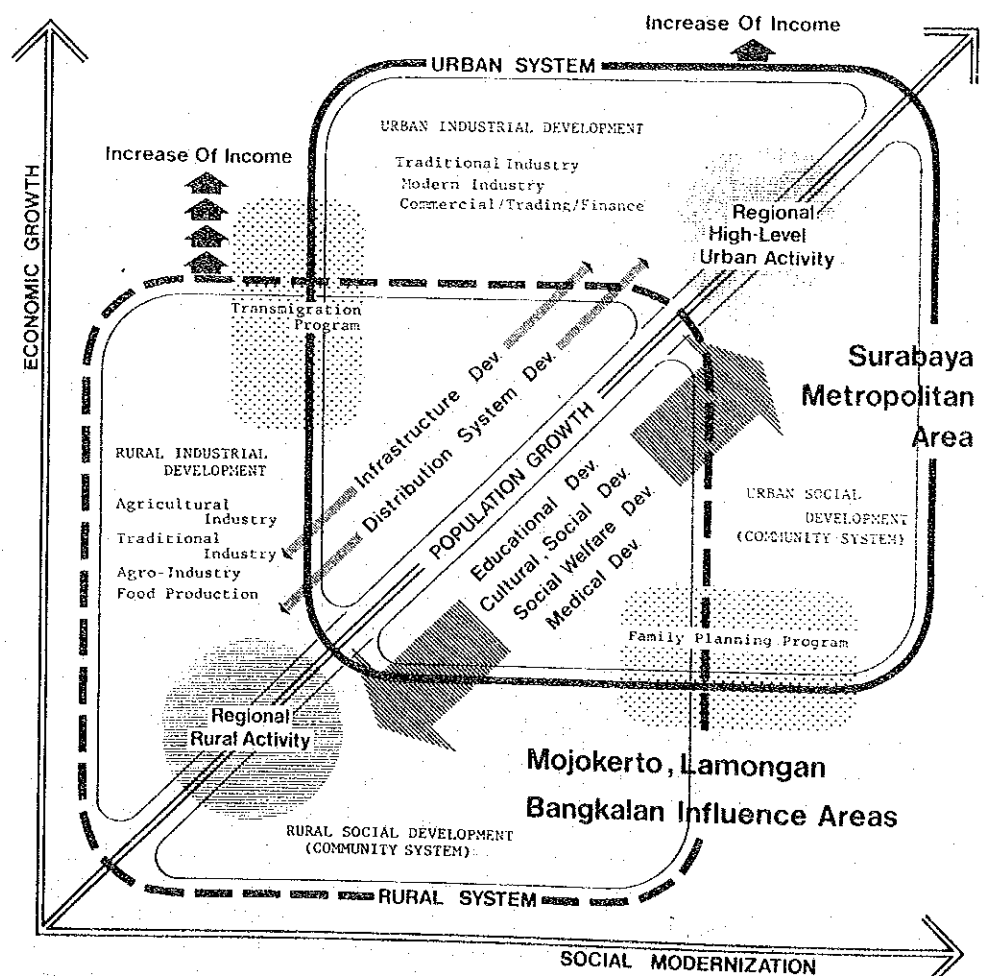


Fig. 7.2.1 GKS TOTAL DEVELOPMENT SYSTEM

- The urban area should take more charge of a portion of the economic growth, population growth and social modernization for the achievement of national targets.
- Supposing that the urban and rural systems are composed of mainly industrial and social development sectors, it is necessary to develop the functions of connectors between sectors as well as between the urban and the rural. The infrastructure and distribution facilities connecting the rural area with the urban area are significant in the industrial sector, and the educational, cultural, social and medical facilities should be also developed in order to establish the tied relations in the social sector. These facilities should be provided in both areas to function as connectors but the scale of development of them depends on the level of service area.
- As a total, the aggressive activities in both areas should be ensured through the sectoral developments showing their own special quality. The increase of national income will result from the success of these developments.
- The countermeasures against population growth and its distribution, including the family planning and transmigration programme implemented by the central government, are also situated on these co-ordinates. The success of the family planning programme depends on the progress of social modernization, while the transmigration has to be relevant to the regional economic growth from the national point of view.

As mentioned above, the total regional system in GKS region is established by the formation of a self-supporting socio-economic system in each influence area, as well as the tied correlation structure between SMA and the rural areas.

7.3 GENERAL STRUCTURE IN GKS REGION

7.3.1 ACTIVITY CENTRES SYSTEM

THE STUDY AREA AND WPP

The GKS region consists of 10 WPP as shown in Fig. 7.3.1:

- | | |
|-------------|-----------------------|
| - Surabaya | - Lamongan |
| - Sidoarjo | - Babat (Kedungpring) |
| - Krian | - Sukowati (Paciran) |
| - Mojokerto | - Bangkalan |
| - Gresik | - Sapuluh |

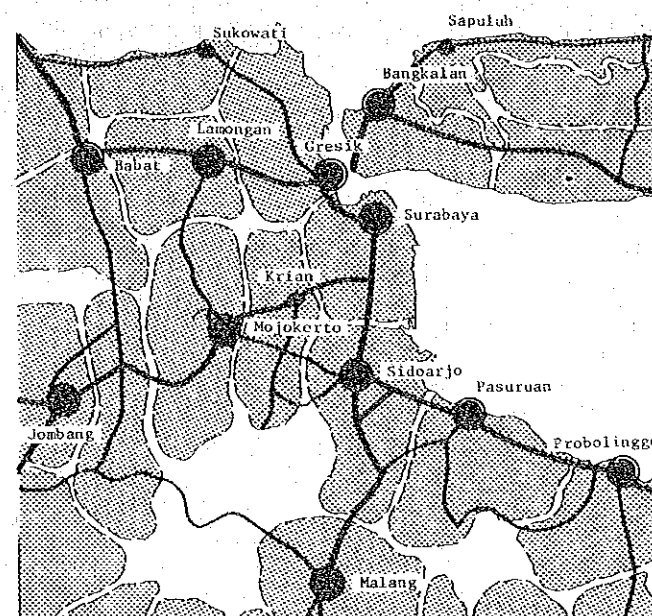


Fig. 7.3.1 COMPOSITION OF WPP IN GKS REGION

Among them, the influence areas of Sidoarjo, Mojokerto, Babat and Sapuluh are divided by the boundary of GKS region, and the partial areas are excluded from the Study Area.

As mentioned before, some discussions are necessary to adjust the difference between the administrative boundaries and the boundary of WPP.

HIERARCHY OF ACTIVITY CENTRES

The hierarchial system of activity centres was studied in order to establish an organical development structure in GKS region.

Some points of view can be applied for the evaluation of the central function level and its influence area. The Study Team researched this question from the following factors:

- From degree of accumulated population and socio-economic facilities,
- From administrative function,
- From the characteristics of centres of WPP, and
- From planning idea for desirable location in consideration of the future regional structure.

The function level of activity centre is defined to consist of four levels, from the first level up to the fourth level.

The first and second level (Surabaya only) influences the whole of East Java and GKS region respectively, and the third level which is evaluated to be the cities of Sidoarjo, Gresik, Bangkalan, Lamongan and Kod. Mojokerto, cover the whole of their own administrative area. These third level centres also have supporting functions to the first and the second level centres and also function as the daily major activity centre.

The centres with fourth level support the third level as well as function themselves as a community centres.

Fig. 7.3.2 shows the proposed composition. All of the centres of WPP belong to the centres proposed, however, some were evaluated on the extent of anticipated urban area and the planning considerations. They are Waru, Porong, Cerme, Sidoarjo, Mojokerto and Kamall, of which all are situated as the fourth level.

The decision on the influence area of each centre was based on considerations of the existing and future transportation network, geographical conditions and some planning reflections.

An activity centre comprises not only commercial functions, but also social, industrial and working functions, and these activity centres should be developed in conjunction with the population in their influence areas as well as with their own levels.

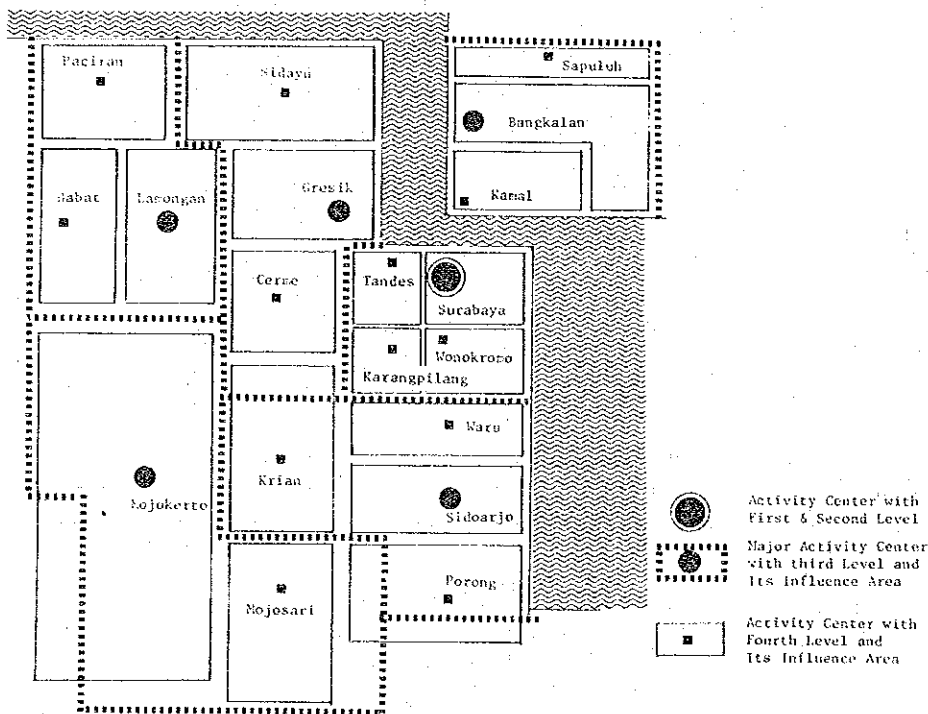


Fig. 7.3.2 ACTIVITY CENTRES AND INFLUENCE AREAS

7.3.2 COMMUNICATIONS SYSTEM

ORDERING SYSTEM

The network by way of an "Ordering System" is effective as a tool to initiate the communications system in the future.

The ordering system is a method, to identify the functional level to be developed, and is the way to connect with the centres. Accordingly, it is first necessary to evaluate the level of regional centers. The discussion on the level of regional centers was already carried out in the section 7.2.2 in East Java and also in the section 7.3.1 in the GKS region.

Integrating these arguments, all of the centres are redefined to consist of 5 levels in order to apply the method of ordering system as follows (refer to Fig. 7.3.3):

- | | | |
|--|---|---|
| I. Centre of SWP | : | First Order City (Surabaya) |
| II. Centre of Intermediate Regional Unit | : | Major Second Order City (8 cities) |
| III. Major Centres of WPP | : | Central City of kod./Kab. |
| IV. Other Centres of WPP | : | Major Activity Centre of the third level and over |
| V. Other Centres | : | Activity Centre of the fourth level |

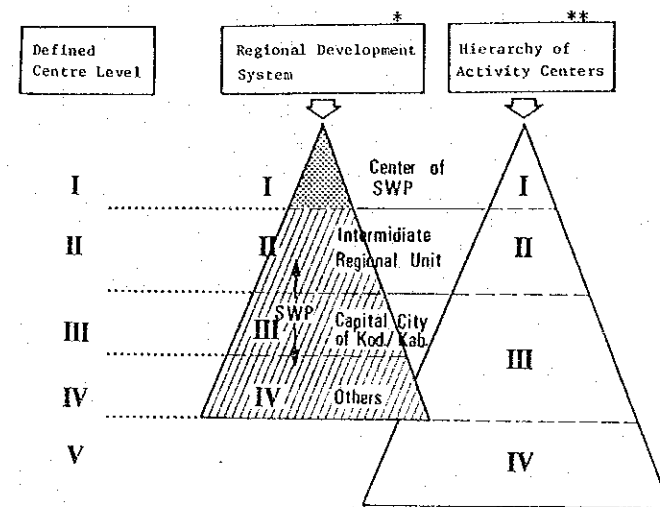


Fig. 7.3.3 CONCEPTUAL CONSTITUTION OF CENTRAL LEVEL IN REGIONAL SCOPE

The connectors of these centres are basically classified into three categories such as arterial, collector and local. However, in terms of arterial level, it is recommended to classify into two more categories, considering the various function of arterial connector as below:

- I. Major arterial
- II. Arterial
- III. Collector
- IV. Local

The function of each level is defined as follows;

- The major artery functions as a connector between the primary city (Level-I) and 8 major second order cities (Level-II) as well as between the primary cities.
- The artery functions as a connector between the centre of Level-II and the major centre of WPP (Level-III) as well as among the centres of Level-II.
- The collector is defined as a connector between Level-III and the other centres of WPP (Level-IV) as well as among the centres of Level-III.
- The local is defined as a connector between the centres of Level-IV and Level-V as well as among the centres of Level-IV.

The relationship between the levels of centres and connectors is shown diagrammatically in Fig. 7.3.4.

- Simultaneously the port, Tg. Perak and its supporting area should be encouraged as a significant distribution centre for commodities and industrial raw materials and products including agricultural products.
- In the manufacturing sector, the modern industries and the traditional industries should be developed in harmony. The flow of goods generated by the industrial activities should be controlled through the distribution facilities and major infrastructure located around the CBD.
- Housing Development is important to accommodate the increased population and also the recreation facilities development should be located with an appropriate balance between housing and industrial activity areas.

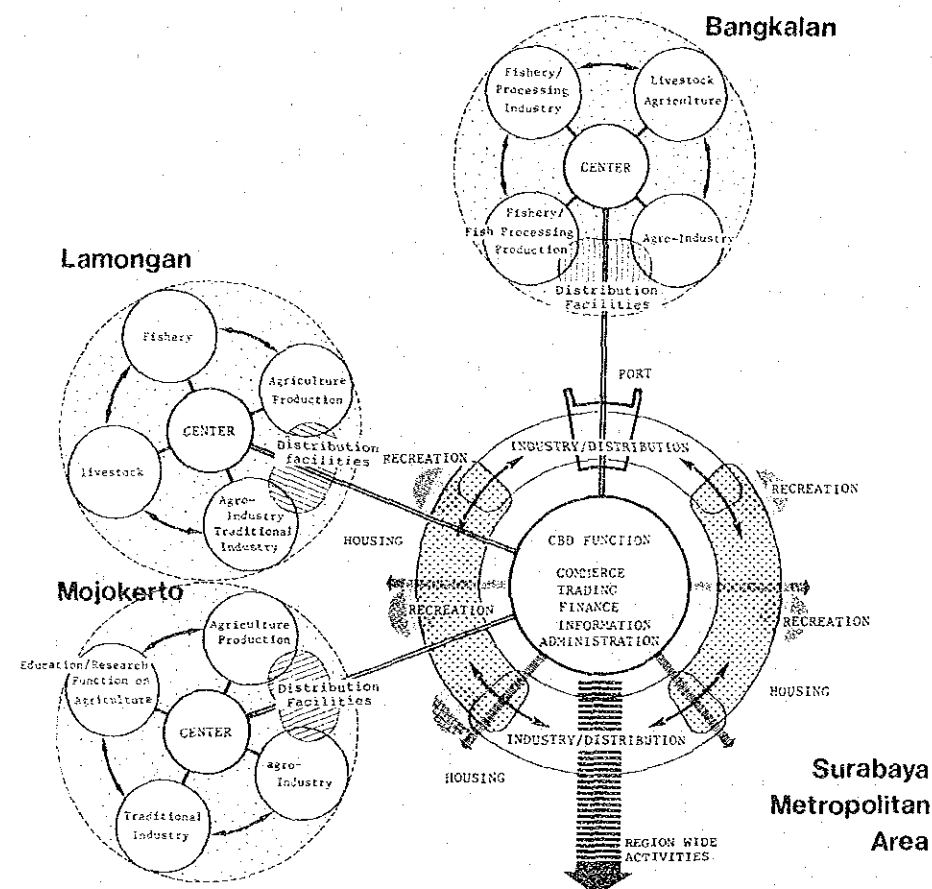


Fig. 7.3.7 FUNCTIONAL COMPOSITION OF REGIONAL DEVELOPMENT IN GKS REGION

MOJOKERTO INFLUENCE AREA

- A high agricultural potential exists in this area and in particular, rice and food crop production based on the existing fertile and irrigated land should be encouraged. Basically the regional industrial relationship should be established based on agricultural production.
- Food processing industries, so-called agro-industries, should be encouraged and the relevant factories for food production without public pollution should be located here. The pollution caused by the factories must be minimized because of the areas' location in the middle reaches of the important river, Kali Brantas.
- A policy should be established for advancing the existing traditional industries such as clothing, leather products, brass products and brick making.

- Intensive agriculture should be encouraged by using the existing fertile and irrigated land, while at the same time, multilateral management in the agricultural sector should be aggressively promoted.
- The development of distribution facilities for agricultural products is desirable.
- The development of high-level educational facilities for agricultural technology and some research/experiment institutes for the improvement of soil and breedstock should be implemented by the Government.

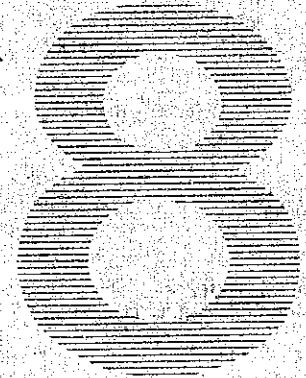
LAMONGAN INFLUENCE AREA

- Improvement of agricultural land productivity is one of the biggest problems to be solved. The improvement of soil and the irrigation system should be given a high priority.
- Meat production of chicken and sheep etc. should be encouraged, and a primary processing industry should be developed in order to add to the value of production.
- The inducement of the manufacturing sectors should be promoted especially factories relating as much as possible to the regional products such as:
 - Food
 - Leather and leather products
 - Wood and wood products
 - Furniture and fixtures
 - Pottery and clay products
 - Agricultural machinery and equipment
 - Electrical machinery, apparatus, appliances and supply
 - Others
- Fishery is one of the important industries in this area and the fishery ports in the coastal area, especially between Paciran and Brondong, should be improved. The fishery activities in the inland area should be more intensive. Related with the development of fisheries, a processing/distribution system should be established.
- Traditional industry, especially textile, should be encouraged as a particular local industry.

BANGKALAN INFLUENCE AREA

- Intensive agriculture is needed in this area in the same way as the Lamongan Area. Simultaneously, land productivity should be increased and especially the production of food crops harvested in dry fields should be improved.
- It is necessary to promote the multilateral management complex with production of livestock and food crops.
- A consistent production system from original food crops up to their industrial products is urgently required. Cattle meat would be suitable for processing under this system.
- The northern coastal area is expected to have a high potential for fishery development. The productive consolidation and cooperation in the fishery sector should be promoted by modernization and simultaneously the development of fishery ports should be executed.
- Transportation and distribution problems are most serious because of being an island. Therefore the most efficient distribution system should be established in order to be competitive in the market with other areas.

CHAPTER



AREA DEFINITION OF
SURABAYA METROPOLITAN AREA

8.1 CRITERIA OF DEFINITION

8.1.1 GENERAL

Surabaya Metropolitan Area is defined as the existing city of Surabaya and the part of the surrounding area which can be considered as likely to be urbanized during the implementation of the Structure Plan.

Relevant factors in a decision on the boundary of SMA can be summarized as follows:

- Traffic activity
- Spatial capacity
- Urbanization potential
- Socio-economic consideration

3.1.2 BASIC CONSIDERATIONS ON AREA DEFINITION OF SMA EFFICIENT EXTENT OF TRAFFIC ACTIVITY

It was identified from the results of the traffic survey carried out in this Study that the average travel time for one trip by a resident was approximately 30 to 40 minutes.

Based on this characteristic, SMA should be defined so as to ensure the following conditions:

- As a target for defining and planning the SMA it is assumed that the boundary should be fixed at about 1 hour by vehicle from the CBD under the present conditions.
- Within the SMA, all citizens should be able to reach major activity centres within 30 minutes.

SPATIAL CAPACITY TO ACCOMMODATE METROPOLITAN FUNCTIONS

In terms of spatial capacity, the optimum extent should be ensured. Generally, a metropolitan area with around 6 million people possesses the following physical conditions:

- The minimum extent to accommodate the required facilities is an area of at least 20 km radius.
- To maximize the benefits caused by the accumulation of facilities, the area should be less than 30 km radius.

CONSIDERATION ON URBANIZATION POTENTIAL

The metropolitan area should have the required level of urbanization to perform the role of an efficient urban centre serving a wide hinterland. This urbanization should include an efficient network system between the functions located within the metropolitan area.

Even if existing or planned urban functions with an extensive sphere of influence, are located outside of the city of Surabaya, they should be encouraged and considered for planning purposes as a part of an identified metropolitan area.

In order to achieve the optimum urbanization, the following considerations should be given;

- Physical constraints such as geographic and geological conditions should be taken into account.

The results of the evaluation on development potential reported in the Section 5.2 of Part I will be useful in making a decision on the appropriate area for urban development.

- A suitable balance between the area to be urbanized and the agricultural land should be kept, in consideration of the future potential of regional socio-economic growth

as well as the efficiency of land production.

- From consideration of present urbanized areas and of landuse pattern, the area to be developed in any corridor of the Surabaya urban area should be contained within the metropolitan area.

SOCIO-ECONOMIC FACTORS

- Socio-economic factors have consequentially a relation with spatial factors through the land capacity for industrial development, and moreover they are related with the transportation system through encouragement of economic efficiency and beneficial investments. Problems on commuter transportation and consumers' daily activities should be solved within the context of a metropolitan area.

- The Study Team, based on results of various research, reached the conclusion that an activated industrialization programme should be given a high priority in order to achieve the socio-economic target. In particular the emphasis should be on the port function at Tanjung Perak and the enlargement of the industrial function related with the port. Furthermore commercial and educational development should be encouraged in order to support the industrialization.

These activities required in the progress of socio-economic growth should be secured within the metropolitan area.

8.2 AREA DEFINITION OF SMA

8.2.1 PHYSICAL CONDITIONS OF THE AREA

EXTENT OF THE AREA WITHIN ONE HOUR TRAVEL

Fig. 8.2.1 shows the present condition of time distance from the CBD in Surabaya and it can be seen that the area within 1 hour travel by car is approximately the same as the area within a radius of 20 to 30 km. The average travel speed was assumed as shown below;

- Inside of the densely inhabited district in Surabaya; 25 km/h
- Arterial road; 40 km/h
- Collector/Local road; 30 km/h

This time distance map is one of the significant materials to assist in deciding the boundary of SMA.

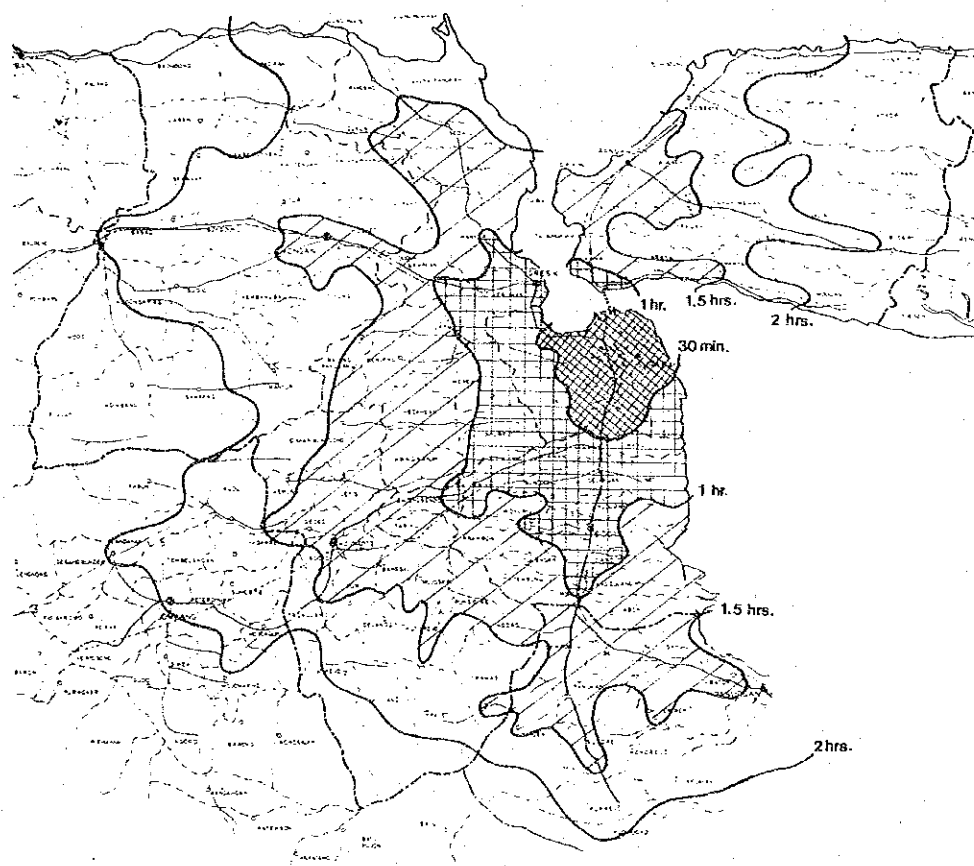


Fig. 8.2.1 TIME DISTANCE MAP (BY VEHICLE, FROM CENTRAL AREA OF SURABAYA)

Needless to say, the area within 1 hour travel is anticipated to become larger in the future, with the improvement of traffic conditions.

As mentioned in the section 12.4, the existing area within 1 hour's travel will be included within a 30 to 45 minutes travel area in future.

Accordingly, another criteria will be satisfied as this extent will permit all citizens to reach major activity centres within 30 minutes.

SPATIAL CAPACITY

A feed-back check will be carried out in the section 15.1.2 to determine if the defined area can accommodate the anticipated landuse demand in the year 2000 and later.

URBANIZATION POTENTIAL

A comprehensive evaluation for urbanization potential was already given in the section 5.2 of Part I, integrating several factors such as natural, agricultural and infrastructure conditions, etc.

This output is utilized as one of the significant data sources for the area definition of SMA.

8.2.2 DEFINITION OF SMA

BOUNDARY OF SMA

Based on the previous discussions, the boundary of SMA was defined by considering it in relation to the natural conditions as follows:

- The South boundary was assumed to lie in the agriculture area between Sidoarjo and Porong.
- In terms of the south-west direction, the outer area of Krian was assumed to be the limit.
- Toward the west a line, about 20 km from the central area of Surabaya was assumed to be the boundary.
- For the extent in the north-west direction, no conclusive factor from the analysis of the urbanization potential was found, so that the area including the city of Gresik was included, considering the anticipated urban area as well as the 1 hour travel distance.
- The North boundary was assumed using the 1 hour travel boundary.

AREA DEFINITION AND SOME SUGGESTIONS

The definition of SMA to be developed is proposed as illustrated in Fig. 8.2.2. However, attention should be paid to this definition as follows:

- The south boundary was assumed to lie in the agriculture area between Sidoarjo and Porong.
- In terms of the south-west direction, the outer area of Krian was assumed to be the limit.
- Toward the west a line, about 20 km from the central area of Surabaya was assumed to be the boundary.
- For the extent in the north-west direction, no conclusive factor from the analysis of the urbanization potential was found, so that the area including the city of Gresik was included, considering the anticipated urban area as well as the 1 hour travel distance.
- The north boundary was assumed using the 1 hour travel boundary.

- Basically this boundary means the extent to be urbanized as a metropolitan area, but some areas such as Kec. Sukodono, Wonoayu and Candi should be preserved for agricultural use due to the existing agricultural investment and the fact that they are among the most advanced agricultural areas in East Java.

- The influence area of Porong is isolated from SMA. This area actually is assumed to have a special relationship not only with Sidoarjo but also with Pasuruan and Mojokerto due to the transportation routes passing through this area.

However from an urban planning point of view, the direct relationship between Surabaya and the Porong area is presently assumed to be slight and therefore careful attention should be given to the future progress of urbanization in this area.

In the future it will be necessary to reconsider the arguments on whether or not the Porong influence area should be included in SMA.

- Although the urbanization in the western area of SMA depends on the emphasis of development pressure, the green function in these areas is evaluated to be significant as a green belt to SMA in order to control over-enlargement of the urban area.

Consequently political development control should be provided to ensure that any urban development in the western area outside the green belt is restricted to 1 km from the road connecting with Gresik and Sidoarjo through Krian.

The current conditions of SMA defined herein are;

- Area approximately 1,000 km²

- Population in 1980 ; approximately 2.9 million,

- Gross Density ; 29 person/ha.

For reference and comparison, the present conditions in DKI Jakarta are as shown in Table 8.2.1. The scale rate to DKI Jakarta, of area, population and gross density are approximately 166%, 45% and 26% respectively.

Table 8.2.1 COMPARISON OF SMA AND DKI JAKARTA

| | S.M.A. | DKI Jakarta |
|--------------------|-----------------------|---------------------|
| Area | 1,000 km ² | 590 km ² |
| Population in 1980 | 2.9 million | 6.5 million |
| Gross Density | 29 persons/ha | 110 persons/ha |

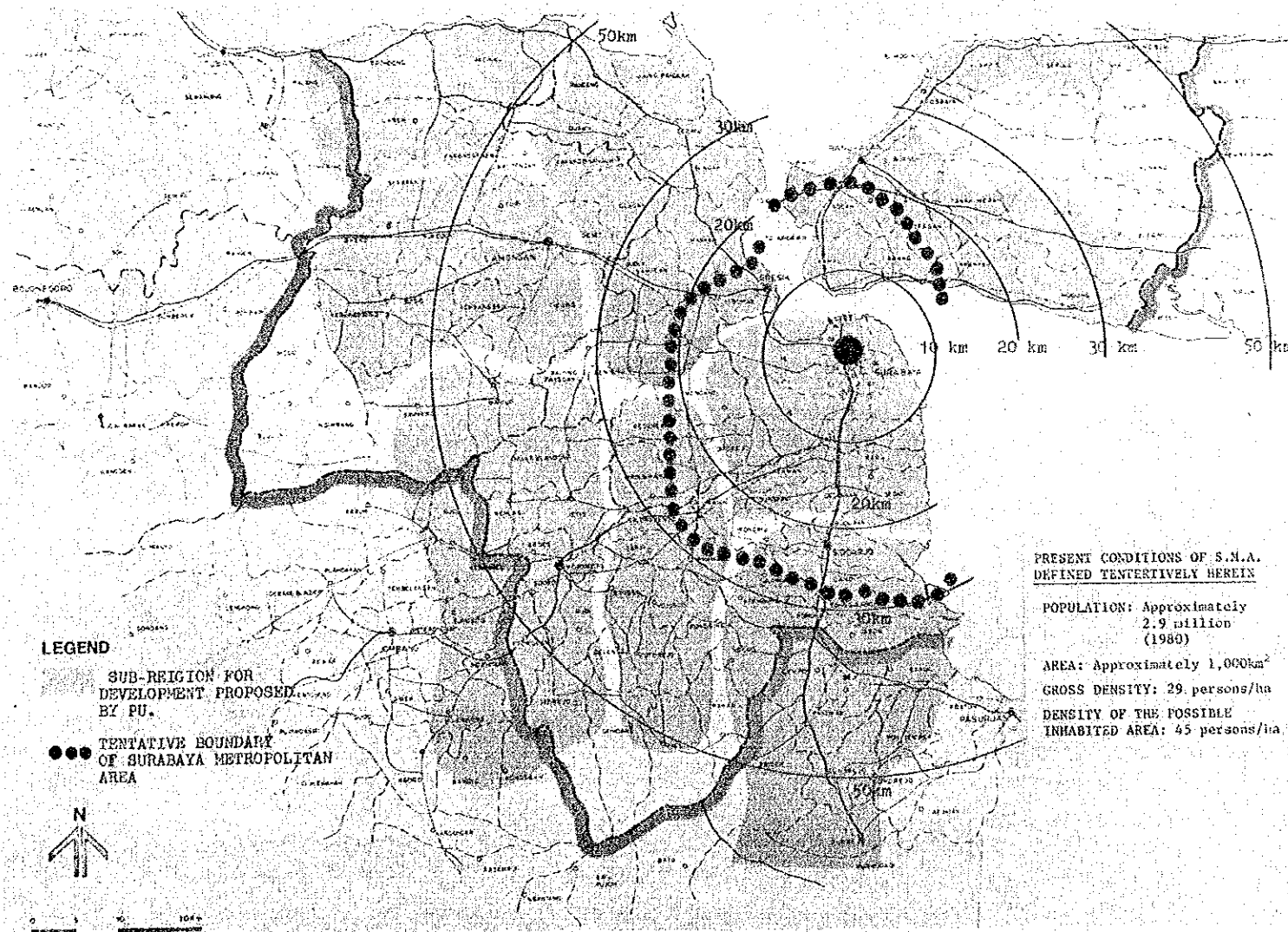
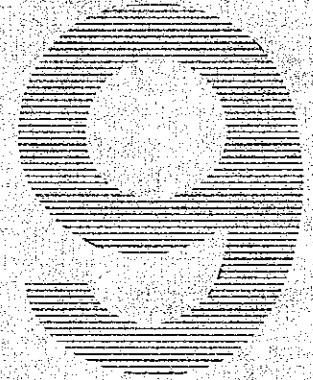


Fig. 8.2.2 DEFINITION OF SURABAYA METROPOLITAN AREA

CHAPTER



SOCIO - ECONOMIC FRAMEWORK

9.1 METHODOLOGY

9.1.1 BASIC IDEA FOR FRAMEWORK STUDY

CHARACTERISTICS OF SOCIO-ECONOMIC FRAMEWORK IN THIS STUDY

Socio-Economic Framework in this Study is prepared from the following characteristics, corresponding to the purpose of this Study:

- This study does not merely predict the regional structure in 2000 for the study area. It indicates quantitatively the "desired" aspects of the study area under the two conditions; one to make the best use of potential in that area; and two to satisfy physical constraints such as land capacity, water supply, etc, and social constraints such as energy supply, finance, etc.
- Therefore, in preparing the socio-economic framework, the study team predicted the situation of the area in 2000 in many ways under various conditions, corresponding to the development strategy, and checked the work from both sides of potential for realization and desirability. After these investigations the study team decided the basic framework used as the precondition for each sector of the structure plan.

SCENARIO OF SOCIO-ECONOMIC FRAMEWORK

As indicated in the analysis of the existing conditions in GKS Region and SMA, the percapita income of these area is as much as 20% less than the national average. In addition, based on past trends, the economic growth in these areas is below the national standard. On the other hand, the population has rapidly increased.

In the case of NO CHANGE, the income differential between this area and the national average is expected to increase more rapidly. Accordingly, the most important question of this area from the view of social economy is to raise the percapita income and to prepare job opportunities in accordance with the increased population.

In case of the economy before commencing development and at commencement, the most effective way to raise income level is by promoting industrialization. The correct promotion of industrialization will increase job opportunity and consumption in the area and in proportion to these, will enlarge the production of commerce, enterprise services, private services and so on. The increase of job opportunity and production by every industry will increase tax revenues of the central and local governments and this in turn will enable the infrastructure to be enlarged and expenditure on welfare to be raised.

Based upon this premise, the framework of GKS Region and SMA up to 2000 are prepared.

9.1.2 PROCESS OF THE STUDY

The forecast of the socio-economic framework is summarized in the following three steps:

- Step 1: To assume three cases of economic growth for GKS region and to forecast fundamental socio-economic indicators such as population, GDP and so on, corresponding to the three cases.
- Step 2: To evaluate the result of Step 1 from the viewpoint of investment conditions and tendencies of the Study Area. The study team, concluding that an aggressive development is required for the area, built a new model corresponding to the conclusion and made a detailed forecast of the framework (Case 4) by using the model.
- Step 3: The framework was checked by critical factors such as landuse, water supply, transportation, finance and so on, and the final socio-economic framework was determined.

The structure and relationship between assumed factors and socio-economic conditions is as shown in Fig. 9.1.1.

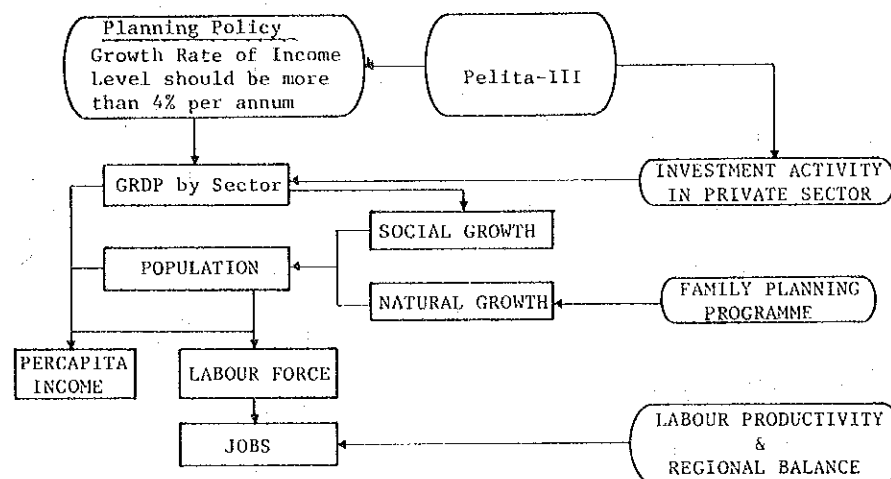
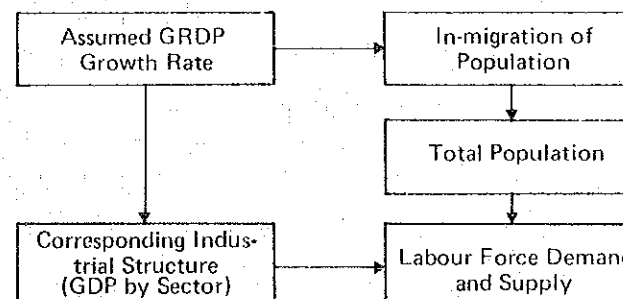


Fig. 9.1.1 FLOW CHART OF FRAMEWORK STUDY

9.1.3 STUDY FOR THE ECONOMIC GROWTH AND REGIONAL STRUCTURE (STEP 1)

Generally, the higher the economic growth rate of a region, the more in-migration of population will increase. A simple econometric model was built to investigate how the level of economic growth affects the total GKS population, the industrial structure and the other socio-economic factors. Causal relations in the model used are roughly shown as follows.



The following three cases are assumed for the economic growth rate in the GKS Region.

- Case 1: Trend Type
This case maintains the economic growth rate of 4.3% per annum which is the actual figure achieved between 1971 and 1980 in GKS region.
- Case 2: Activated Type
In this case, an economic growth rate of 7.5% per annum is achieved and this results in the per capita income increasing to 3 times the present level by the target year 2000, assuming no social increase (in-migration).
- Case 3: Moderate Type
This assumes the GDP growth rate of 6.5% per annum expected in PELITA III.

The forecast results are shown in Table 9.2.1. Basically the study team recommends Case 2 as the target for economic growth in GKS Region after evaluation of the possibility of its realization based on criteria such as physical and institutional conditions. Actually the future economic growth will conceivably lie between Case 1 and Case 2; Case 1 is assumed to be the minimum growth, and Case 2 the maximum growth. The following are important points for consideration based on the above results.

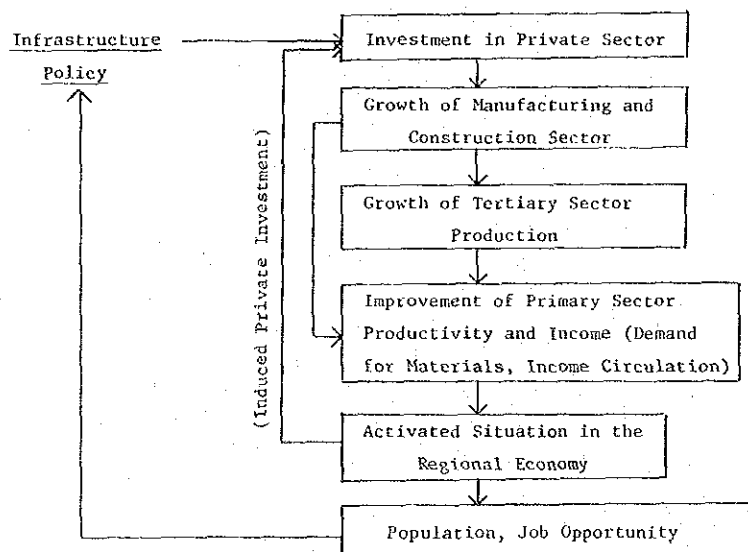
- Even though the average annual growth rate of GRDP is assumed to be as low as 4.3%, the population increase from 1980 to 2000 will be 4.0 million and social increase 1.3 million. Therefore a fairly aggressive industrial development will be required to prepare employment opportunities for the increasing population and to upgrade their living standards.
- In the case of higher economic growth, the share of the secondary sector including manufacturing is very large. This means that the industrial development of manufacturing is inevitable as a key sector for the regional economic progress.

9.1.4 FORECASTING METHODS FOR BASIC SOCIO-ECONOMIC FRAMEWORK (STEP 2)

MODEL BUILDING FOR GKS REGION SOCIO-ECONOMIC FORECASTS (CASE 4)

The process of Step 1 and an analysis of the existing situation leads to a recommendation for aggressive development.

Thus a regional econometric model was built in which the scale of the additional investment by the private sector influenced the level of economic growth, and a forecast of socio-economic framework by region was carried out. The causal relation between major indices of this model can be shown as follows:



This econometric model explains the following process.

- check the scale of additional private sector investment for the aimed more than 7% economic growth,
- how the investment expands the production of the secondary sector; most important sector for regional economic growth.
- how this influences the production increase of the tertiary and primary sector.

POPULATION FORECAST

For population forecast, the method of "Cohort Analysis" is tentatively adopted in consideration of natural increase and age-group structure. This will allow the understanding of future population structure to be available for the study of linkage between population and economic activity.

FORECAST OF REGIONAL ECONOMIC STRUCTURE

The framework of GKS region is first forecast and then this is broken down to municipalities and regencies (Kotamadya, Kabupaten).

9.2 COMPARISON OF THE ALTERNATIVE FRAMEWORKS

9.2.1 POPULATION

Population growth is only slightly affected by economic growth, but population distribution is heavily influenced by many factors. 4 categories of population framework will be considered for GKS region:

Case 1: Past trends

Case 2: Past trends plus substantial economic growth (Active Type)

Case 3: Existing masterplans

Case 4: Recommended Regional Structure

The population frameworks from Case 1 to Case 3 are forecast on the assumed economic growth rates for GKS Region.

The framework for Case 4, newly forecast on the considerations of the results from Case 1 to Case 3, is shown for comparison with the other cases.

The population of SMA will be forecast after the population in GKS Region by municipality has been estimated.

NATURAL GROWTH OF GKS REGION POPULATION

The future population in GKS Region is composed of the natural increase of the present population and the social increase (decrease). At first the natural growth is investigated by Cohort Analysis.

Generally, the death rate is expected to decrease in accordance with the progress of medical technology, and the birth rate decrease in accordance with the progress of family planning programmes. In this study the death rate is assumed to decrease by 1.2% per annum, and the birth rate is to decrease variably for each age group of females.

As the future natural growth rate finally depends on the existing age group structure, in spite of the assumption as above, the natural growth rate between 1980 and 1985 is

computed to be 2.04% per annum which is higher than that of the 1.87% of recent years. However, the natural growth rates beyond 1985 is assumed to decrease gradually as follows;

| | | |
|-------------|---|-----------------|
| 1980 - 1985 | : | 2.04% per annum |
| 1985 - 1990 | : | 1.99% per annum |
| 1990 - 1995 | : | 1.81% per annum |
| 1995 - 2000 | : | 1.56% per annum |

POPULATION GROWTH IN GKS REGION

As shown in Table 9.2.1, the following facts are found from the results of the estimation:

- In Case 2 which assumes the highest economic growth the population in 2000 is estimated to be about 10.8 million and 43% of the increased population, approximately 2 million, will be due to social increase.
- Even in Case 1 assuming the lowest economic growth, population increase will be 4 million, with 70% of it due to natural increase. This means it is necessary for GKS Region to achieve a considerable high level of economic growth.
- The population growth in Case 4, which is adopted as the basic framework in this study is close to Case 2. As shown later, economic growth in terms of GDP is expected to be 7.1% annually from 1980 to 2000 and therefore the per capita income in GKS Region will be improved by 4.3% annually in this case.

POPULATION FORECAST BY REGION AND COMPARISON BY CASE

In order to make the framework of SMA, it is necessary to forecast population and industry by region. Table 9.2.2 shows a comparison of population for Case 1 and 2, and this was obtained by breaking down the forecast value corresponding to the defined SMA.

Trend type (Case 1) estimates 5.6 million as the population of SMA in 2000, while Active Type (Case 2) estimates the population as 6.2 million, or approximately 10% greater than Case 1. The population ratio of SMA to GKS in 2000, is 55.8% in Case 1, and 56.9% in Case 2. This means that high growth economy supported by industrialization can be realized with centralization of population to the urban area.

Table 9.2.1 FORECAST POPULATION FOR GKS

(1000 persons)

| Case | | Case 1 (TREND TYPE) | Case 2 (ACTIVE TYPE) | Case 3 (MODERATE TYPE) | Case 4 (RECOMMENDED TYPE) |
|--|---------------|------------------------|-------------------------|---------------------------|------------------------------|
| Total Population (1000 persons) | 1980 | 6,111.9 | 6,111.9 | 6,111.9 | 6,111.9 |
| | 1990 | 7,886.4 | 7,995.9 | 7,958.1 | 8,009.3 |
| | 2000 | 10,092.0 | 10,842.1 | 10,559.9 | 10,759.7 |
| Annual Growth Rate (%) | 1990/ 1980 | 2.58 | 2.72 | 2.67 | 2.74 |
| | 2000/ 1990 | 2.50 | 3.09 | 2.87 | 3.00 |
| | 2000/ 1980 | 2.54 | 2.91 | 2.77 | 2.87 |
| Increment 1980 - 2000 (1000 persons) | Total | 3,980.1 (100.0) | 4,730.3 (100.0) | 4,448.0 (100.0) | 4,647.8 (100.0) |
| | Natural | 2,706.7 (68.0) | 2,706.7 (57.2) | 2,706.7 (60.9) | 2,706.7 (58.2) |
| | Social | 1,273.4 (32.0) | 2,023.6 (42.8) | 1,741.3 (39.1) | 1,941.1 (41.8) |

Table 9.2.2 COMPARISON OF FRAMEWORK FOR SMA AND SURABAYA
— Population in the year 2000 —

| | | (1000 persons) | | |
|------|--------|------------------|----------------|----------------|
| | | GKS Region | SMA | (Kod) SURABAYA |
| 1980 | | 6,111.9 (100.0) | 2,908.6 (47.6) | 2,017.5 (33.0) |
| 2000 | Case 1 | 10,092.0 (100.0) | 5,631.7 (55.8) | 3,839.3 (38.0) |
| | Case 2 | 10,842.2 (100.0) | 6,171.9 (56.9) | 4,200.7 (38.7) |
| | Case 4 | 10,759.7 (100.0) | 6,119.4 (56.9) | 4,163.9 (38.7) |

Remarks : () is percent to GKS Region.

9.2.2 ECONOMIC GROWTH AND INDUSTRIAL STRUCTURE

COMPARISON OF INDUSTRIAL STRUCTURE

Fig. 9.2.1 shows industrial structures by case and is derived from forecast of the economic growth of GKS region. In all cases, the growth rate of the secondary sector supported by manufacturing overwhelms that of the total GRDP. As shown in Fig. 9.2.2, the higher the growth rate is aimed, the more industrialization is required. In case of Recommended Type (Case 4), the Average Annual Growth Rate of GRDP from 1980 to 2000 is 7.1%, while that of the secondary sector is 10.1%. The share of the secondary sector in GRDP expands from 21.6% in 1980 to 37.6% in the year 2000.

ECONOMIC GROWTH AND INDUSTRIAL STRUCTURE IN SMA

The industrial structure of each municipality based upon the forecast of GRDP of GKS was estimated and after that broken down within SMA.

The following can be pointed out from the results of the forecasting.

- The growth rate of GKS is greater than that of SMA, viewed by sector (Primary, Secondary and Tertiary). However, the total growth of SMA is greater than that of GKS. This is because the proportions of SMA's secondary and tertiary sector which have high growth rates, are much greater than those of other areas.
- The bigger the economic growth, the higher the proportion of the secondary sector not only in GKS, but also in SMA.
- On the other hand, the bigger the economic growth of GKS, the bigger the growth of the secondary sector of the other regions compared with SMA. This means that the shares of the secondary sector of SMA and the other regions come close to each other.
- The GDP weight of SMA in GKS decreased in Case 2 and 4. This indicates that the aggressive development of GKS results in industrialization not only of SMA, but also of adjacent areas.

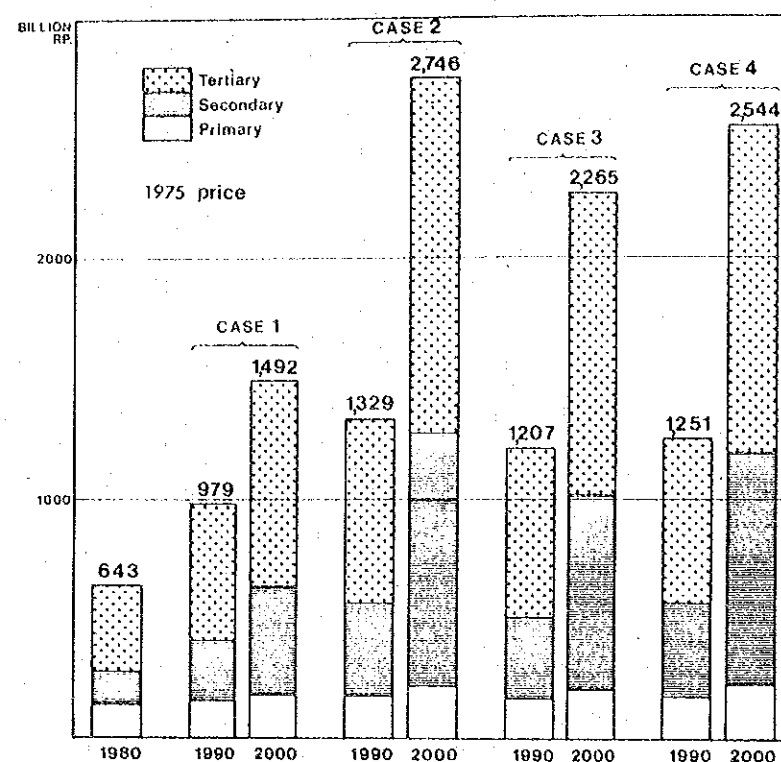


Fig. 9.2.1 INDUSTRIAL STRUCTURE IN GKS REGION BY CASE

Average Annual
Economic Growth
(2000 / 1980 ; %)

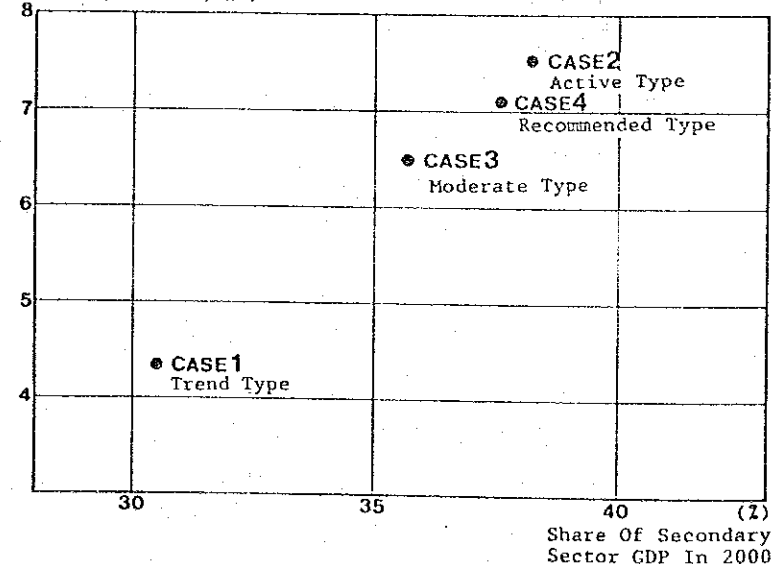


Fig. 9.2.2 AIMED ECONOMIC GROWTH AND INDUSTRIALIZATION

Table 9.2.3 GRDP FORECAST FOR GKS REGION

(1975 Constant Price)

| | | GRDP (million Rp.) | | | Average Annual Growth Rate (%) | | |
|-------------------------|----------------------|--------------------|-------------------|-------------------|--------------------------------|-----------|-----------|
| | | 1980 | 1990 | 2000 | 1990/1980 | 2000/1990 | 2000/1980 |
| Case 1 (Trend) | Total | 642,889 (100.0) | 979,443 (100.0) | 1,492,183 (100.0) | 4.30 | 4.30 | 4.30 |
| | (1) Primary Sector | 139,870 (21.8) | 159,649 (16.3) | 185,031 (12.4) | 1.33 | 1.49 | 1.41 |
| | (2) Secondary Sector | 139,061 (21.6) | 250,737 (25.6) | 455,116 (30.5) | 6.07 | 6.14 | 6.11 |
| | (3) Tertiary Sector | 383,958 (59.7) | 569,057 (58.1) | 852,036 (57.1) | 4.01 | 4.12 | 4.07 |
| Case 2 (Active) | Total | | 1,328,717 (100.0) | 2,746,181 (100.0) | 7.53 | 7.53 | 7.53 |
| | (1) Primary Sector | | 178,048 (13.4) | 219,694 (8.0) | 2.44 | 2.12 | 2.28 |
| | (2) Secondary Sector | | 386,657 (29.1) | 1,046,295 (38.1) | 10.76 | 10.47 | 10.62 |
| | (3) Tertiary Sector | | 764,012 (57.5) | 1,480,192 (53.9) | 7.12 | 6.84 | 6.98 |
| Case 3 (Moderate) | Total | | 1,206,791 (100.0) | 2,265,314 (100.0) | 6.50 | 6.50 | 6.50 |
| | (1) Primary Sector | | 171,364 (14.2) | 208,409 (9.2) | 2.05 | 1.98 | 2.01 |
| | (2) Secondary Sector | | 337,901 (28.0) | 808,717 (35.7) | 9.28 | 9.12 | 9.20 |
| | (3) Tertiary Sector | | 697,525 (57.8) | 1,248,188 (55.1) | 6.15 | 5.99 | 6.07 |
| Case 4 (Recommended) | Total | | 1,251,270 (100.0) | 2,543,716 (100.0) | 6.89 | 7.35 | 7.12 |
| | (1) Primary Sector | | 180,130 (14.4) | 232,996 (9.2) | 2.56 | 2.61 | 2.58 |
| | (2) Secondary Sector | | 366,629 (29.3) | 956,616 (37.6) | 10.18 | 10.07 | 10.12 |
| | (3) Tertiary Sector | | 704,511 (56.3) | 1,354,104 (53.2) | 6.83 | 6.75 | 6.79 |

Table 9.2.4 ECONOMIC GROWTH AND INDUSTRIAL STRUCTURE IN SMA

(Million Rp., 1975 Constant Price)

| Year | | Total | Primary Sector | Secondary Sector | Tertiary Sector | |
|--|----------|------------------------|--------------------------|-----------------------|-----------------------|-------------------------|
| 1980 | GKS | 642,889 (100.0) | 139,860 (21.8) | 139,061 (21.6) | 363,958 (56.6) | |
| | SMA | 441,843 (100.0) [68.7] | 39,931 (9.0) [28.5] | 107,528 (24.3) [77.3] | 294,384 (66.6) [80.9] | |
| 2000 | Case 1 | GKS | 1,492,183 (100.0) | 185,031 (12.4) | 455,116 (30.5) | 852,036 (57.1) |
| | | SMA | 1,074,220 (100.0) [72.0] | 52,503 (4.9) [28.4] | 347,056 (32.3) [76.3] | 674,661 (62.8) [79.2] |
| | Case 2 | GKS | 2,746,181 (100.0) | 219,694 (8.0) | 1,046,295 (38.1) | 1,480,192 (53.9) |
| | | SMA | 1,973,642 (100.0) [71.9] | 62,104 (3.1) [28.3] | 771,926 (39.1) [73.8] | 1,139,612 (57.8) [77.0] |
| | (Case 4) | GKS | 2,543,717 (100.0) | 232,996 (9.2) | 956,616 (37.6) | 1,354,105 (53.2) |
| | | SMA | 1,821,422 (100.0) [71.6] | 65,780 (3.6) [28.2] | 708,179 (38.9) [74.0] | 1,047,463 (57.5) [77.4] |
| Average Annual Growth Rate (%) (2000/1980) | Case 1 | GKS | 4.30 | 1.41 | 6.11 | 4.07 |
| | | SMA | 4.54 | 1.38 | 6.03 | 4.23 |
| | Case 2 | GKS | 7.53 | 2.28 | 10.62 | 6.98 |
| | | SMA | 7.77 | 2.23 | 10.36 | 7.00 |
| | (Case 4) | GKS | 7.12 | 2.58 | 10.12 | 6.79 |
| | | SMA | 7.34 | 2.53 | 9.88 | 6.55 |

NOTES: Parentheses () show share (%) of each sector to the total, and brackets [] show the share (%) of SMA to GKS.

ECONOMIC GROWTH IN INDONESIA, EAST JAVA AND GKS REGION

(1) Economic Development Plan of Indonesia

The National 5 years programme, Pelita III (1979/80 – 1983/84) expects economic growth of 6.5% per annum. For that purpose, it aims at the following annual growth rates by sector; manufacturing 11%, construction 9%, transport and communication 10%, agriculture 3.5%, others 8.1%. It is estimated that an annual growth rate of investment of 9.7% is necessary for that economic growth.

Annual growth rate of GRDP in East Java was an average of 3.2% between 1971 and 1980. This rate is well below the average annual growth rate of 7.9% for Indonesia. Per capita GRDP of East Java is also lower than that of the Indonesian average, the ratio is decreasing year by year, and the difference with the Indonesian Average has become larger.

It is very difficult to decide the target value of economic growth in East Java, but at least it is necessary to attain an economic growth of more than the Indonesia average. By concentrating investment to East Java, economic growth will become higher, and therefore, the realization of it is, to some extent, dependant upon policy.

(2) Economic Growth of GKS Region

Case 1 (Trend type)

Annual growth rate of GRDP of GKS region was 4.3% between 1971 and 1980. In case 1, it is assumed that this trend will continue in future. The ratio of per capita GRDP in GKS to that of the Indonesia average will further decrease and will be only 62% in the year 2000.

Case 3 (Moderate type)

In case 3, it is assumed that the average annual growth rate of GRDP in GKS region will be 6.5% until the year 2000. This value is the same as the target of Pelita III. In case 3, the ratio of per capita GRDP in GKS to that of the Indonesian average will remain almost constant. In the year 2000, per capita GRDP of GKS region will be 89.1% of that of the Indonesian average.

Case 4 (Active Investment type)

In case 4, it is assumed that by promoting active investment, the average annual growth rate of GRDP in GKS region will be 7.1% until the year 2000. In case 4, per capita GRDP of GKS region in year 2000 will become 98.2% of the Indonesian average.

**Table 9.2.5 COMPARISON OF ECONOMIC GROWTH (GRDP)
Between Indonesia and East Java (Constant Price in 1973)**

| | Indonesia | | East Java | |
|------|--------------|------------------------|--------------|------------------------|
| | (Billion Rp) | Annual Growth Rate (%) | Billion (Rp) | Annual Growth Rate (%) |
| 1971 | 5544.7 | 8.3 7.5 } 7.9 | 992.1 | 2.4 3.8 } 3.2 |
| 1975 | 7630.8 | | 1091.5 | |
| 1980 | 10953.9 | | 1314.0 | |

Source: National Income of Indonesia

**Table 9.2.6 PER CAPITA GRDP OF INDONESIA AND EAST JAVA
(1973 constant Price)**

| | Indonesia (Rp) | East Java (Rp) | East Java/ Indonesia |
|------|-------------------|-------------------|-------------------------|
| 1971 | 46500 | 38906 | 0.84 |
| 1975 | 58250 | 41189 | 0.71 |
| 1980 | 74264 | 45000 | 0.61 |

Source: National Income of Indonesia

**Table 9.2.7 COMPARISON OF PER CAPITA GRDP BY PROVINCE
IN JAVA (At 1975 Constant Price) (Rp)**

| | 1975 | | 1978 | |
|----------------|--------|-------|--------|-------|
| | (Rp) | Ratio | (Rp) | Ratio |
| DKI Jakarta | 195892 | 2.10 | 223886 | 1.95 |
| West Java | 71072 | 0.76 | 86340 | 0.75 |
| Central Java | 57557 | 0.62 | 74869 | 0.65 |
| D I Yogyakarta | 56330 | 0.60 | 61780 | 0.54 |
| East Java | 65793 | 0.71 | 74725 | 0.65 |
| Indonesia | 93200 | 1.00 | 114884 | 1.00 |

Source: Provincial Income in Indonesia

**Table 9.2.8 COMPOSITION OF GRDP BY SECTOR AT CURRENT
MARKET PRICE (in 1978)**

| | Indonesia | East Java |
|------------------|-----------|-----------|
| Primary Sector | 30.5% | 40.7% |
| Secondary Sector | 33.7% | 19.4% |
| Tertiary Sector | 35.8% | 39.9% |

Source: Provincial Income in Indonesia 1975 - 1978

Biro Pusat Statistik

**Table 9.2.9 GROWTH OF GRDP BY SECTOR IN EAST JAVA
(At 1975 Constant Price)**

(Million Rp.)

| | 1975 | 1978 | Annual Growth Rate (%) |
|------------------|-----------|-----------|------------------------|
| Primary Sector | 756,365 | 778,593 | 1.0 |
| Secondary Sector | 321,856 | 430,599 | 10.2 |
| Tertiary Sector | 730,345 | 960,518 | 9.6 |
| Total | 1,808,566 | 2,169,710 | 6.3 |

Source : Provincial Income in Indonesia 1975-1978

Table 9.2.10 FORECAST OF PER CAPITA GRDP IN GKS

(1975 constant price)

| | | Population | | GRDP | | Per Capita GRDP | | Ratio to Indonesia Average (%) |
|--------|------|------------|------------------------|-------------------------|------------------------|--------------------------|------------------------|---|
| | | (Thousand) | Annual Growth Rate (%) | (Million-Rp) 1975 Price | Annual Growth Rate (%) | (Rp) 1975 Constant Price | Annual Growth Rate (%) | |
| Case 1 | 1980 | 6,111.9 | | 642,889 | | 105,186 | | 85.8 |
| | 1990 | 7,886.4 | 2.6 | 979,443 | 4.3 | 124,194 | 1.7 | 68.8 |
| | 2000 | 10,092.0 | 2.5 | 1,492,183 | 4.3 | 147,858 | 1.8 | 62.0 |
| Case 3 | 1980 | 6,111.9 | | 642,889 | | 105,186 | | 85.8 |
| | 1990 | 7,958.1 | 2.7 | 1,206,791 | 6.5 | 151,643 | 3.8 | 84.1 |
| | 2000 | 10,559.9 | 2.9 | 2,265,314 | 6.5 | 214,520 | 3.6 | 89.1 |
| Case 4 | 1980 | 6,111.9 | | 642,889 | | 105,186 | | 85.8 |
| | 1990 | 8,009.3 | 2.7 | 1,251,270 | 6.9 | 156,227 | 4.2 | 86.6 |
| | 2000 | 10,759.7 | 3.0 | 2,543,716 | 7.4 | 236,411 | 4.4 | 98.2 |

Source : Study Team

9.3 BASIC SOCIO-ECONOMIC FRAMEWORK

9.3.1 PRE-CONDITIONS

The frameworks of Case 1, 2 and 3 were examined from the viewpoints of existing conditions, the potential of GKS Region, and the role of Study area in East Java. As a result of these studies it is recommended to adopt the case of aggressive development as the basic framework for the plan.

The econometric model built for Case 4 includes a basic causal relation such as:

Policy Conditions → Promotion of Investment → Economic Growth → Population.

The Team studied the relationship between the Investment from the Private Sector and Economic Growth by using this model.

The results are as follows:

- If the investment in GKS Region is done according to the present trend, the average annual growth of investment by the private sector until 2000, would be only 5.4%, and that of GRDP would be 3.8%.
- In case of implementing a fixed amount of investment within a specified period, the earlier the investment is made, the bigger will be the effect of it up on the economy.
- In order to attain the 7% economic growth, promotion of the private sector investment is required.

The following condition has been introduced into the model as an assumption for the estimation of the basic framework (Case 4): "Additional investment of the private sector of Rp. 8 billion (1975 const. price) will be promoted every year, in addition to the investment in accordance with past trends". The amount is equivalent to 10% of average annual investment (both domestic and foreign), in East Java from 1975 to 1980.

9.3.2 POPULATION AND ITS CHARACTERISTICS

POPULATION BY REGION

(1) Population by Kotamadya/Kabupaten

The forecast population of GKS Region and its breakdown by region are shown in Table 9.3.1.

The population of GKS Region will increase from 6.1 million in 1980 to 10.8 million in 2000, the average annual growth rate being 2.87%. The growth rates are high in the central area of GKS Region such as Surabaya, Sidoarjo and Gresik.

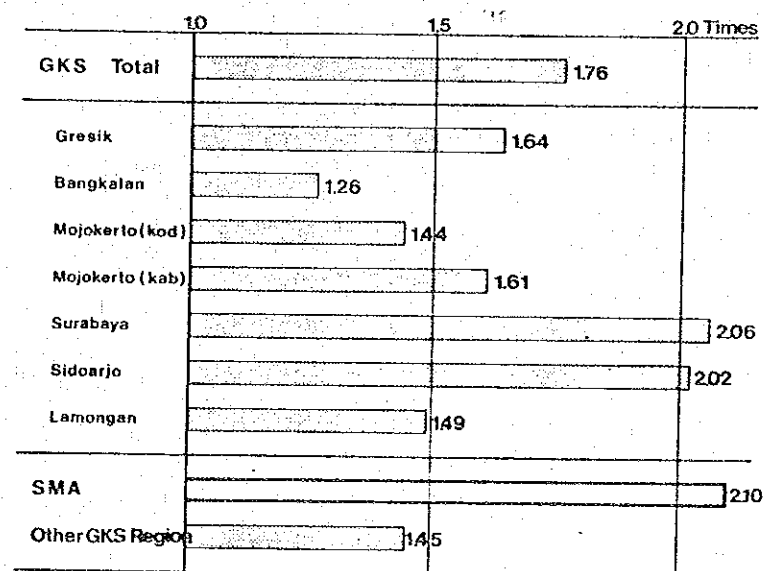


Fig. 9.3.1 EXPANSION RATE OF POPULATION (2000/1980)

Table 9.3.1 FORECASTED POPULATION BY REGION (KOTAMADYA/KABUPATEN)

| | Actual | | Forecast | | Average Annual Growth Rate (%) | | | |
|-----------------|-----------|-----------|-----------|------------|--------------------------------|-----------|-----------|-----------|
| | 1971 | 1980 | 1990 | 2000 | 1980/1971 | 1990/1980 | 2000/1990 | 2000/1980 |
| | (100.00) | (100.00) | (100.00) | (100.00) | | | | |
| GKS | 5,041,529 | 6,111,935 | 8,009,287 | 10,759,722 | 2.16 | 2.74 | 3.00 | 2.87 |
| Gresik | 610,944 | 728,570 | 928,153 | 1,199,560* | 1.98 | 2.45 | 2.60* | 2.52* |
| Bangkalan | 631,455 | 688,291 | 772,314 | 867,550 | 0.96 | 1.16 | 1.70 | 1.16 |
| Mojokerto (Kod) | 60,013 | 68,507 | 82,017 | 98,975 | 1.48 | 1.82 | 1.90 | 1.86 |
| Mojokerto (Kab) | 596,185 | 705,547 | 888,851 | 1,134,706 | 1.89 | 2.34 | 2.47 | 2.40 |
| Surabaya | 1,566,255 | 2,017,527 | 2,861,618 | 4,163,917* | 2.85 | 3.36 | 3.82* | 3.69* |
| Sidoarjo | 667,639 | 853,685 | 1,198,970 | 1,725,727* | 2.77 | 3.45 | 3.71* | 3.55* |
| Lamongan | 909,038 | 1,049,803 | 1,277,364 | 1,569,288 | 1.61 | 1.98 | 2.08 | 2.03 |

NOTES: The estimates marked by * will be revised after a check of land capacity. The revised numbers are described in Chapter 15.1.

(2) Population Growth in SMA

The population framework of SMA has been estimated by population data of Kecamatan.

According to the results of the forecasting, the population of SMA will increase from 2.9 million in 1980 to 6.1 million in 2000. This is an increase of 2.1 times the 1980 population and the population of SMA in 2000 will be equivalent to that of GKS Region at present. Hence, the share of SMA in GKS Region will increase from 47.5% in 1980 to 56.9% in 2000.

POPULATION BY SEX AND AGE GROUP

(1) Structure of Population in GKS Region

The change of population by age group is closely connected with the supply of labour force and the demand for educational facilities which are important items in the planning. Table 9.3.3 and Fig. 9.3.2 show the result of population forecast by age group in GKS Region.

In GKS Region, the growth rates of the population in the teens and younger half of 20's are low, and those in 30's, 40's, 65 and over, are high.

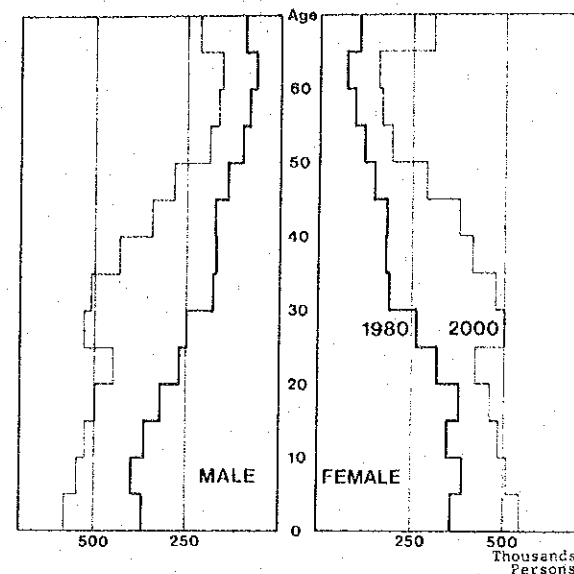


Fig. 9.3.2 FORECAST OF AGE GROUP STRUCTURE

Table 9.3.2 POPULATION FORECAST FOR SMA

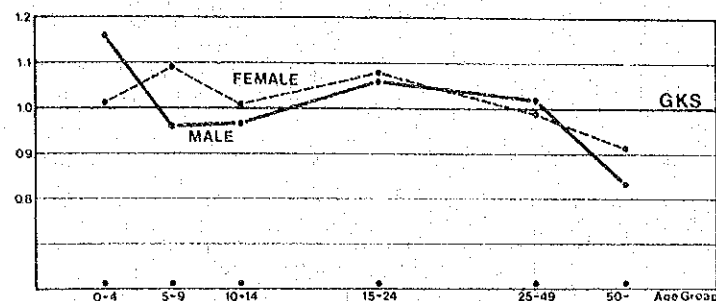
| | 1980 | | 1990 | | 2000 | | Av. Annual Growth Rate (%) | | |
|--------------|------------|-----------|------------|-----------|------------|-----------|----------------------------|-----------|-----------|
| | Population | Share (%) | Population | Share (%) | Population | Share (%) | 1990/1980 | 2000/1990 | 2000/1980 |
| G K S | 6,111,935 | 100.0 | 8,009,287 | 100.0 | 10,759,722 | 100.0 | 2.74 | 3.00 | 2.87 |
| S M A | 2,905,414 | 47.5 | 4,186,574 | 52.3 | 6,119,364 | 56.9 | 3.71 | 3.87 | 3.79 |
| Other Region | 3,206,521 | 52.5 | 3,822,713 | 47.7 | 4,640,358 | 43.1 | 1.77 | 1.96 | 1.87 |

Table 9.3.3 GKS POPULATION FORECAST BY SEX AND AGE GROUPS

| Age Groups | 1980 | | | 1990 | | | 2000 | | | Average Annual Growth Rate (%) | | |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|--------------------------------|-----------|-----------|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total | 1990/1980 | 2000/1990 | 2000/1980 |
| Total | 2,979,644 | 3,132,292 | 6,111,936 | 3,972,607 | 4,036,680 | 8,009,287 | 5,417,519 | 5,342,202 | 10,759,721 | 2.74 | 3.00 | 2.87 |
| 0-4 | 371,400 | 356,809 | 728,209 | 511,793 | 478,955 | 990,748 | 581,025 | 544,442 | 1,125,467 | 3.13 | 1.28 | 2.20 |
| 5-9 | 399,290 | 387,819 | 787,109 | 431,701 | 399,663 | 831,364 | 546,594 | 506,783 | 1,053,377 | 0.55 | 2.40 | 1.47 |
| 10-14 | 364,673 | 347,207 | 711,880 | 360,418 | 340,395 | 700,813 | 525,074 | 485,263 | 1,010,337 | 0.16 | 3.73 | 1.77 |
| 15-19 | 321,670 | 375,664 | 697,334 | 423,691 | 408,474 | 832,165 | 498,175 | 459,440 | 957,615 | 1.78 | 1.41 | 1.04 |
| 20-24 | 271,289 | 316,823 | 588,117 | 398,062 | 377,237 | 775,299 | 443,680 | 413,533 | 867,233 | 2.80 | 1.13 | 1.96 |
| 25-29 | 250,100 | 261,447 | 511,547 | 362,821 | 411,677 | 774,498 | 528,302 | 502,479 | 1,030,781 | 4.24 | 2.90 | 3.57 |
| 30-34 | 180,189 | 188,364 | 368,553 | 313,964 | 354,010 | 667,974 | 506,783 | 474,504 | 981,287 | 6.13 | 3.92 | 5.02 |
| 35-39 | 171,166 | 178,931 | 350,097 | 277,121 | 282,728 | 559,849 | 432,541 | 469,124 | 901,665 | 4.81 | 4.88 | 4.84 |
| 40-44 | 172,508 | 180,334 | 352,842 | 192,223 | 194,626 | 386,849 | 345,387 | 374,438 | 719,825 | 0.92 | 6.41 | 3.63 |
| 45-49 | 140,181 | 146,541 | 286,722 | 172,200 | 177,806 | 350,006 | 284,057 | 286,209 | 570,266 | 2.01 | 5.00 | 3.50 |
| 50-54 | 102,062 | 118,760 | 220,822 | 164,991 | 173,802 | 338,793 | 189,371 | 191,523 | 380,894 | 4.37 | 1.18 | 2.76 |
| 55-59 | 81,276 | 94,575 | 175,851 | 131,352 | 136,158 | 267,510 | 163,548 | 166,776 | 330,324 | 4.28 | 2.13 | 3.20 |
| 60-64 | 51,754 | 71,859 | 123,613 | 93,709 | 107,324 | 201,033 | 151,712 | 157,092 | 308,804 | 4.17 | 4.39 | 4.28 |
| 65- | 92,086 | 107,154 | 199,240 | 138,561 | 193,825 | 332,386 | 216,270 | 305,576 | 521,846 | 5.25 | 4.61 | 4.93 |
| 15-24 | 592,959 | 692,492 | 1,285,451 | 821,753 | 785,711 | 1,607,464 | 946,855 | 877,993 | 1,824,848 | 2.26 | 1.28 | 1.77 |
| 25-49 | 714,144 | 955,617 | 1,669,761 | 1,318,329 | 1,420,847 | 2,739,176 | 2,097,070 | 2,106,754 | 4,203,824 | 3.89 | 4.38 | 4.13 |
| 50-64 | 245,092 | 285,194 | 530,286 | 390,052 | 417,284 | 807,336 | 504,631 | 515,391 | 1,020,022 | 4.29 | 2.37 | 3.32 |
| 65- | 92,086 | 107,154 | 199,240 | 138,561 | 193,825 | 332,386 | 216,270 | 305,576 | 521,846 | 5.25 | 4.61 | 4.93 |

(2) Structure of Population in SMA

Fig. 9.3.3 shows the comparison of the age group structure of SMA in 1980 in terms of GKS. Table 9.3.4 is the estimated result of age group structure of SMA and has been obtained from the present characteristics of the age group structure.



Sources : National Census 1980

Remarks : SMA is calculated as the total of kod. Surabaya/kab. Gresik and kab. Sidoarjo

Fig. 9.3.3 CHARACTERISTIC COEFFICIENTS OF SMA POPULATION COMPOSITION

9.3.3 REGIONAL PRODUCTS AND LABOUR FORCE

REGIONAL PRODUCTS GROWTH

(1) Structure of Economic Growth by Area

From 1980 to 2000, the actual growth rate of GRDP of the primary sector in GKS Region is 2.6%, that of the secondary sector is 10.1%, and that of the tertiary sector is 6.8%. The Growth rate of the total GDP is 7.1%. Table 9.3.5 and Fig. 9.3.4 indicate the forecast result of growth of regional products by area.

The following are some characteristics which can be drawn from the results:

- The growth rate of the secondary sectors in Sidoarjo and Gresik are the highest in GKS Region, and they will be the motive power for the economic growth of GKS Region and SMA.
- The GRDP of the non-agricultural sector of Surabaya in 1980 accounts for 95%, and especially the share of the tertiary sector is high. For Surabaya in the future, the share of the tertiary sector of low productivity will go down and, instead, the share of the secondary sector including key urban-suited type manufacturing will increase.

- Bangkalan and Lamongan which are biased to the primary sector will not be able to enjoy high economic growth. The annual growth rate will be 5.8% in Bangkalan and 5.9% in Lamongan.

- The changes of industrial structure of Kod. Mojokerto and Surabaya, whose share of the primary sector is low, will be small. Hence, in order to attain the high economic growth, it is required to raise the growing power of each industry and its productivity.

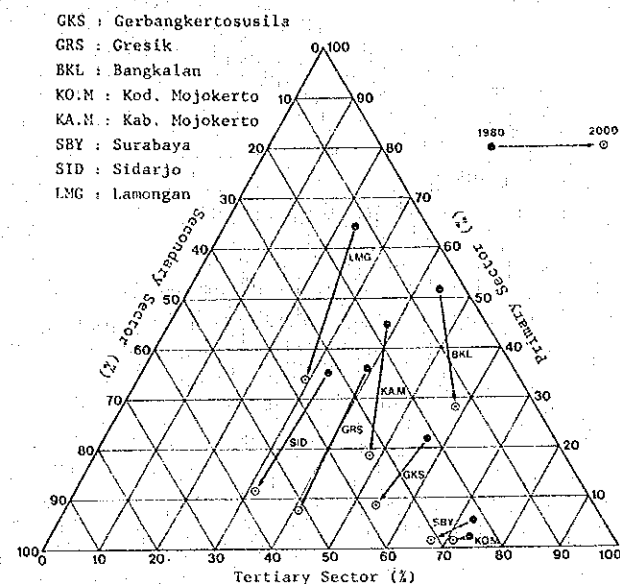


Fig. 9.3.4 STRUCTURAL CHANGE IN REGIONAL ECONOMY (GRDP) (1980 - 2000)

(2) Growth Pattern and Industrial Structure of SMA

As shown in Table 9.3.6, the actual annual growth of GRDP in SMA will be 7.3%, with that of the primary sector being 2.5%, the secondary sector being 9.9%, and the tertiary sector being 6.6%. Fig. 9.3.5 shows how SMA will change compared to GKS. The secondary sector, share of SMA was 77.3% in 1980, and it will decrease to 74%, in 2000 since the growing power of other areas is higher than that of SMA. The tertiary sector share of SMA will also go down from 80.9% in 1980 to 77.4% in 2000. This is because several functions of manufacturing and commerce are going to accumulate not only in SMA, but also in other areas.

Table 9.3.4 SMA POPULATION BY SEX AND AGE GROUP

| Age Group | 1980 (Estimated) | | | 1990 | | | 2000 | | |
|------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| Population | | | | | | | | | |
| Total | 2,903,614 | 1,422,604 | 1,486,010 | 4,186,574 | 2,093,472 | 2,093,102 | 6,119,364 | 3,093,500 | 3,025,864 |
| 0-4 | 352,524 | 180,916 | 171,608 | 554,336 | 305,310 | 249,026 | 690,955 | 380,602 | 310,353 |
| 5-9 | 359,796 | 182,952 | 176,844 | 439,293 | 213,911 | 225,382 | 600,193 | 296,923 | 313,270 |
| 10-14 | 333,329 | 167,827 | 165,500 | 355,157 | 179,621 | 175,536 | 538,240 | 263,924 | 274,316 |
| 15-24 | 653,567 | 299,880 | 353,687 | 885,065 | 450,393 | 434,672 | 1,101,336 | 568,869 | 532,467 |
| 25-49 | 890,617 | 442,109 | 448,508 | 1,410,642 | 689,104 | 721,538 | 2,374,591 | 1,201,728 | 1,172,863 |
| 50-64 | 228,907 | 109,654 | 119,253 | 384,165 | 188,245 | 195,920 | 532,346 | 267,024 | 265,322 |
| 65- | 89,876 | 39,266 | 50,610 | 157,916 | 66,888 | 91,028 | 271,703 | 114,430 | 157,273 |

Table 9.3.5 GRDP FORECAST BY REGION

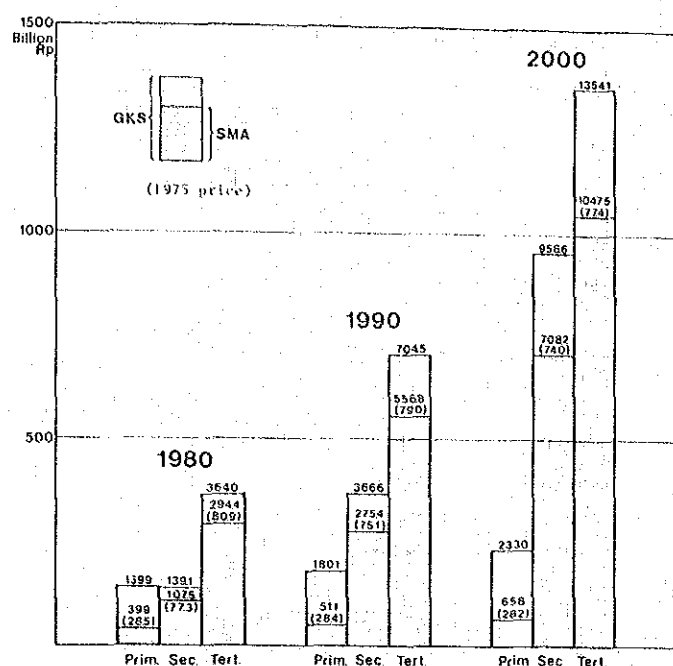
(Unit: Million Rp. at 1975 constant Price)

| | | 1980 | | 1990 | | 2000 | | Average Annual Growth Rate (%) | | |
|----------------|-----------|---------|-----------|-----------|-----------|-----------|-----------|--------------------------------|-----------|-----------|
| | | | Share (%) | | Share (%) | | Share (%) | 1990/1980 | 2000/1990 | 2000/1980 |
| G K S | Primary | 139,870 | 21.8 | 180,129 | 14.4 | 232,996 | 9.2 | 2.56 | 2.61 | 2.58 |
| | Secondary | 139,061 | 21.6 | 336,629 | 29.3 | 956,616 | 37.6 | 10.18 | 10.07 | 10.12 |
| | Tertiary | 363,958 | 56.6 | 704,511 | 56.3 | 1,354,105 | 53.2 | 6.83 | 6.75 | 6.79 |
| | Total | 642,889 | 100.0 | 1,251,270 | 100.0 | 2,543,717 | 100.0 | 6.89 | 7.35 | 7.12 |
| Gresik | Primary | 18,609 | 35.5 | 23,942 | 19.0 | 30,938 | 9.2 | 2.55 | 2.60 | 2.57 |
| | Secondary | 13,036 | 24.9 | 48,673 | 38.6 | 172,554 | 51.2 | 14.08 | 13.49 | 13.79 |
| | Tertiary | 20,785 | 39.6 | 53,351 | 42.4 | 133,844 | 39.6 | 9.89 | 9.63 | 9.76 |
| | Total | 52,430 | 100.0 | 125,966 | 100.0 | 337,336 | 100.0 | 9.16 | 10.35 | 9.76 |
| Bangkalan | Primary | 17,795 | 50.7 | 22,917 | 38.1 | 29,641 | 27.2 | 2.56 | 2.61 | 2.58 |
| | Secondary | 1,881 | 5.4 | 5,585 | 9.3 | 15,782 | 14.5 | 11.50 | 10.95 | 11.22 |
| | Tertiary | 15,421 | 43.9 | 31,579 | 52.6 | 63,355 | 58.3 | 7.43 | 7.21 | 7.32 |
| | Total | 35,097 | 100.0 | 60,081 | 100.0 | 108,778 | 100.0 | 5.52 | 6.12 | 5.82 |
| Kod. Mojokerto | Primary | 90 | 2.1 | 115 | 1.6 | 147 | 1.3 | 2.45 | 2.49 | 2.47 |
| | Secondary | 1,007 | 23.7 | 1,850 | 26.2 | 3,252 | 28.3 | 6.27 | 5.80 | 6.04 |
| | Tertiary | 3,151 | 74.2 | 5,098 | 72.2 | 8,101 | 70.4 | 4.93 | 4.74 | 4.83 |
| | Total | 4,248 | 100.0 | 7,063 | 100.0 | 11,500 | 100.0 | 5.22 | 5.00 | 5.11 |
| Kab. Mojokerto | Primary | 22,605 | 44.2 | 29,087 | 24.5 | 37,591 | 18.6 | 2.55 | 2.60 | 2.58 |
| | Secondary | 8,909 | 17.4 | 25,102 | 25.5 | 67,358 | 33.3 | 10.92 | 10.37 | 10.64 |
| | Tertiary | 19,683 | 38.4 | 44,295 | 45.0 | 97,562 | 48.1 | 8.45 | 8.22 | 8.33 |
| | Total | 51,197 | 100.0 | 78,484 | 100.0 | 202,511 | 100.0 | 6.76 | 7.48 | 7.12 |
| Surabaya | Primary | 16,224 | 4.4 | 20,611 | 3.0 | 26,292 | 2.0 | 2.42 | 2.46 | 2.44 |
| | Secondary | 82,783 | 22.6 | 186,166 | 26.9 | 399,674 | 30.9 | 8.44 | 7.94 | 8.19 |
| | Tertiary | 266,886 | 72.9 | 486,410 | 70.1 | 869,622 | 67.1 | 6.19 | 5.98 | 6.08 |
| | Total | 365,893 | 100.0 | 693,187 | 100.0 | 1,295,588 | 100.0 | 6.60 | 6.45 | 6.53 |
| Sidoarjo | Primary | 26,421 | 35.3 | 34,039 | 20.4 | 44,045 | 11.0 | 2.57 | 2.61 | 2.59 |
| | Secondary | 24,371 | 32.5 | 76,722 | 46.0 | 229,746 | 57.2 | 12.15 | 11.59 | 11.87 |
| | Tertiary | 24,152 | 32.2 | 56,154 | 33.6 | 127,740 | 31.8 | 8.80 | 8.57 | 8.68 |
| | Total | 74,944 | 100.0 | 166,915 | 100.0 | 401,531 | 100.0 | 8.33 | 9.17 | 8.75 |
| Lamongan | Primary | 38,125 | 64.5 | 49,418 | 49.6 | 64,343 | 34.5 | 2.63 | 2.67 | 2.65 |
| | Secondary | 7,074 | 12.0 | 22,530 | 22.6 | 68,249 | 36.6 | 12.28 | 11.72 | 12.00 |
| | Tertiary | 113,881 | 23.5 | 27,625 | 27.8 | 53,880 | 28.9 | 7.12 | 6.91 | 7.02 |
| | Total | 59,080 | 100.0 | 99,573 | 100.0 | 186,472 | 100.0 | 5.36 | 6.47 | 5.92 |

Table 9.3.6 GRDP FORECAST IN SMA

(Unit: Million Rp. 1975 Cost Price)

| | | 1980 | | 1990 | | 2000 | | Average Annual Growth Rate (%) | | |
|-----------|-----------|---------|-----------|-----------|-----------|-----------|-----------|--------------------------------|-----------|-----------|
| | | | Share (%) | | Share (%) | | Share (%) | 1990/1980 | 2000/1990 | 2000/1980 |
| G K S | Primary | 139,870 | 21.8 | 180,129 | 14.4 | 232,996 | 9.2 | 2.56 | 2.61 | 2.58 |
| | Secondary | 139,061 | 21.6 | 366,629 | 29.3 | 956,616 | 37.6 | 10.18 | 10.07 | 10.12 |
| | Tertiary | 363,958 | 56.6 | 704,511 | 56.3 | 1,354,105 | 53.2 | 6.83 | 6.75 | 6.79 |
| | Total | 642,889 | 100.0 | 1,251,270 | 100.0 | 2,543,717 | 100.0 | 6.89 | 7.35 | 7.12 |
| S M A | Primary | 39,931 | 9.0 | 51,141 | 5.8 | 65,780 | 3.6 | 2.51 | 2.55 | 2.53 |
| | Secondary | 107,528 | 24.3 | 275,441 | 31.2 | 708,179 | 38.9 | 9.86 | 9.90 | 9.88 |
| | Tertiary | 294,384 | 66.6 | 556,831 | 63.0 | 1,047,463 | 57.5 | 6.58 | 6.52 | 6.55 |
| | Total | 441,843 | 100.0 | 883,413 | 100.0 | 1,821,422 | 100.0 | 7.17 | 7.53 | 7.34 |
| Other GKS | Primary | 99,939 | 49.7 | 128,988 | 35.1 | 167,216 | 23.2 | 2.58 | 2.63 | 2.61 |
| | Secondary | 31,533 | 15.7 | 91,188 | 24.8 | 248,437 | 34.4 | 11.20 | 10.54 | 10.87 |
| | Tertiary | 69,574 | 34.6 | 147,680 | 40.1 | 306,642 | 42.4 | 7.82 | 7.58 | 7.70 |
| | Total | 201,046 | 100.0 | 369,856 | 100.0 | 722,295 | 100.0 | 6.23 | 6.98 | 6.60 |



Remarks : () shows the proportion of SMA to GKS Region by each sector

Fig. 9.3.5 GRDP FORECAST BY SECTOR IN GKS AND SMA

LABOUR FORCES

(1) Labour Supply in GKS and SMA

Ratios of labour force to the productive age population in GKS Region and SMA based on the national census and the estimated labour force, are calculated as follows:

Using these ratios and the projected productive age population, the future labour force can be forecast for each area as shown in Table 9.3.8. There are two factors having an influence on the future labour force ratios. One is the increase in the ratio of those attending school and the other is the expansion of job opportunity. The ratios are assumed to remain constant in future, because the two factors are considered to cancel each other out.

Table 9.3.7 RATIO OF LABOUR FORCE TO PRODUCTIVE AGE POPULATION

| | (A) Productive Age Population (10-64) | (B) Estimated Labour Force | (C) Labour Force (B/A) |
|------------|---------------------------------------|----------------------------|------------------------|
| GKS Region | 4,397,378 | 2,565,000 | 0.58330 |
| S M A | 2,106,418 | 1,141,768 | 0.54204* |

* is calculated with the data of Kab. Gresik, Kod. Surabaya and Kab. Sidoarjo

* This is calculated from the data of Kab. Gresik, Kod. Surabaya and Kab. Sidoarjo.

Table 9.3.8 FORECAST LABOUR FORCE SUPPLY

| | | 1980 | 1990 | 2000 | Average Annual Growth Rate (%) | | |
|-----|------------------------|-----------|-----------|-----------|--------------------------------|-----------|-----------|
| | | | | | 1990/1980 | 2000/1990 | 2000/1980 |
| GKS | Productive Age Persons | 4,397,378 | 5,854,789 | 8,059,031 | 2.90 | 3.25 | 3.08 |
| | Labour Force | 2,565,022 | 3,415,111 | 4,700,850 | 2.90 | 3.25 | 3.08 |
| SMA | Productive Age Persons | 2,106,418 | 3,035,024 | 4,546,513 | 3.72 | 4.12 | 3.92 |
| | Labour Force | 1,141,768 | 1,657,217 | 2,482,532 | 3.72 | 4.12 | 3.92 |

(2) Labour Force Demand in GKS Region

The labour force demand in GKS Region was forecast by function. Although the original functions were estimated by econometric methods based on past trend data in the study area, the parameters of the functions were modified for the purpose of producing a desirable situation in the labour demand structure.

Modification was carried out in two ways. In the first place the parameter which expressed the elasticity of labour demand for the GRDP growth in the secondary sector was increased to 1.2 times that of the original level. This means that it is necessary for the secondary sector to provide more job opportunities by changing to a more labour intensive structure than the present situation. The second modification was in the tertiary sector where the parameter concerning the elasticity of labour demand for the GRDP growth was diminished by 20% of the original level. This modification means that the productivity in the tertiary sector has to be improved in the future, because the present per-capita productivity of the tertiary sector is only 1/2 that of the secondary sector.

As a result of the above, the final labour demand functions in GKS Region are as follows. In these equations L_i is the labour force demand in sector i and Y_i is GRDP of sector i .

- Primary sector: $\ln L_1 = 12.20 + 0.1501 \ln Y_1$
- Secondary sector: $\ln L_2 = 4.2023 + 0.68892 \ln Y_2$
- Tertiary sector: $\ln L_3 = 5.8154 + 0.63952 \ln Y_3$

By using these functions the labour demands by sector in GKS Region are forecast as shown in Table 9.3.9.

(3) Employment Structure in GKS Region

In order to forecast the employment by sector, the labour force demand was adjusted to the supply of labour.

The result of the forecast of the employment structure of GKS Region is shown in Table 9.3.10.

The number in employment will increase from 2.6 million in 1980 to 4.7 million in 2000.

The employment in the secondary sector will grow at the rate of 6.7% annually and the average annual growth rate of employment in the primary sector, whose productivity is extremely low compared to other sectors, will be 0.18%.

(4) Employment Forecast by Region and for SMA

Table 9.3.11 shows a break down of employment forecast by area. The pattern of change in employment structure is that the share of the primary sector will decrease, while that of the tertiary sector will be increased. However, in Surabaya where the share of the primary sector is small, the share of the tertiary sector will decrease slightly while that of the secondary sector will expand. Table 9.3.12 shows the result of the forecast of employment in SMA, while Fig. 9.3.6 shows the change of total number of employment and the structure by sector for GKS Region and SMA. The employment of SMA will increase from 1.14 million in 1980 to 2.46 million in 2000. This is a growth factor of 2.15 and is far bigger than the equivalent figure for GKS Region which is 1.85. The share of the tertiary sector of SMA was 69.4% in 1980 and this will decrease after 1990.

There are many casual or temporary employments in the tertiary sector in SMA, and these should be absorbed in the secondary sector in the process of industrialization.

Table 9.3.9 LABOUR FORCE DEMAND IN GKS REGION

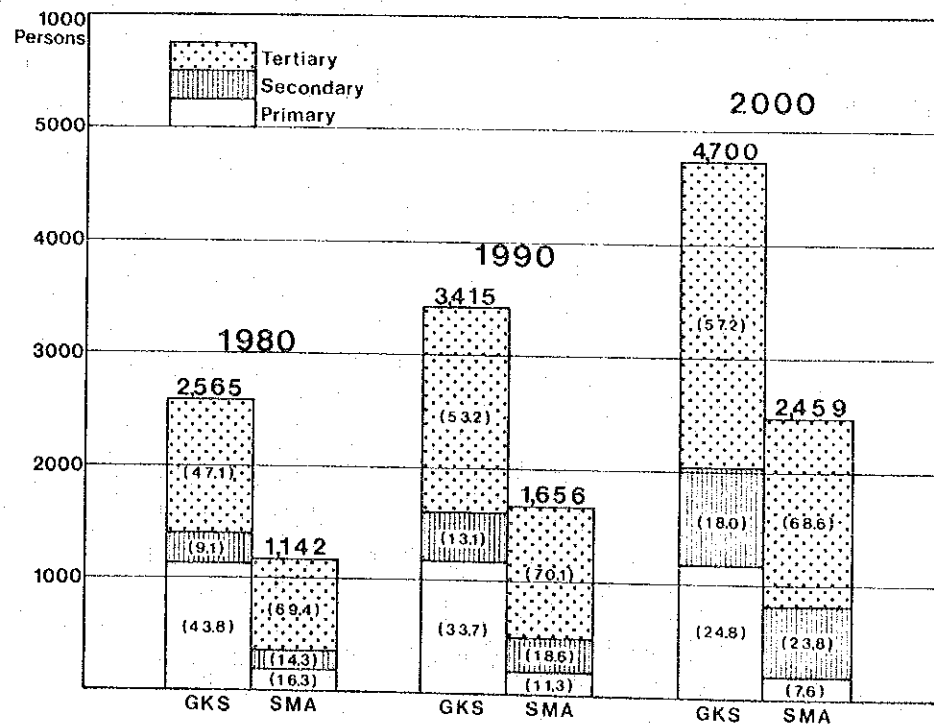
| | Labour Force Demand | | | | | | (Person) | | | |
|------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------------------|-----------|-----------|-----------|
| | | | | | | | Average Annual Growth Rate (%) | | | |
| | 1971 | 1980 | 1985 | 1990 | 1995 | 2000 | 1980/1971 | 1990/1980 | 2000/1990 | 2000/1980 |
| Total | 1,756,954 (100.0) | 2,565,022 (100.0) | 2,960,171 (100.0) | 3,465,065 (100.0) | 4,074,763 (100.0) | 4,893,086 (100.0) | 4.29 | 3.05 | 3.51 | 3.28 |
| Primary Sector | 988,337 (56.3) | 1,123,649 (43.8) | 1,144,860 (38.7) | 1,167,090 (33.7) | 1,189,058 (29.2) | 1,213,054 (24.8) | 1.44 | 0.38 | 0.39 | 0.38 |
| Secondary Sector | 172,180 (9.8) | 233,613 (9.1) | 325,410 (11.0) | 455,348 (13.1) | 627,891 (15.4) | 881,628 (18.0) | 3.45 | 6.90 | 6.83 | 6.87 |
| Tertiary Sector | 596,437 (33.9) | 1,207,760 (47.1) | 1,489,901 (50.3) | 1,842,627 (53.2) | 2,257,814 (55.4) | 2,798,404 (57.2) | 8.15 | 4.31 | 4.27 | 4.29 |

NOTES: Parentheses () show the share of each sector to the total.

Table 9.3.10 EMPLOYMENT IN GKS REGION
(Adjusted to Supply)

| | Labour Force | | | Average Annual Growth Rate (%) | | |
|------------------|----------------------|----------------------|----------------------|--------------------------------|-----------|-----------|
| | 1980 | 1990 | 2000 | 1990/1980 | 2000/1980 | 2000/1990 |
| | | | | 1980 | 1990 | 1980 |
| Total | 2,565,022 (100.0) | 3,415,111 (100.0) | 4,700,850 (100.0) | 2.90 | 3.25 | 3.08 |
| Primary Sector | 1,123,649 (43.8) | 1,150,265 (33.7) | 1,165,396 (24.8) | 0.23 | 0.13 | 0.18 |
| Secondary Sector | 233,613 (9.1) | 448,783 (13.1) | 846,991 (18.0) | 6.75 | 6.56 | 6.65 |
| Tertiary Sector | 1,207,760 (47.1) | 1,816,063 (53.2) | 2,688,463 (57.2) | 4.16 | 4.00 | 4.08 |

Fig. 9.3.6 EMPLOYMENT STRUCTURE IN GKS AND SMA



Remarks : () is share of each Sector

Table 9.3.11 EMPLOYMENTS FORECAST BY REGION

(person)

| | Sector | 1980 | Share (%) | 1990 | Share (%) | 2000 | Average Annual Growth Rate (%) | | | |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|--------------------------------|-----------|-----------|-----------|
| | | | | | | | Share (%) | 1990/1980 | 2000/1990 | 2000/1980 |
| GKS | Primary | 1,123,649 | 43.8 | 1,150,265 | 33.7 | 1,165,396 | 24.8 | 0.23 | 0.13 | 0.18 |
| | Secondary | 233,613 | 9.1 | 448,783 | 13.1 | 848,991 | 18.0 | 6.75 | 6.56 | 6.65 |
| | Tertiary | 1,207,760 | 47.1 | 1,816,063 | 53.2 | 2,688,463 | 57.2 | 4.16 | 4.00 | 4.08 |
| | Total | 2,565,022 | 100.0 | 3,415,111 | 100.0 | 4,700,850 | 100.0 | 2.70 | 3.25 | 3.08 |
| Gresik | Primary | 161,358 | 53.8 | 164,695 | 38.1 | 166,324 | 25.0 | 0.20 | 0.10 | 0.15 |
| | Secondary | 30,774 | 10.2 | 73,129 | 16.9 | 164,431 | 24.7 | 9.04 | 8.44 | 8.74 |
| | Tertiary | 108,111 | 36.0 | 194,435 | 45.0 | 335,741 | 50.3 | 6.05 | 5.61 | 5.83 |
| | Total | 300,244 | 100.0 | 432,254 | 100.0 | 666,499 | 100.0 | 3.71 | 4.43 | 4.07 |
| Bangkalan | Primary | 174,593 | 66.0 | 178,374 | 56.3 | 180,306 | 46.4 | 0.21 | 0.11 | 0.16 |
| | Secondary | 3,772 | 1.4 | 7,754 | 2.4 | 15,068 | 3.9 | 7.74 | 6.87 | 7.17 |
| | Tertiary | 86,009 | 32.6 | 130,937 | 41.3 | 193,074 | 49.7 | 4.29 | 3.96 | 4.13 |
| | Total | 264,373 | 100.0 | 317,064 | 100.0 | 388,449 | 100.0 | 1.83 | 2.05 | 1.94 |
| Kab. Mojokerto | Primary | 568 | 2.3 | 578 | 2.0 | 577 | 1.7 | 0.17 | 0.02 | 0.08 |
| | Secondary | 2,601 | 10.7 | 3,307 | 11.3 | 3,998 | 11.6 | 2.43 | 1.92 | 2.17 |
| | Tertiary | 21,229 | 87.0 | 25,505 | 86.7 | 29,788 | 86.7 | 1.85 | 1.56 | 1.71 |
| | Total | 24,398 | 100.0 | 29,390 | 100.0 | 34,363 | 100.0 | 1.88 | 1.58 | 1.73 |
| Kab. Mojokerto | Primary | 143,006 | 48.2 | 145,920 | 35.7 | 147,382 | 25.3 | 0.20 | 0.10 | 0.15 |
| | Secondary | 20,974 | 7.1 | 40,916 | 10.0 | 75,490 | 13.0 | 6.91 | 6.32 | 6.61 |
| | Tertiary | 132,632 | 44.7 | 221,904 | 54.3 | 359,229 | 61.7 | 5.28 | 4.94 | 5.11 |
| | Total | 296,612 | 100.0 | 408,740 | 100.0 | 582,110 | 100.0 | 3.26 | 3.60 | 3.43 |
| Surabaya | Primary | 24,257 | 3.2 | 24,443 | 2.3 | 24,368 | 1.7 | 0.08 | 0.03 | 0.02 |
| | Secondary | 105,310 | 13.8 | 170,306 | 16.0 | 271,451 | 18.5 | 4.92 | 4.77 | 4.85 |
| | Tertiary | 631,163 | 83.0 | 867,107 | 81.7 | 1,168,457 | 79.8 | 3.08 | 3.02 | 3.13 |
| | Total | 760,729 | 100.0 | 1,061,850 | 100.0 | 1,464,276 | 100.0 | 3.39 | 3.27 | 3.33 |
| Sidoarjo | Primary | 153,176 | 42.3 | 156,508 | 28.8 | 158,270 | 18.5 | 0.22 | 0.11 | 0.16 |
| | Secondary | 56,593 | 15.6 | 123,370 | 22.7 | 254,045 | 29.8 | 8.10 | 7.49 | 7.80 |
| | Tertiary | 152,697 | 42.1 | 263,887 | 48.5 | 441,209 | 51.7 | 5.62 | 5.27 | 5.45 |
| | Total | 362,466 | 100.0 | 543,766 | 100.0 | 853,525 | 100.0 | 4.14 | 4.61 | 4.38 |
| Lamongan | Primary | 466,871 | 83.9 | 479,747 | 77.1 | 488,170 | 68.6 | 0.27 | 0.17 | 0.22 |
| | Secondary | 13,589 | 2.4 | 30,000 | 4.8 | 62,493 | 8.8 | 8.24 | 7.61 | 7.43 |
| | Tertiary | 75,919 | 13.7 | 112,288 | 18.1 | 160,967 | 22.6 | 3.99 | 3.67 | 3.38 |
| | Total | 556,379 | 100.0 | 622,035 | 100.0 | 711,630 | 100.0 | 1.12 | 1.35 | 1.24 |

Table 9.3.12 EMPLOYMENTS FORECAST FOR SMA

(Person)

| | | 1980 | | 1990 | | 2000 | | Average Annual Growth Rate (%) | | |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------------------------|-----------|-----------|
| | | | Share (%) | | Share (%) | | Share (%) | 1990/1980 | 2000/1990 | 2000/1980 |
| GKS | Primary | 1,123,649 | 43.8 | 1,150,265 | 33.7 | 1,165,396 | 24.8 | 0.23 | 0.13 | 0.18 |
| | Secondary | 233,613 | 9.1 | 448,783 | 13.1 | 848,941 | 18.0 | 6.75 | 6.56 | 6.65 |
| | Tertiary | 1,207,760 | 47.1 | 1,816,063 | 53.2 | 2,688,463 | 57.2 | 4.16 | 4.00 | 4.08 |
| | Total | 2,565,022 | 100.0 | 3,415,111 | 100.0 | 4,700,800 | 100.0 | 2.90 | 3.25 | 3.08 |
| SMA | Primary | 186,593 | 16.3 | 187,609 | 11.3 | 186,794 | 7.6 | 0.05 | 0.04 | 0.02 |
| | Secondary | 162,959 | 14.3 | 308,029 | 18.6 | 584,770 | 23.8 | 6.57 | 6.62 | 6.60 |
| | Tertiary | 192,959 | 69.4 | 1,160,570 | 70.1 | 1,687,739 | 65.6 | 3.89 | 3.32 | 3.35 |
| | Total | 1,141,768 | 100.0 | 1,656,208 | 100.0 | 2,495,303 | 100.0 | 5.38 | 6.57 | 5.67 |
| Other GKS | Primary | 937,056 | 65.8 | 962,656 | 54.9 | 978,602 | 43.7 | 0.27 | 0.16 | 0.22 |
| | Secondary | 70,654 | 5.0 | 140,754 | 8.0 | 262,221 | 11.7 | 7.14 | 6.42 | 6.73 |
| | Tertiary | 415,544 | 29.2 | 655,493 | 37.3 | 1,000,674 | 44.6 | 4.66 | 4.32 | 4.45 |
| | Total | 1,423,254 | 100.0 | 1,758,903 | 100.0 | 2,241,497 | 100.0 | 2.14 | 2.45 | 2.30 |

9.3.4 HOUSEHOLDS AND THEIR CHARACTERISTICS

Number of Households by Area

The number of households by area in GKS Region was estimated by dividing the forecast population by the average family size which was forecast on the basis of the National Census.

Table 9.3.13 shows the trend of average family size by area. The family size in an urban area is bigger than that in a rural area in Indonesia. Table 9.3.14 shows the number of households by area and this was estimated by the tendency of change in the average family size. The number of households in GKS Region will expand from 1.27 million in 1980 to 2.24 million in 2000 which is a growth factor of 1.7. Table 9.3.15 shows the forecast result of number of households in SMA which will increase from 597.2 thousand in 1980 to 1,243.1 thousand in 2000. The ratio of SMA to GKS Region will also expand from 47.1% in 1980 to 55.6% in 2000.

Table 9.3.13 AVERAGE FAMILY SIZE IN GKS REGION

| | AVERAGE FAMILY SIZE | | EXPANSION R A T E |
|----------------|---------------------|------------|----------------------|
| | 1971 (Sept) | 1980 (Oct) | |
| | Java | 4,882 | 4,651 |
| East Java | 4,540 | 4,505 | 0.992 |
| G K S | 4,872 | 4,832 | 0.992 |
| Gresik | 5,078 | 4,978 | 0.980 |
| Bangkalan | 4,752 | 4,559 | 0.959 |
| Kod. Mojokerto | 4,815 | 5,127 | 1.065 |
| Kab. Mojokerto | 4,663 | 4,532 | 0.972 |
| Surabaya | 4,767 | 4,858 | 1.019 |
| Sidoarjo | 5,093 | 5,004 | 0.983 |
| Lamongan | 5,005 | 4,936 | 0.986 |
| (DKI Jakarta) | 5,405 | 5,587 | 1.034 |

Sources: National Census

Table 9.3.14 NUMBER OF HOUSEHOLDS AND FAMILY SIZE IN GKS REGION

| | Number of Households and Family Size | | | | Average Annual Growth Rate (%) | | | |
|----------------|--------------------------------------|-------------------|-------------------|-------------------|--------------------------------|---------------|---------------|---------------|
| | 1971 (Sept.) | 1980 (Oct.) | 1990 | 2000 | 1980/ 1971 | 1990/ 1980 | 2000/ 1990 | 2000/ 1980 |
| | G K S | 1,039.1 (4.83) | 1,267.5 (4.83) | 1,662.3 (4.82) | 2,235.8 (4.81) | 2.21 | 2.75 | 3.01 |
| Gresik | 121.1 (5.10) | 146.5 (4.98) | 188.5 (4.92) | 246.4 (4.87) | 2.12 | 2.55 | 2.71 | 2.63 |
| Bangkalan | 133.6 (4.68) | 151.0 (4.55) | 173.4 (4.46) | 199.3 (4.35) | 1.16 | 1.39 | 1.40 | 1.40 |
| Kod. Mojokerto | 12.5 (4.82) | 13.4 (5.13) | 15.5 (5.31) | 18.0 (5.50) | 0.77 | 1.44 | 1.54 | 1.49 |
| Kab. Mojokerto | 128.6 (4.66) | 155.7 (4.53) | 199.2 (4.46) | 258.3 (4.39) | 2.13 | 2.50 | 2.63 | 2.56 |
| Surabaya | 328.5 (4.70) | 417.5 (4.87) | 583.0 (4.91) | 839.5 (4.96) | 2.67 | 3.40 | 3.71 | 3.55 |
| Sidoarjo | 131.9 (5.05) | 170.7 (5.00) | 241.9 (4.96) | 351.4 (4.91) | 2.88 | 3.55 | 3.81 | 3.68 |
| Lamongan | 182.8 (5.01) | 212.7 (4.94) | 260.6 (4.90) | 322.9 (4.86) | 1.68 | 2.06 | 2.16 | 2.11 |

Remarks: () means average family size (persons/family).

Table 9.3.15 NUMBER OF HOUSEHOLDS IN SMA

| | (1000 households) | | | | | |
|-----------------|-------------------|-----------------|-------------------|--------------------------------|---------------|---------------|
| | 1980 | 1990 | 2000 | Average Annual Growth Rate (%) | | |
| | | | | 1990/ 1980 | 2000/ 1990 | 2000/ 1980 |
| S H A TOTAL | 597.2 (47.1) | 853.5 (51.3) | 1,243.1 (55.6) | 3.64 | 3.83 | 3.73 |
| Gresik (SMA) | 53.2 | 74.5 | 105.9 | 3.42 | 3.58 | 3.50 |
| Bangkalan (SMA) | 21.9 | 28.4 | 39.1 | 2.63 | 3.25 | 1.61 |
| Surabaya | 417.5 | 583.0 | 839.5 | 3.40 | 3.71 | 3.55 |
| Sidoarjo (SMA) | 104.6 | 167.6 | 258.6 | 4.83 | 4.43 | 4.63 |

FORECAST OF NUMBER OF HOUSEHOLDS IN SMA BY MONTHLY EXPENDITURE CLASS

(1) Monthly Expenditure per household

A forecast of the distribution of expenditure per household was prepared. According to the Income Statistics of the Nation, the relationships of GDP with Net National Product, and Net National Product with Private Consumption are as follows:

- * Net National Product (NNP) = GDP x 0.814
- * Private Consumption (YC) = NNP x 0.93
(= GDP x 0.757)

The trend of NNP and monthly expenditure in SMA was forecast by using the above mentioned coefficients, and the results are shown in Table 9.3.16.

The growth rate of private consumption is expected to be 7.3%, while the number of households will increase at the rate of 3.7% per annum.

Hence, the monthly expenditure per household will grow at the rate 3.5% per annum. The expenditure per household in GKS in the year 2000 will be 1.98 times that of 1980.

Table 9.3.16 INCOME AND MONTHLY EXPENDITURE IN SMA

| | (1975 Const. Price) | | | | | |
|--|---------------------|---------|-----------|--------------------------------|---------------|---------------|
| | 1980 | 1990 | 2000 | Average Annual Growth Rate (%) | | |
| | | | | 1990/ 1980 | 2000/ 1990 | 2000/ 1980 |
| G D P (Mill. Rp.) | 441,843 | 883,413 | 1,821,422 | 7.17 | 7.53 | 7.34 |
| N N P (Mill. Rp.) | 359,660 | 719,098 | 1,482,638 | 7.17 | 7.53 | 7.34 |
| Y C (Mill. Rp.) | 334,484 | 668,761 | 1,378,853 | 7.17 | 7.53 | 7.34 |
| Number of Household (1000) | 597.2 | 853.5 | 1243.1 | 3.64 | 3.83 | 3.73 |
| Monthly Expenditure per household (Rp.) | 46,674 | 65,296 | 92,434 | 3.41 | 3.54 | 3.48 |

(2) Monthly Expenditure Distribution in SMA

Table 9.3.17 shows the forecast result of number of households by monthly expenditure class in SMA and this was obtained by applying the logarithmic normal distribution to the monthly expenditure distribution per household. Fig. 9.3.7 shows a pattern of expenditure distribution comparing 1980 and 2000.

The result indicates that most households in SMA will shift to a higher income class between 1980 and 2000, and thus, the peak of the distribution will shift from the class of Rp10,000-20,000 (1975 const. price) in 1980, to the class of Rp30,000-

40,000 in 2000.

It also indicates that the proportion of Rp20,000 or under will decrease to below 10% and that of Rp200,000 or over will increase to 8%.

The life style and living standard of the people will therefore change and houses and infrastructure should be equipped in accordance with this change.

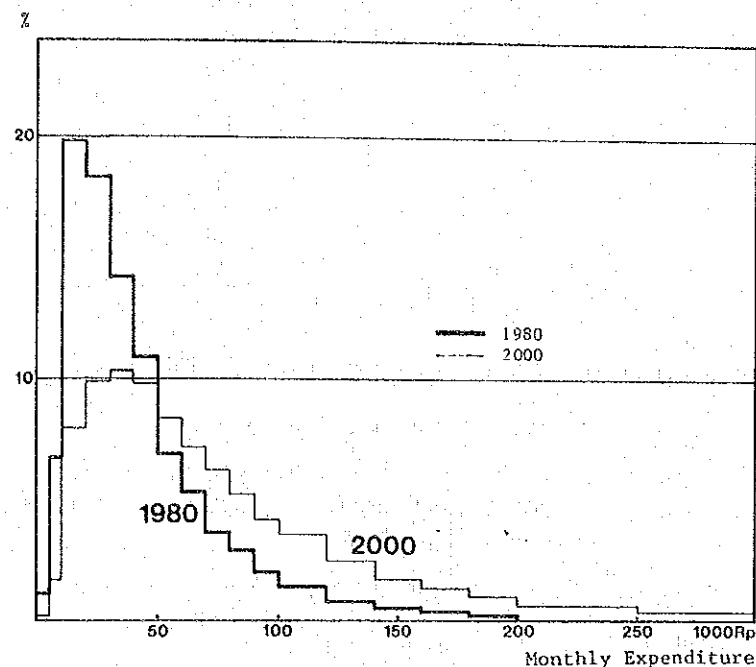


Fig. 9.3.7 MONTHLY EXPENDITURE DISTRIBUTION PER HOUSEHOLD (SMA) (1975 constant price)

Table 9.3.17 NUMBER OF HOUSEHOLD BY MONTHLY EXPENDITURE CLASS

(1975 Constant Price)

| Monthly Expenditure Class (Rp./Family) | 1980 | | 1990 | | 2000 | |
|--|-----------------|---------------|------------------|---------------|------------------|---------------|
| | Household (100) | Share (%) | Household (1000) | Share (%) | Household (1000) | Share (%) |
| (1) Under 5,000 | 5.3 | 0.89 | 3.2 | 0.37 | 1.7 | 0.14 |
| (2) 5,000 - 10,000 | 33.8 | 5.66 | 24.9 | 2.92 | 16.9 | 1.36 |
| (3) 10,000 - 20,000 | 114.8 | 19.24 | 105.3 | 12.34 | 89.4 | 7.19 |
| (4) 20,000 - 30,000 | 109.0 | 18.25 | 124.0 | 14.52 | 124.1 | 9.98 |
| (5) 30,000 - 40,000 | 85.3 | 14.28 | 111.8 | 13.10 | 125.6 | 10.10 |
| (6) 40,000 - 50,000 | 62.5 | 10.47 | 88.3 | 10.34 | 122.1 | 9.82 |
| (7) 50,000 - 60,000 | 45.6 | 7.63 | 73.2 | 8.58 | 102.2 | 8.22 |
| (8) 60,000 - 70,000 | 32.5 | 5.44 | 59.6 | 6.08 | 89.1 | 7.17 |
| (9) 70,000 - 80,000 | 23.4 | 3.91 | 46.0 | 5.39 | 78.1 | 6.28 |
| (10) 80,000 - 90,000 | 18.6 | 3.11 | 36.4 | 4.27 | 65.6 | 5.28 |
| (11) 90,000 - 100,000 | 13.6 | 2.27 | 30.5 | 3.57 | 53.7 | 4.31 |
| (12) 100,000 - 120,000 | 18.1 | 3.03 | 43.6 | 5.11 | 85.5 | 6.88 |
| (13) 120,000 - 140,000 | 11.8 | 1.98 | 28.4 | 3.33 | 63.8 | 5.13 |
| (14) 140,000 - 160,000 | 6.9 | 1.16 | 20.2 | 2.37 | 48.6 | 3.91 |
| (15) 160,000 - 180,000 | 4.8 | 0.80 | 15.0 | 1.76 | 36.3 | 2.92 |
| (16) 180,000 - 200,000 | 3.2 | 0.53 | 9.6 | 1.13 | 26.4 | 2.13 |
| (17) 200,000 - 250,000 | 4.1 | 0.69 | 15.4 | 1.80 | 44.6 | 3.59 |
| (18) 250,000 and over | 3.9 | 0.66 | 18.1 | 2.12 | 69.4 | 5.59 |
| Total | 597.2 | 100.00 | 853.5 | 100.00 | 1,243.1 | 100.00 |

9.4 EVALUATION OF ASSUMED FRAMEWORK

9.4.1 CONCENTRATION OF POPULATION

PROSPECT OF POPULATION GROWTH AT NATIONAL LEVEL

(1) National growth

According to the anticipation of national population by the Central Bureau of Statistics, the growth rate of population is assumed 1.98% per annum between 1980 and 1990 and 1.77% per annum between 1990 and 2000, in consideration of the success of family planning programme.

While, according to the anticipated frame work by the Study Team, the natural growth rate during the coming decade was assumed to be 2.01% per annum, and 1.68% per annum was assumed between 1990 and 2000. This is because of the high level of 2.32% per annum during the last decade and the expectation of a successful family planning programme between 1990 and 2000.

As a result, the population of Indonesia is assumed to be around 180 million and 212 million in the years 1990 and 2000, respectively.

(2) Population distribution in Java

From a macro-scopic point of view, the concentration of population into Java has still progressed in spite of the aggressive promotion of the transmigration programme.

The Study Team tried to forecast the future population of Java and each province in Java by referring to the anticipation of the Central Bureau of Statistics and other reference materials such as the master plan of DKI Jakarta.

In this estimation, the effect of the transmigration programme was considered.

The results of the estimation is shown in Table 9.4.1. As is evident in this result, the concentration ratio into Java will gradually decrease to 62% in the year 1980, 60% in 1990, and 59% in 2000.

Similarly, the share of East Java to the national is also to decrease gradually. 19.8% in 1980 will change to 17.7% in 2000.

Table 9.4.1 ESTIMATION OF FUTURE POPULATION AT NATIONAL LEVEL

| | 1980 | 1990 | 2000 |
|---------------|----------------------|-----------------------|-----------------------|
| Java | 91,269,528 (61.9)% | 108,560,000 (60.3)% | 125,493,000 (59.0)% |
| DKI | 6,503,449 (4.4) | 8,390,000 (4.7) | 9,860,000 (4.6) |
| West Java | 27,453,525 (18.6) | 34,168,000 (19.0) | 40,628,000 (19.1) |
| Central Java* | 28,123,702 (19.1) | 32,615,000 (18.1) | 37,323,000 (17.5) |
| East Java | 29,188,852 (19.8) | 33,387,000 (18.6) | 37,682,000 (17.7) |
| Others | 56,220,770 (38.1) | 71,406,000 (39.7) | 87,098,000 (41.0) |
| Indonesia | 147,490,298 (100.0) | 179,966,000 (100.0) | 212,591,000 (100.0) |

(3) Concentration to GKS region and SMA

Observing the population distribution anticipated in East Java, the concentration into GKS region and SMA will still continue. Table 9.4.2 shows the assumed share of both areas.

As is evident from this table, the share of GKS region is assumed to go up to 28.6% in 2000, and that of SMA will be 16.2% in 2000.

At present, they are 20.9% and 10.0% respectively.

Table 9.4.2 POPULATION GROWTH OF THE STUDY AREA AND EAST JAVA

| | 1980 | 1990 | 2000 |
|-------------------------------|------------|------------------|------------------|
| <u>Population (persons)</u> | | | |
| East Java | 29,188,852 | 33,387,000 | 37,682,000 |
| GKS Region | 6,111,935 | 8,009,000 | 10,760,000 |
| SMA | 2,905,414 | 4,187,000 | 6,119,000 |
| <u>Share to East Java (%)</u> | | | |
| GKS Region | 20.9 | 24.0 | 28.6 |
| SMA | 10.0 | 12.5 | 16.2 |
| <u>Annual Growth (%)</u> | | | |
| | | <u>1990/1980</u> | <u>2000/1980</u> |
| East Java | - | 1.35 | 1.22 |
| GKS Region | - | 2.74 | 3.00 |
| SMA | - | 3.71 | 3.87 |

9.4.2 EVALUATION OF ECONOMIC GROWTH TARGET

GROWTH PROCESS OF THE INDONESIAN ECONOMY

The per-capita GNP of Indonesia amounted to \$430 in 1981. According to the classification by the World Bank, Indonesian economy has changed from a low-income economy to middle-income economy for the first time.

The past GDP growth rate in real term is as follows:

| | |
|-------------|------|
| 1960 ~ 1970 | 3.9% |
| 1970 ~ 1980 | 7.6% |

Indonesian economy has made remarkable progress in the 1970's. The relation between per-capita GNP of 1980 and real GDP growth rate from 1970 to 1980, is compared for various nations as shown in Fig. 9.4.1.

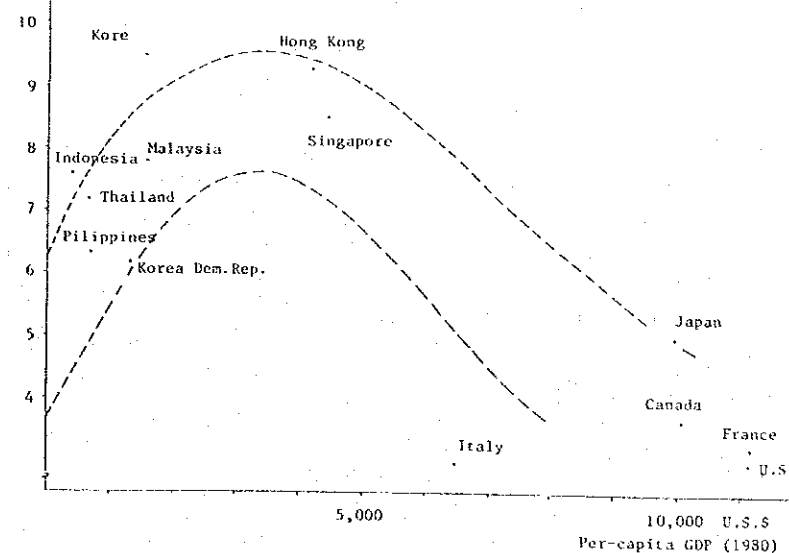


Fig. 9.4.1 PER CAPITA INCOME AND ECONOMIC GROWTH

In general, the economic growth of a nation follows the following pattern: stagnation → take off → growth → maturity → decline. As indicated in the figure, the Indonesian economy is at the "take-off" stage and will show a tendency to advance in the future, if other conditions are constant.

As generally forecast, it is quite possible that the growth rate of the whole world economy will be slightly less than that of 1970's, owing to the decline of demand caused by the maturity of developed countries. However, judging from the fact that the Indonesian economy is situated at the beginning of the growth process, it is unlikely that the growth rate of Indonesian economy will be much lower than that of the 1970's.

PROSPECTS FOR THE WORLD AND INDONESIAN ECONOMIES

According to the forecast by the World Bank, the economic growth of East Asian and Pacific nations from 1980 to 1990 is expected to be as shown in Table 9.4.3.

Table 9.4.3 GROWTH OF GDP IN DEVELOPING COUNTRIES, 1960-90

(average annual percentage change)

| Country group | 1960-70 | 1970-80 | GDP, 1980-90 | | GNP per capita 1980-90 | |
|------------------------------|---------|---------|--------------|-----|------------------------|------|
| | | | High | Low | High | Low |
| All developing countries | 5.9 | 5.1 | 5.7 | 4.5 | 3.3 | 2.2 |
| Oil importers | 5.7 | 5.1 | 5.4 | 4.1 | 3.1 | 1.8 |
| Low-income | 4.2 | 3.0 | 4.1 | 3.0 | 1.8 | 0.7 |
| Sub-Saharan Africa | 4.0 | 2.4 | 3.0 | 1.9 | 0.1 | -1.0 |
| Asia | 4.3 | 3.2 | 4.4 | 3.2 | 2.1 | 1.0 |
| Middle-income | 6.2 | 5.6 | 5.6 | 4.3 | 3.4 | 2.1 |
| East Asia and Pacific | 7.9 | 8.2 | 8.1 | 6.4 | 6.0 | 4.3 |
| Latin America and Caribbean | 5.3 | 6.0 | 5.6 | 4.6 | 3.2 | 2.3 |
| Middle East and North Africa | 4.1 | 4.9 | 4.1 | 3.2 | 0.9 | 0.0 |
| Southern Europe | 7.0 | 4.6 | 4.6 | 3.0 | 3.3 | 1.7 |
| Sub-Saharan Africa | 4.1 | 3.5 | 3.1 | 2.8 | 0.3 | 0.0 |
| Oil exporters | 6.5 | 5.2 | 6.5 | 5.4 | 4.0 | 2.9 |

a. Excludes China.

Source: World Development Report 1981, The World Bank

The growth rate of these areas in the 1980's is expected to be 8.1%, about the same as that of 1970's, in case of a high level, or 6.4% in case of a low level. In fact, it will not be much lower than that of the 1970's.

When the relationship between growth in the 1970's and prospects for the 1980's in these countries is applied to Indonesia, the following growth rate is obtained.

| | Growth of GDP (%) | | |
|-----------|-----------------------|---------------------|--------------------|
| | 1970 ~ 1980 Actual | 1980 ~ 1990 High | 1980 ~ 1990 Low |
| Indonesia | 7.9 | 7.70 | 6.32 |

If the average annual economic growth up to 2000 is forecast on the basis of these results and circumstances, the growth rate of the Indonesian economy can be expected to be about 6.0 ~ 7.0%.

(3) Evaluation of GKS Economic Growth

In this study, GDP growth rate of GKS is assumed as 7.12% and that of SMA as 7.34% from 1980 to 2000.

Actual average annual growth rates from 1971 to 1980 for Indonesia and GKS Region are as follows:

| | |
|-----------|------|
| Indonesia | 7.9% |
| GKS | 4.3% |

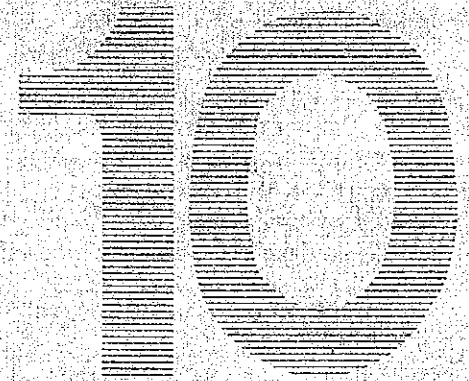
From this, the economic growth of GKS Region in the past is not high compared with the national one.

However, there is the possibility that the various proposals in this study will promote economic activity. The conditions for this to occur are;

- Provision of basic infrastructure such as roads, harbours, etc., as the base of regional development
- Promotion of industrialization of SMA and its outskirts
- Urban concentration of population and its transformation to a producer capacity
- Improvement of production efficiency in urban area in accordance with modernization.

These factors will improve the economic growth and if they are taken into consideration, it will be judged reasonable to aim at a 7% growth annually up to 2000, as the planning frame of GKS Region.

CHAPTER



REGIONAL DEVELOPMENT STRUCTURE

10.1 DISTRIBUTION OF POPULATION AND WORK PLACES

10.1.1 DISTRIBUTION OF POPULATION

The assumed population in each Kod./Kab. was broken down into several sub-areas, which are utilized as traffic zones in the transportation analysis. These sub-areas are explained in the Chapter 3 of Part III.

The future population by sub-area was estimated in the following way:

- 1) First, the trend analysis was carried out for each sub-area.
- 2) The total population as a control factor was quoted from the framework study, and it was divided proportionally to each sub-area to give similar units of measurement.
- 3) Based on the aggregation from the trend analysis and the control total, some planning considerations were given to the distribution pattern. Thus some additional increase was assumed in the activity centre area, taking a centralization to the central area into account.

The result is shown in Fig. 10.1.1 and Table 10.1.1. As is evident from this, the rural areas have to accommodate a large population even if consideration is given to 3) above. It is found that the encouragement of industrial activities, especially in the agricultural sector, is indispensable to support the population increase.

10.1.2 WORK PLACES

The number of jobs and their distribution are basically related to the anticipated land-use pattern as well as the amount of GRDP.

The estimation of future jobs by sub-area was performed by considering the following preconditions:

- The number of jobs in the primary sector is prepared by proportionally dividing the total jobs according to the distribution of agricultural area.
- The number of jobs in the secondary sector and tertiary sector are proportionally distributed in correspondence with the distribution of industrial and commercial landuse area. However, in calculating the difference of percapita, productivity is taken into account. The percapita productivity in the activity centre areas is assumed to be 5 to 7 times of that in the other areas.

The estimated result for work places is shown in Table 10.1.2 and the employments in the resident base are estimated as shown in Table 10.1.3. Moreover, Fig. 10.1.2 and Fig. 10.1.3 show the relationship between the number of jobs and the employment in the resident base in 1980 and in 2000 respectively. It is deduced from these results, that the central areas such as Mojokerto, Lamongan, Babat etc. should possess large industrial functions to accommodate the anticipated demand for jobs.

Table 10.1.1 DISTRIBUTION OF POPULATION

| | 1980 | 1990 | 2000 |
|-------------------|------------|-----------|------------|
| (1027) SMA | 2,867,477 | 4,187,000 | 6,119,000 |
| 28. KEDAMEAN | 200,862 | 272,000 | 331,000 |
| 29. BALONGBENDO | 217,970 | 221,000 | 251,000 |
| 30. SEDAYU | 214,376 | 289,000 | 353,000 |
| 31. PORONG | 132,598 | 147,000 | 205,000 |
| 32. MOJOKERTO | 68,507 | 82,000 | 99,000 |
| 33. TROWULAN | 132,288 | 167,000 | 213,000 |
| 34. KEMLAGI | 129,669 | 163,000 | 209,000 |
| 35. BANGSAL | 192,554 | 243,000 | 310,000 |
| 36. PACET | 250,849 | 316,000 | 403,000 |
| 37. LAMONGAN | 46,159 | 57,000 | 76,000 |
| 38. BABAT | 64,619 | 79,000 | 96,000 |
| 39. KARANG GENENG | 212,189 | 258,000 | 316,000 |
| 40. LAREN | 345,744 | 420,000 | 515,000 |
| 41. SUGIO | 231,379 | 281,000 | 344,000 |
| 42. SAMBENG | 149,718 | 182,000 | 222,000 |
| 43. BANGKALAN | 47,427 | 61,000 | 82,000 |
| 44. GALIS | 541,177 | 584,000 | 615,000 |
| Outside of SMA | 3,244,458 | 3,822,000 | 4,640,000 |
| GKS Total | 16,111,935 | 8,009,000 | 10,759,000 |

Notes; The detailed SMA framework is shown in the section 5.1.3 of Part III.

Table 10.1.2 NO. OF JOBS IN GKS REGION

| | 1980 | | | 2000 | | |
|-------------------|----------------|-------------------------------|-----------|----------------|-------------------------------|-----------|
| | Primary Sector | Secondary and Tertiary Sector | Total | Primary Sector | Secondary and Tertiary Sector | Total |
| (1027) SMA | 186,593 | 959,160 | 1,145,753 | 186,794 | 3,418,793 | 2,605,589 |
| 28. KEDAMEAN | 50,205 | 1,632 | 51,837 | 52,020 | 4,015 | 56,035 |
| 29. BALONGBENDO | 39,348 | 19,200 | 58,548 | 42,680 | 43,719 | 86,399 |
| 30. SEDAYU | 47,921 | 1,138 | 49,059 | 49,654 | 2,379 | 52,033 |
| 31. PORONG | 23,920 | 25,758 | 49,678 | 25,945 | 70,675 | 96,620 |
| 32. MOJOKERTO | 565 | 135,130 | 135,695 | 577 | 322,176 | 322,753 |
| 33. TROWULAN | 26,681 | 64,129 | 90,810 | 27,641 | 147,646 | 175,287 |
| 34. KEMLAGI | 26,152 | 2,008 | 28,160 | 27,093 | 3,891 | 30,984 |
| 35. BANGSAL | 38,836 | 11,223 | 50,059 | 40,234 | 25,657 | 65,891 |
| 36. PACET | 50,594 | 3,789 | 54,383 | 52,414 | 7,350 | 59,764 |
| 37. LAMONGAN | 13,799 | 85,175 | 99,173 | 14,504 | 201,819 | 216,323 |
| 38. BABAT | 21,005 | 61,225 | 82,230 | 22,078 | 143,306 | 165,384 |
| 39. KARANG GENENG | 78,187 | 1,315 | 79,502 | 82,182 | 3,242 | 85,424 |
| 40. LAREN | 133,203 | 2,866 | 136,069 | 140,007 | 6,054 | 146,061 |
| 41. SUGIO | 121,411 | 3,442 | 124,853 | 127,614 | 10,810 | 138,424 |
| 42. SAMBENG | 96,838 | 1,309 | 98,147 | 101,785 | 2,955 | 104,740 |
| 43. BANGKALAN | 1,584 | 55,498 | 57,082 | 1,648 | 109,289 | 110,937 |
| 44. GALIS | 166,807 | 3,777 | 170,584 | 170,526 | 11,676 | 182,202 |
| Outside of SMA | 937,056 | 482,213 | 1,419,269 | 978,602 | 1,116,659 | 2,095,261 |
| GKS Total | 1,123,649 | 1,441,373 | 2,565,022 | 1,165,396 | 3,535,454 | 4,700,850 |

Table 10.1.3 EMPLOYMENTS IN RESIDENT BASE IN GKS REGION

| | 1980 | | | 2000 | | |
|-------------------|----------------|-------------------------------|-----------|----------------|-------------------------------|-----------|
| | Primary Sector | Secondary and Tertiary Sector | Total | Primary Sector | Secondary and Tertiary Sector | Total |
| (1027) SMA | 186,593 | 955,175 | 1,141,768 | 186,794 | 2,272,559 | 2,459,353 |
| 28. KEDAMEAN | 50,205 | 31,643 | 81,848 | 52,020 | 121,468 | 173,488 |
| 29. BALONGBENDO | 39,348 | 49,525 | 88,873 | 42,680 | 88,877 | 131,557 |
| 30. SEDAYU | 47,921 | 39,433 | 87,354 | 49,654 | 135,365 | 185,019 |
| 31. PORONG | 23,920 | 30,145 | 54,065 | 25,945 | 81,502 | 107,447 |
| 32. MOJOKERTO | 565 | 23,833 | 24,398 | 577 | 33,786 | 34,363 |
| 33. TROWULAN | 26,681 | 28,948 | 55,629 | 27,641 | 81,533 | 109,174 |
| 34. KEMLAGI | 26,152 | 28,375 | 54,527 | 27,093 | 79,918 | 107,011 |
| 35. BANGSAL | 38,836 | 42,135 | 80,971 | 40,234 | 118,674 | 158,908 |
| 36. PACET | 50,594 | 54,712 | 105,306 | 52,414 | 154,603 | 207,017 |
| 37. LAMONGAN | 13,799 | 10,664 | 24,463 | 14,504 | 16,785 | 31,289 |
| 38. BABAT | 21,005 | 13,242 | 34,247 | 22,078 | 21,725 | 43,803 |
| 39. KARANG GENENG | 78,187 | 12,381 | 90,568 | 82,182 | 33,658 | 115,840 |
| 40. LAREN | 133,203 | 21,091 | 154,294 | 140,007 | 57,341 | 197,348 |
| 41. SUGIO | 121,411 | 19,225 | 140,636 | 127,614 | 52,265 | 179,879 |
| 42. SAMBENG | 96,838 | 15,333 | 112,171 | 101,785 | 41,686 | 143,471 |
| 43. BANGKALAN | 1,584 | 18,005 | 19,589 | 1,648 | 24,806 | 26,454 |
| 44. GALIS | 166,807 | 47,508 | 214,315 | 170,526 | 118,903 | 289,429 |
| Outside of SMA | 937,056 | 486,198 | 1,423,254 | 978,602 | 1,262,895 | 2,241,497 |
| GKS Total | 1,123,649 | 1,441,373 | 2,565,022 | 1,165,393 | 3,535,454 | 4,700,850 |

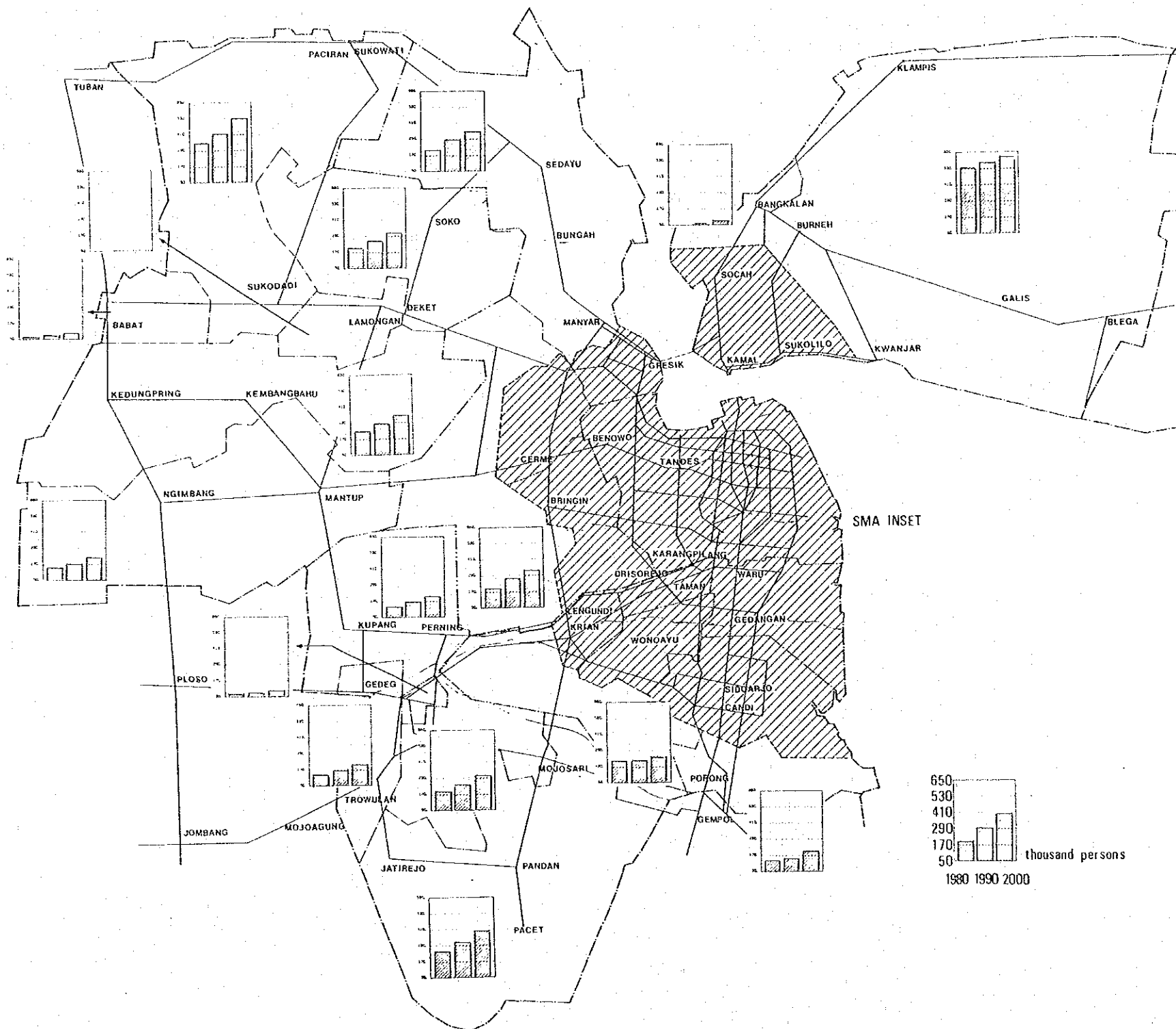


Fig. 10.1.1 DISTRIBUTION OF POPULATION

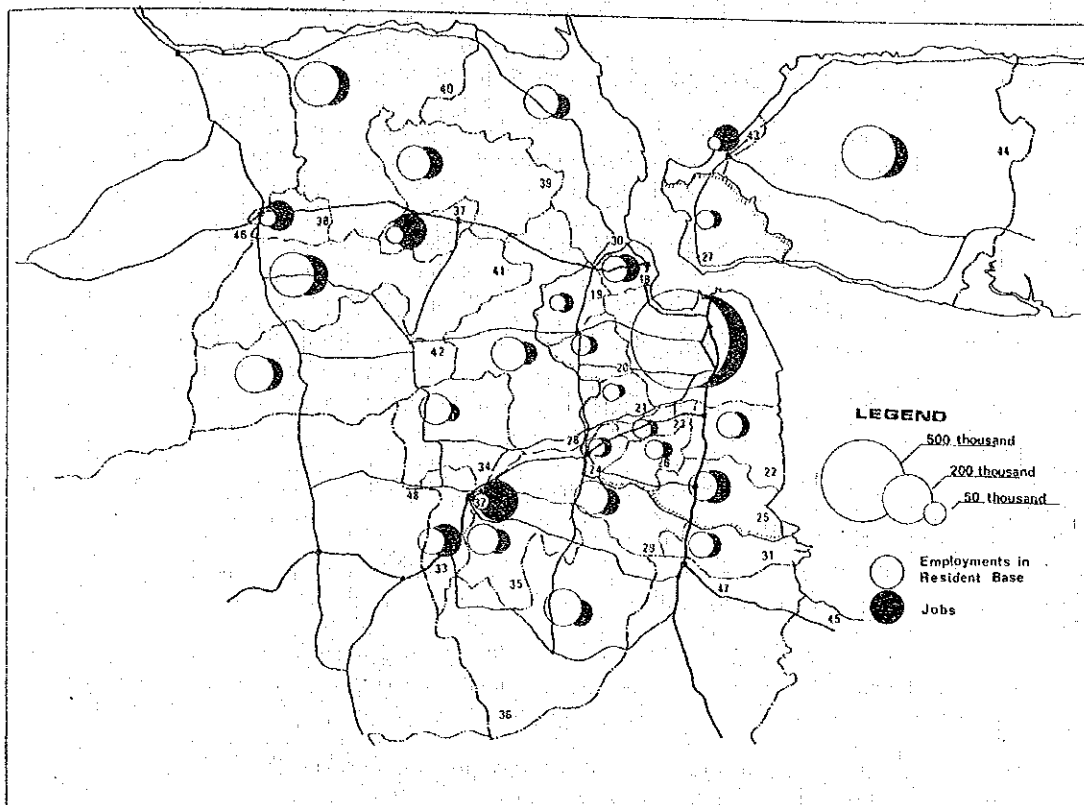


Fig. 10.1.2 GKS JOBS/EMPLOYMENTS 1980

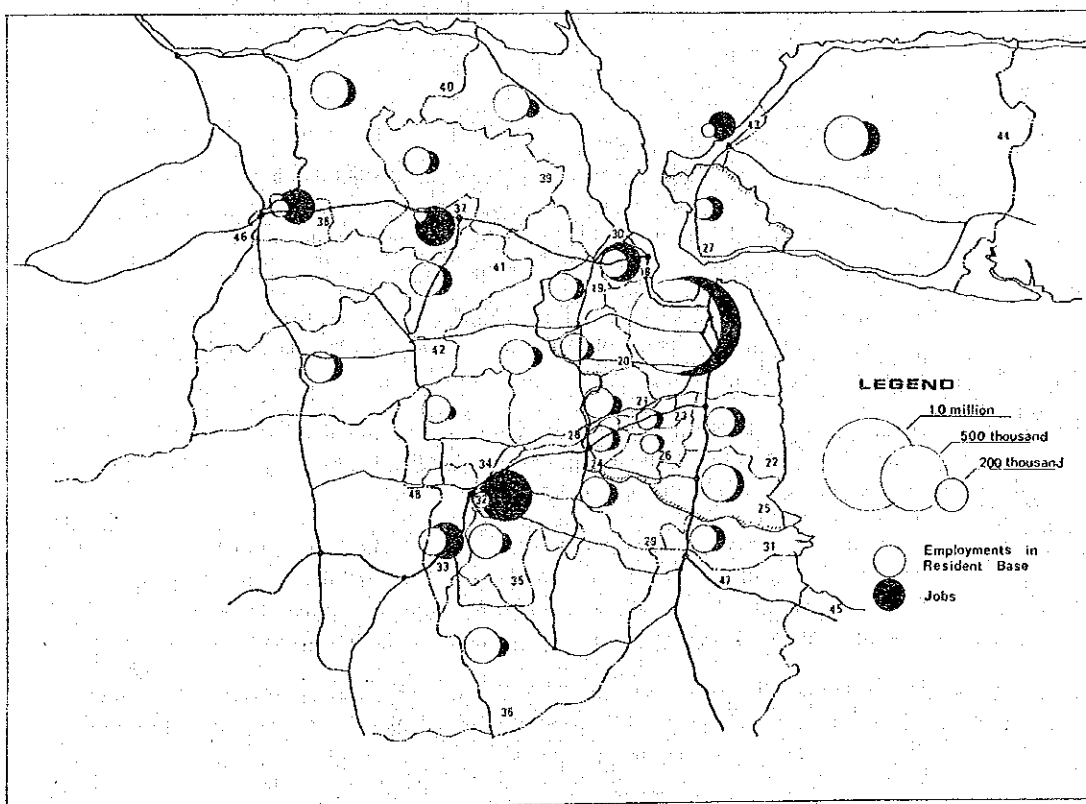


Fig. 10.1.3 GKS JOBS/EMPLOYMENTS 2000

10.2 MAJOR FACTORS TO BE DEVELOPED

The regional structure plan should integrate the basic concepts mentioned in Chapter 7 and ensure the socio-economic framework studied in Chapter 9. Simultaneously the GKS regional development should contribute to the establishment of a mutually supporting system with the urban area, SMA and the other areas.

For the achievement of these, several developments should be ensured. Especially, the development of working places and the communication system are very significant in the context of the regional development concept that is proposed.

Major factors to be developed are summarized as follows:

10.2.1 ROAD NETWORK SYSTEM DEVELOPMENT

Basically the evaluation of the network studied in section 7-3-2 should be taken into account for the road development. The following roads are recommended to be encouraged up to 2000:

| | Existing Primary Level | Level Proposed |
|---|------------------------|---|
| (i) Surabaya – Drijorejo – Langudi – Mirip | Local | Collector |
| (ii) Langudi – Krian | Local | Collector (New Substitutional Route) |
| (iii) Gresik – Kanal | – | Collector |
| (iv) Paciran – Lamongan | – | Local |
| (v) Sidoarjo – Krian | – | Collector |
| (vi) Langudi – Cerme – Manyar | – | Collector |

Among the above, roads (i) and (ii) are necessary to encourage the relationship between SMA and the Mojokerto Influence Area, and the roads of (iii), (iv) and (v) are to ensure a mutually tied relationship with major activity centres within the GKS region as well as a wide regional relation.

The system within SMA is discussed in detail in Part III.

10.2.2 PUBLIC TRANSPORTATION SYSTEM DEVELOPMENT

RAILWAY SYSTEM DEVELOPMENT

The railway system will become more important with the enlargement of inter-regional relationships and hence the existing railway system should be improved to cope with increasing demand.

Taking note of the commuting service to SMA, it is desirable that the following routes are encouraged:

- Surabaya – Lamongan (Northern Line),
- Surabaya – Mojokerto (Southern Line), and
- Surabaya – Porong (Surabaya – Malang Line).

Moreover, the following links should be improved to ensure the regional connections between work places and workers' residences;

- Lamongan – Babat (Northern Line)
- Mojokerto – Jombang (Southern Line)
- Sidoarjo – Mojokerto (to be rehabilitated)

BUS SERVICE NETWORK SYSTEM

The bus service system should be encouraged in order to support the railway system as well as to serve residents' daily activities.

It is recommended that the inter-connections between major work places are ensured by the bus services.

10.2.3 URBAN FACILITIES DEVELOPMENT

INDUSTRIAL FACILITIES

Creation of job opportunities is produced by an intentional industrial development. Basically the primary sector should be given the main task to create those opportunities, and simultaneously a prepared plan to induce industrial manufacture and the encouragement of commercial functions should be performed.

Concerning the primary sector development, there are two important facilities to be developed:

- Efficient Fishing Port
- Agricultural Distribution Centre

The former is effective to activate the fishery activities as well as to modernize the productive system. It is desirable that the port possesses the necessary warehousing and distribution facilities. Recommended sites are:

- Paciran or Sukowati; as a core of northern coastal fishery.
- Klampis; as a core of Bangkalan fishery.

The latter is to rationalize and modernize agricultural production and distribution. The size and characteristics of those facilities should cope with the variety and amount of agricultural production. The recommended sites are:

- Mojokerto
- Lamongan
- Bangkalan

Similarly, manufacturing development is recommended to be carried out in the major activity centres such as Mojokerto, Lamongan, Babat and Bangkalan.

PUBLIC FACILITIES

The development standard for public facilities should be regulated as soon as possible. Regarding educational, medical and social-welfare facilities, the service level per resident should be regulated from a sociological point of view.

A tentative proposal for this is recommended in section 4-3 of Part III. Each Kod./Kab should establish a development programme as soon as possible, and the actions should be initiated according to that regulated standard.

From a wide regional planning point of view, a higher educational facility is necessary and should be established in the GKS Region. Especially, a facility where youth can receive an education concerning modern agricultural knowledge, technology, and management. These are evaluated to be most relevant and important.

It is recommended that every Kod./Kab. has such a school, however, the facility with a central function of information should be aggressively developed in Mojokerto area.

10.3 KEY-DIAGRAM OF REGIONAL STRUCTURE PLAN

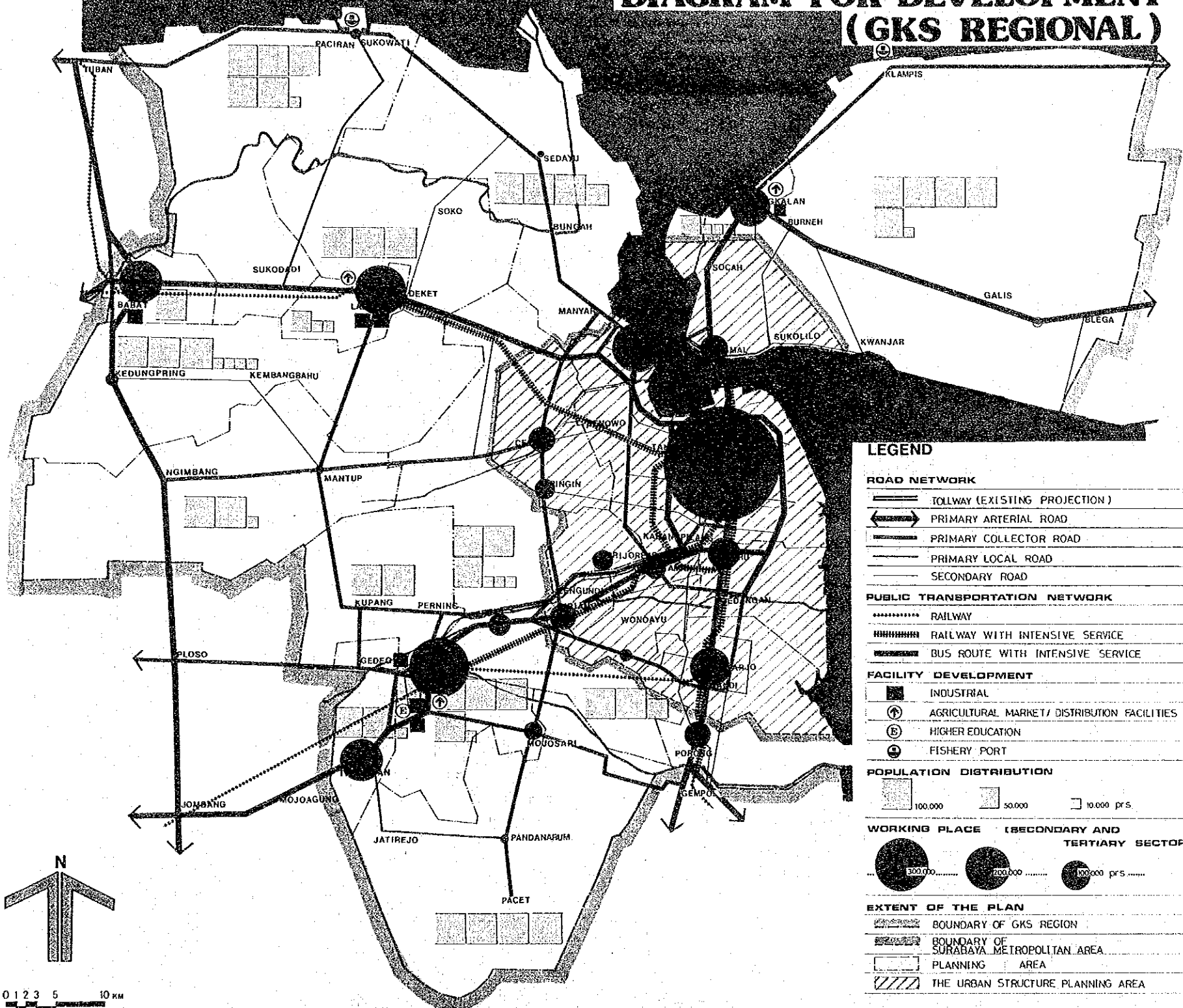
Integrating all these discussions, the Study Team proposes the key-diagram of regional structure plan in GKS region as shown in Fig. 10.3.1.

However, there is no denying that some important problems have to be solved in the structure plan and still remain. A further study from the rural development point of view is recommended.

The Study Team strongly proposes that the relevant authorities as well as the autonomies should discuss this proposed Regional Structure plan and that they should promote a continuous study of it.

Fig.10.3.1

DIAGRAM FOR DEVELOPMENT (GKS REGIONAL)



URBAN DEVELOPMENT PLANNING STUDY ON GERBANGKERTOSUSILA (SURABAYA METROPOLITAN AREA)