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MEDAN URBAN DEVELOPMENT, HOUSING,
WATER SUPPLY AND SANITATION PROJECT

VOLUME III

LONG RANGE URBAN DEVELOPMENT PLAN

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SINOTECH ENGINEERING CONSULTANTS, INC.
A JOINT VENTURE
in association with
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PREFACE

The feasibility reports emanating from the Medan Urban Development, Housing, Water Supply and Sanitation Project were submitted in draft form to the Government of Indonesia (GOI) in February 1980. These reports, together with the earlier master plan reports, were reviewed by GOI in July 1980 and discussed with the Consultant at a series of meetings at that time. The outcome of this review process was that certain changes in content and format were agreed. These changes have been incorporated into the final printed reports.

A result of adopting the new guidelines provided by GOI is that differences occur between the Repelita III investments proposed in the master plan studies and those contained in the first stage program recommendations. The latter incorporate the final adjustments and represent the recommended program for Repelita III.

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ORGANIZATION OF PROJECT REPORTS

The results of investigations carried out in connection with the Medan Urban Development, Housing, Water Supply and Sanitation Project are contained in the following series of reports:

Inception Report for Long Term Urban Development Plan and Feasibility Study on First Stage Housing Development Project

Volume I	Summary
Volume II	Interim Strategic Plan and Feasibility Study
Volume III	Long Range Urban Development Plan
Volume IV	Housing Development Program
	Part 1 - Housing Development Situation and Strategy
	Part 2 - Kampung Improvement Program
	Part 3 - Sites and Services / Low Cost Housing Program
Volume V	Master Plan and First Stage Program for Water Supply and Sanitaion
	Part 1 - Master Plan and First Stage Program for Water Supply
	Part 2 - Master Plan and First Stage Program for Wastewater
	Part 3 - Master Plan and First Stage Program for Drainage
	Part 4 - Master Plan and First Stage Program for Solid Wastes

Note: Parts 1-3 of Volume IV and Parts 1-4 of Volume V are bound as separate report volumes. Appendices to Part 1, Volume V are also bound separately.

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LIST OF ABBREVIATIONS

ORGANIZATIONS

BTN	Bank Tabungan Negara
DISP	Distributive Investment Strategy Plan
DKKP	City Solid Waste Department
DPU	City Drainage Department
IKIP	Institute of Teachers Training and Educational Science
INPRES	National Subsidy to Local Government
IPEDA	Property Tax
KIK	Kredit Investasi Real
KMKP	Kredit Modal Kerja Permanen
PENMAS	Community Education Program
PRT	Household Tax
RGDP	Regional Gross Domestic Product
SMP	Junior High Schools
SPG	Teachers Education School
UISU	Islamic Univeristy of North Sumatra
USU	University of North Sumatra

TECHNICAL

mm	millimetre	mg	milligram
m	metre	g	gram
km	kilometre	kg	kilogram
sq m	squre metre	t	tonne (metric)
ha	hectare		
sq km	square kilometre	BOD	5-day, biochemical oxygen demand
l	litre	TDS	Total dissolved solids
cu m	cubic metre	ES	Electrical conductivity
		TU	Turbidity units
s	second	DO	Dissolved oxygen
min	minute		
d	day	TDH	Total dynamic head
y	year	LS	Lump sum
		ea	each
m/s	metres per second	na	not available or not known
l/min	litres per minute		
cu m/s	cubic metres per second	Rp	Indonesian Rupiah
cu m/d	cubic metres per day		
mg/l	milligrams per litre		
l/c.d	litres per capita per day		

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SECTION 1

INTRODUCTION

1.1 GENERAL

A principal aim of the current study has been to identify the most significant policy position that the Government might take in guiding the future development of Medan, and to trace the implications of such a policy alternative. The long-term development strategy proposed is particularly significant to Indonesia in 1980 and the advent of Repelita III and the immediate and long-term concerns with social equity which have been identified as paramount to future national, regional and local development. The proposed Distributive Investment Plan (DISP) attempts to reduce the major inequities as quickly as possible while simultaneously improving the climate for increases in productivity over both the short and long term.

The Distributive Investment Strategy Plan is substantially different from the types of choices presented in the Medan Master Plan which examined alternatives for aspects of urban physical development such as low or high densities, alternative modes of transportation and alternative physical forms ("corridor development", "concentric plans", "satelite cities", etc.). If choices are made on such a basis, the really significant social, economic and institutional, as well as physical, differences between alternative urban and regional development are likely to be obscrued.

The recommended plan is more flexible than the standard directives normally associated with a Master Plan. There is clear recognition of the importance of immediate action during Repelita III within the overall long range perspective through the identification of:

1. Priority programs and projects for the Repelita III.

2. Guidelines for the identification and prioritization of other programs and projects for the latter years of Repelita III and beyond with an indicative budget and schedule and a tentative identification of institutional responsibilities.

3. Long Term possibilities without a schedule or a budget.

The Terms of Reference for the present study suggest the primary focus of planning activities is to provide such a framework for Housing and Basic Urban Services (housing, water supply, sewerage, drainage and

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solid waste disposal, municipal finance). These, of course, do not constitute a functionally independent package that can be developed rationally without at least rudimentary planning and explicit consideration of other elements in urban development. It is just because the physical and financial requirements for Housing and Water Supply and Sanitation should not be planned, programmed or invested in without consideration of some of these elements that the DISP identifies the support systems required to make an investment in housing and basic urban service more viable.

1.2 NATIONAL DEVELOPMENT

The fundamental challenge to the Government of Indonesia is to design a nationwide strategy for long term development which encourages dynamic economic growth, the productive harnessing of the great natural resources of the country, and the achievement of acceptable levels of self-sufficiency in food production and the servicing of domestic needs for goods and services. At the same time, development planning must respond to the essential basic human needs of the people, the majority of whom are poor and presently living below the standards the Government would like for its citizens.

The issue then at the national level is achieving economic growth with social equity for the people. While easily stated as an objective, this delicate balance in the national development thrust is extremely hard to achieve. The trade-offs to be made are many and complex. Decisions are required in allocating investment between the most economically well situated regions and cities, capable of rapid economic growth, and less favored regions and cities deserving on the grounds of social equity. Within a region or a city investment decisions must be made between high economic rates of return and social equity objectives.

In undertaking this vast development challenge the Government of Indonesia is working under four significant constraints which must be recognized in the development planning effort:

1. Capital investment resources, while large in aggregate numbers compared to many less fortunate countries, are nonetheless severely limited when measured against the enormous needs for capital.

2. Administrative and management capacity is severely limited, particularly at the provincial and subprovincial levels of Government. Trained senior manpower will, for many years, be in short supply in spite of extensive initiatives on the part of Government in education and training.

3. The legislative base effecting development is obsolete and in need of substantial changes. Much of the existing development legislation dates back to the Dutch colonial period when the objective was control rather than social equity for the people and balanced development for the benefit of the nation.

4. At the city scale, the powers allocated to Local Government are limited. Whereas the constraints above must be recognized as deterrents to overly rapid decentralization of development control and resource allocations, the ability of the Government to achieve its objectives of decentralized regional development will eventually require decentralization of development control and resources as well. Significant steps have already been taken in this direction through the introduction of INPRES funds, greater participation in the preparation of national development plans, and the encouragement of local technical staff development.

The Government has developed a long history of urban development planning and management methods which takes these constraints into consideration. The Medan Urban Development Study has been able to operate within a well defined framework of national guidelines established and tested by Cipta Karya. The challenge has been to adopt these guidelines successfully to the specific needs and developmental concerns of Medan.

1.3 THE GUIDING PRINCIPLES FOR MEDAN URBAN DEVELOPMENT

The guiding principles for Medan Urban Development Planning are as follows:

1. Recognition of Medan as the major urban centre in the Northern Sumatra Region.

2. Achievement of sustained economic growth within a framework of social equity objectives.

3. The need for strategies of development that conserve capital resources.

4. Recognition of constraints on administrative and management capacity at the local level of Government.

5. The need for responding quickly and directly to the most severe deficits in public services and facilities, particularly those serving the urban poor.

6. Recognition that the primary determinant of future urban form will be through the spacial allocation of public investment.

1.4 MAJOR CONCLUSIONS

Despite the fact that Medan experienced reasonably high rates of growth during the late sixties and early seventies, there are now some indications that the growth of both income and investment has slowed to a point where Medan is not fulfilling its potential either as a city or as a key regional centre which provides effective basic supportive services to its hinterland. Medan's current situation can be summarized as follows:

- Kotamadya Medan in terms of economic and social conditions is not up to par compared to other similar Indonesian cities. Maintenance and rehabilitation has fallen notably behind.

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- New investments are not being planned or undertaken in an orderly manner or on a sufficient scale to meet urban regional basic economic and social requirements.

- Kotamadya taxes and other finances have lagged behind maintenance and investment needs, with only one to two percent real per capita growth at best and few plans to increase these substantially in the future.

- Organization, planning and budgeting are all done on a short-term basis accepting low growth in future potentials.

- There is little evidence of concern for improvement of services and opportunities for low-income groups.

- Economic and social needs are growing and will rapidly increase in the Repelita III period - a young population, group education and job requirements, health requirements, etc.

1.5 FUTURE PROSPECTS

It appears that major efforts will be required in order to make a significant quantum change in Medan's current development pattern. In order to put Medan on the track it will be necessary to implement both a short and long term program which emphasize: (1) major concerted improvements in the levels of basic essential services for the population, particularly low income groups, (2) Kotamadya planning and programming for economic development tied into national and provincial activities, and an increased program of local taxation on progressive lines, and (3) the implementation of a pilot program of central, provincial, and foreign assistance both financial and technical. The future prospects include the many large and important economic infrastructure projects underway and planned by the Central Government for Medan and North Sumatra which will enlarge basic transportation and other infrastructure capacities for the surrounding area and which could improve and accelerate metropolitan Medan's economic and social development. This will occur to a degree even if there are no corresponding improvements in Medan's own development planning, finance, implementation and policies. However, maximum use of these facilities (capitalizing upon these large investments) will be much slower in the absence of other required changes.

The advantage at this particular point of time of undertaking a broad concerted accelerated development program are clear. Such a program could yield swift and large returns and significantly accelerate Medan and regional economic and social development and expand employment opportunities and social services especially to lower income groups. The importance of this is quite clear in terms of Medan's importance to regional and national development. Such programs at a minimum would include what is being proposed in the specific DISP project proposals:

1. Water supply projects

2. Sanitation and drainage projects

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3. Kampung Improvement and SSCH/LCH projects

4. Special transportation projects

5. Special education and health projects

It should be noted that these projects will further and significantly enlarge Medan's physical capacities to provide basic services to its population (especially lower-income groups, if the projects are so oriented) and to commerce, industry and other sectors. However, once again, it is believed that a broader, integrated program is required to meet evident urban and regional development needs and to capitalize upon ongoing, and proposed physical, education, and health projects and programs.

1.6 THE BASIC URBAN DEVELOPMENT STRATEGY

Based on the above considerations, the Distributive Investment Strategy Plan (DISP) proposes a two pronged attack on the critical needs. First, it endorses, encourages and supports the early implementation of those projects designed to facilitate Medan's role as the major regional urban centre such as the expansion of the Belawan Port, construction of the Toll Road to the port and Trans-Sumatra Highway, and the upgrading of the railroad service. These essential projects are required to stimulate the economic growth of the entire region. This in turn will benefit the economy of Medan city itself.

Second, the plan seeks to respond to the urgent and immediate needs of the present Medan population, particularly the low income groups, for improved water supply, sanitation, drainage, solid waste disposal, and housing. These programs are concerned with alleviating deficits in response to the basic human needs of the existing population. The DISP will seek to build on the existing initiatives of the Government and to take advantage of all the opportunities for improvements which can be made at low per capita costs. The purpose is to demonstrate immediate relatively significant improvements in the standards of living of the Medan low income population.

In the longer term, the DISP seeks to follow-up on the opportunities created by the region serving transportation investments to stimulate the private sector to invest in an orderly manner consistent with national objectives. DISP would then utilize the newly developed transportation network spines to stimulate the reorganization of Medan land use to encourage region serving facilities (industry, warehousing, major health and education facilities, and transportation centres) to move to the periphery of the urban area. This will decongest the centre of the city while providing improved access to the greater Northern Sumatra region. The shift in land use should take place gradually so that efficiency and economy are achieved by individual entrepenuers and Government agencies.

The local population will be accommodated and serviced at a rate equal to the expected population increases through a sustained program of orderly infill in the central city and urbanization of new land areas located close to the job opportunities expected to be created along the transportation spines.

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The ultimate objective in the year 2000 will be a strong economy serving a metropolitan city of over 2,000,000 people functioning efficiently through a series of subcentres connected along major transportation corridors.

1.7 THE REGIONAL FUNCTIONS OF MEDAN

Medan is generally recognized as the major urban center of the Northern Sumatra region (WPU-A). It is also the dominant center of the newer regional classification of the area (SWP) as defined by Cipta Karya (Figure 1.1).

Medan with a present population in excess of one million persons is more than four times the size of Padang, West Sumatra (the second largest city of region) and almost seven times larger than Pekanbaru, Riau (the third largest city).

Medan is the seat of the North Sumatra Provincial Government the location of several central government offices serving North Sumatra Province and sometimes Aceh as well.

The economic and social sphere of influence of Medan is very strong throughout all of North Sumatra Province and South-eastern Aceh and extends beyond to the four province region. Medan is also a major regional center for university level education and major hospital and health facilities.

1.8 THE REGIONAL ECONOMIC BASE

While the regional gross domestic product of North Sumatra clearly indicates the overall dominance of the North Sumatra Province compared to the other three provinces in the region (Aceh, West Sumatra and Riau), and its economy grew rapidly in the early seventies, its growth has slowed down considerably in recent years. Significantly, between 1974 and 1977, the regional economy seems to have grown a little less rapidly than the Indonesian economy as a whole.

Overall, the economy of North Sumatra is based on agriculture, including the cultivation of export crops. The primary growth sectors are estate crops, livestock, forestry products, and fisheries. Farm food crops and farm non-food crops are also very important, but have had a slow rate of growth in recent years. The service sector is the other main sector of activity, with commerce the most important activity. Transport and communications, government services and the industrial sector also play siginificant roles in the regional economy. (A full description and analysis of these is presented in Section 3 : The Economy of Medan and its Region).

Employment statistic indicate the dominance of the service sector. The 1971 census showed that over 75 percent of North Sumatra's urban labor force was employed in services (48.1 percent) and in public administration (25.5 percent). In manufacturing, small industries provide almost 50 percent of the jobs.

1.9 MEDAN'S SUPPORTING ROLE IN REGIONAL DEVELOPMENT

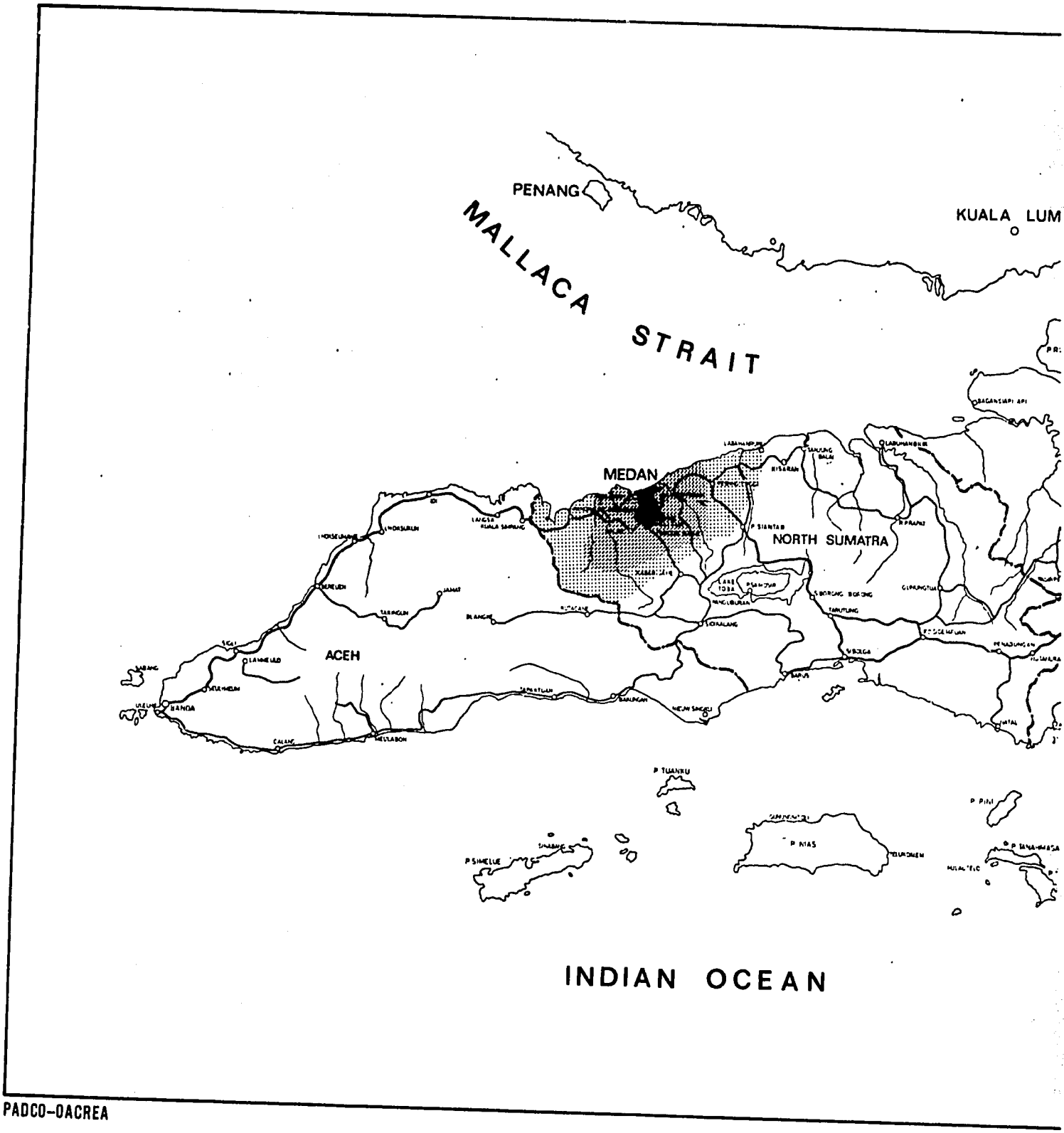
As the dominant urban center in the region, Medan has a critical role to play in regional economic development. First and foremost it is the major port serving the region. Total tonnage exported through Belawan grew from 845 to 988 millions of tons between 1973 and 1977. Excluding oil exports from Dumai, Riau, the Belawan export levels are many times higher than Teluk Bayur, West Sumatra or the other regional ports. The same pattern holds true for imports, Belawan handles four times the level of imports through Dumai and more than 10 times the level of imports through Teluk Bayur.

Medan, because of its export-import function, also has a significant wholesaling and transportation industry function to play in facilitating the collection and distribution of goods. Medan has a significant concentration of industry. To date, mainly processing firms have located in Medan attracted by the local natural resources and a number of import substituting assembly plants have been established. There is little processing of primary export products beyond the stage necessary to make them marketable abroad. Moreover, Medan is a considerable net exporter and makes a major contribution not only to the region's total exports, but those of Indonesia as well. In the future, Medan is designated as the centre of the chemical industry.

The basic urban planning strategy for Medan must recognize and accommodate the regional functions of the city. The economic future of the entire region is to a significant extent dependent on how well Medan functions as an efficient mover of goods and a provider of manufactured products and services. This regional function, therefore, requires a special recognition in planning and eventually investment beyond that of needs of the local population.

This special economic function of Medan has already been recognized by government and series of major transportation related investments have been planned. These include: (1) the Belawan port expansion, (2) the Toll Road, (3) the Trans-Sumatra Highway Project, (4) the railroad upgrading project, and (5) the Polonia Airport expansion.

The four major transportation related projects will greatly facilitate goods movement. These projects when fully implemented will also greatly affect the future urban form of the metropolitan area. Correspondingly, the maximumization of their potential positive impacts on urban and regional development will depend in large measure on the ability of Medan to more effectively fulfill its role as the major urban center in the region.



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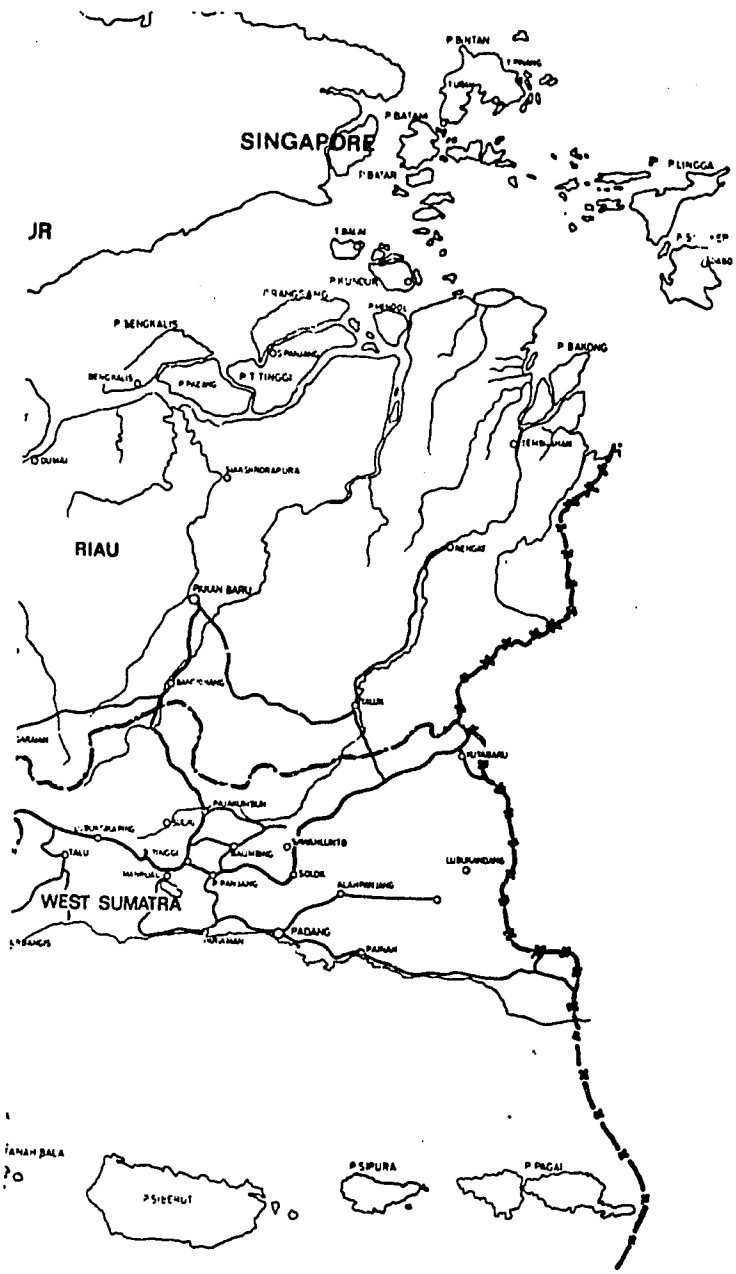

MEDAN IN REGIONAL CONTEXT

LEGEND

WPU - A BOUNDARY

PROVINCIAL BOUNDARY

SUB-REGION I,
WPU - A NORTH SUMATRA

WPP I NORTH SUMATRA

0 35 70 109 140 175
KILOMETRES

SECTION 2

POPULATION CHARACTERISTICS AND GROWTH

2.1 NORTH SUMATRA AND MEDAN POPULATION

The last complete population census including Medan was taken in 1971, so that, eight years later, estimates of population are subject to a widening margin of error. In 1973, 200 sq km were annexed from Deli Serdang which brought the port of Belawan within the city boundary and increased the population by about one-third. The estimated population of North Sumatra and of Medan is shown for 1973 to 1978 in Table 2.1. Although Medan appears to be growing a little faster than the province there is little evidence of drift into the city from rural areas.

TABLE 2.1

ESTIMATED POPULATION OF NORTH SUMATRA AND MEDAN 1973 TO 1978

End of Year	North Sumatra Population (Thousands)	Index 1973=100	Medan Population (thousands)	Index 1973=100	Percentage of North Sumatra
1973	6,920.3	100.0	985.0	100.0	14.2
1974	7,083.1	102.4	1,015.5	103.1	14.3
1975	7,230.5	104.5	1,047.0	106.3	14.5
1976	7,249.3	104.8	1,079.4	109.6	14.9
1977	7,452.3	107.7	1,104.1	112.1	14.8
1978	7,660.0	110.7	1,140.1	115.7	14.9

Source: North Sumatra Repelita III.

2.2 POPULATION PROJECTIONS

The growth rate of population in Medan has slowed down over the last fifteen years, to under three percent per year since 1973. Alternative projections were prepared according to different assumptions for

mortality and fertility rates and net migration. An annual growth rate of 2.6 percent to 1990 and 2.5 percent thereafter is considered the most probable for Medan's population. Projections to the year 2000 are shown in Table 2.2.*

TABLE 2.2

MEDAN PROJECTED POPULATION 1980 TO 2000

End of Year	Population (Thousands)	Index (1979 = 100)
1979	1,169.7	100.0
1983	1,296.2	110.8
1988	1,473.7	126.0
1990	1,551.4	132.6
2000	1,950.0	166.7

2.2.1 Age Distribution

The age structure of the Medan population for 1978 shows that 15 percent of the population is under 10 and nearly two thirds is under age 25. The distribution of population by age group is shown in Table 2.3.

This population bulge is already affecting the number of children requiring school and welfare facilities and will, during Repelita III and beyond, begin to swell the labour force, notably the number of young job seekers. As pupils stay longer at school, the population aged under 15 becomes of greater importance; in 1978 it was estimated at 482,000, and it is forecast to increase to around 538,000 by the end of Repelita III and over 600,000 by 1989**.

* See Section 9 for a fuller explanation of projections.

** Crude population forecasts derived by applying population distribution from monograph of population in North Sumatra-USU 1976 to total estimated populations.

TABLE 2.3

MEDAN DISTRIBUTION OF POPULATION BY AGE GROUP AND SEX 1978

Age Range	Male (Thousands)	Percentage of all Males	Female (Thousands)	Percentage of all Female	Total (Thousands)	Percentage of Total
0- 4	73.6	13.2	68.1	11.7	141.7	12.4
5- 9	76.4	13.7	94.3	16.2	170.7	15.0
10-14	85.3	15.3	83.8	14.4	169.1	14.8
15-19	70.6	12.7	75.1	12.9	145.7	12.8
20-24	58.1	10.4	65.8	11.3	123.9	10.9
25-29	40.8	7.3	42.5	7.3	83.3	7.3
30-39	59.5	10.7	61.1	10.5	120.6	10.6
40-49	44.0	7.9	48.9	8.4	92.9	8.1
50+	49.3	8.8	42.5	7.3	91.8	8.1

Source: Survey Tenaga Kerja Muda di Kotamadya Medan 1978/79, and North Sumatra Repelita III.

2.2.2 Household Size and Distribution

Data on population distribution by household is poor and little detail is available. However, in 1977 Medan was estimated to have 181,400 households each having an average household size of 6.0 persons, and an average population density of 4,230 persons/sq km*.

Table 2.4 shows the distribution of households by Kecamatan in 1977. The average number of persons per household ranges from 5.2 in Medan-Labuhan to 6.9 in Medan-Johor.

* Statistical yearbook of North Sumatra.

TABLE 2.4

POPULATION AND NUMBER OF HOUSEHOLDS, 1977

Kecamatan	Total Population	Number of Households	Average Number of persons per Household
Medan Kota	230,800	38,316	6.0
Medan Baru	117,140	21,107	5.5
Medan Barat	133,125	22,757	5.8
Medan Timur	178,580	28,485	6.3
Medan Sunggal	85,398	13,614	6.3
Medan Tuntungan	17,246	3,023	5.7
Medan Johor	52,676	7,657	6.9
Medan Denai	116,109	19,730	5.9
Medan Deli	46,976	7,101	6.6
Medan Labuhan	50,092	9,560	5.2
Medan Kota Belawan	63,340	10,040	6.3
Total	1,091,482	181,390	6.0

Note : The survey population differs from that in Table 2.1 as it is based on registrations.

Source : Data-data penduduk Kotamadya Medan keadaan Pertengahan tahun 1977. Bappeda dan Kantor Sensus/Statistik TK.II Medan.

2.3 EMPLOYMENT IN MEDAN

2.3.1 Labor Force Characteristics

The Medan labor force was estimated at 31 percent of total population in 1978. This is now defined as the population aged 10 and over after deducting students, mothers, and retired and other unemployable persons. The labor force growth between 1974 and 1979 according to figures published in Repelita III, is shown in Table 2.5., but the margin of error is likely to be considerable.

A survey in 1978/79 of young persons in the work force showed that the labor force comprises approximately two-thirds of all eligible males and one-third of females in the population. The labor force broken down by age-group is shown in Table 2.6. The most striking feature is that 31 percent of the labor force is under age 25, and 18 percent is under the age of 20. The number of young women working is also quite high.

TABLE 2.5

MEDAN LABOR FORCE, 1974 TO 1979

Year	Number (Thousands)	Index (1974 = 100)
1974	320.2	100.0
1975	329.2	102.8
1976	338.4	105.7
1977	347.9	108.7
1978	357.6	111.7
1979	367.6	114.8
Average annual growth rate		2.8

Source : Repelita III Daerah Tingkat II Kotamadya Medan Buka II (Draft) U.S.U.

TABLE 2.6

COMPOSITION OF LABOR FORCE BY AGE GROUP, 1978
(Population in Thousands)

	Total	Percentage	Males	Percentage	Females	Percentage
10-14	6.6	1.8	2.7	1.1	3.9	3.8
15-19	56.6	15.8	29.8	11.6	26.8	26.3
20-24	69.7	19.5	46.5	18.2	23.2	22.7
25-29	50.3	14.1	37.5	14.7	12.8	12.6
30-39	71.7	20.1	58.6	22.9	13.1	12.9
40-49	56.5	15.8	43.7	17.1	12.8	12.6
50-59	31.2	8.7	24.6	9.6	6.6	6.5
60+	15.0	4.2	12.3	4.8	2.7	2.6
Total	357.6	100	255.7	100	101.9	100

Source: Survey Tenaga Kerja Muda di Kotamadya Medan 1978/79.

The main area of employment is the broadly defined service sector. Most persons within it are employed in commercial activities, largely wholesaling and retailing, and in very small enterprises. Comparison with an earlier year is difficult because at the time of the 1971 census, Medan consisted only of Medan Lama (old city). Nevertheless, the proportion of total employment working in industry has increased from about 8.5 percent.

At present, about one quarter of the 15 to 24 age group are employed in industry, but the large majority are absorbed by the service sector. As regards the pattern of female labor, the very young (under 15) are employed equally in industry, commerce, unspecified services and government, probably at a low level. The proportion employed in agriculture appears to have remained the same since 1971 at 9 percent. Table 2.7 shows employment by sector or activity.

TABLE 2.7

ESTIMATED EMPLOYMENT BY SECTOR 1978
(Population in Thousands)

	Total	Percentage	Male	Percentage	Female	Percentage
Agriculture	29.1	9.2	21.2	9.1	7.9	9.6
Industry and Handicrafts	42.0	13.3	29.5	12.6	12.5	15.2
Construction[a]	16.0	5.1	16.0	6.9	-	-
Commerce, hotels and restaurants	52.2	16.5	32.2	13.8	20.0	24.4
Transport	26.2	8.3	25.0	10.7	1.2	1.5
Government	45.3	14.4	33.7	14.4	11.6	14.1
Other services[b]	74.1	23.5	55.2	23.7	18.9	23.0
Unspecified activities[c]	30.5	9.7	20.5	8.8	10.0	12.2
Total	315.4	100.0	233.3	100.0	82.1	100.0

a. Adjusted because of sampling deficiency.
b. Mining, banking insurance etc.
c. Teachers, doctors, laundries, barbers, garages, accounting, repairs, etc etc.

Source: Survey Tenaga Kerja Muda di Kotamadya Medan 1978/79.

2.3.2 Unemployment

Repelita III includes figures for unemployment from 1973. However, these figures need to be treated with sceptism, because without the

payment of unemployment benefits, there is little reason to register. Thus the figures are unlikely to reveal the real scale of unemployment or of partial employment. In addition, the concepts and definitions become blurred where there is a concentration of self-employment, family labor, and an active informal sector. A large number of jobs are undoubtedly obtained informally through personal contacts.

However, in 1978 it is stated that a total of 42,500 persons were unemployed or 12 percent of the labor force. The more interesting figures are the breakdown estimated within the total, as shown in Table 2.8.

TABLE 2.8

ESTIMATED UNEMPLOYMENT, 1978

Age-Group	Percentage of Total Unemployed	Unemployed as Percentage of Labor Force by Age Group
10-14	12.8	83
15-19	25.7	19
20-24	31.5	19
25-29	19.0	16
30-39	4.9	3
40-49	5.2	4
50-59	0.9	1
60+	-	-
Total	100.0	12

Source: Repelita III Daerah Tingkat II Kotamadya Medan 1979/80 - 1983/84, Falkutas Ekonomi U.S.U.

Seventy percent of all unemployment is estimated to be under age 25, while ninety percent is under age 30. In these age groups the rate of unemployment is certainly running at twenty percent. While this may change according to movements in participation rates, it shows that the bulk of open unemployment is related to young job seekers and new entrants to the labor market. The main problems to be solved are: (1) to create employment for young persons, and (2) to provide a suitable trained labor pool to meet future manpower requirements.

2.3.3 Future Employment Prospects

Based on prevailing unemployment rates among the labor force aged under 25, the shortfall in jobs, 1979, is estimated at around 30,000. This will increase as new job seekers come on the market. Table 2.9 shows a rough estimate of this demand up to 1983. However, no allowance

has been made for reduced mortality, longer schooling which will reduce demand or more women staying on jobs which will increase the number of jobs. The Table shows that by the end of Repelita III, 10,000 new job seekers will require employment and some 12,000 jobs will be needed for the 20-24 age group, equalling 22,000 in all, without any allowance for jobs from other age groups.

TABLE 2.9

ESTIMATED COMPOSITION OF LABOR FORCE BY 1984

	Population (thousands)	Percent	Percent in Labor Force	Labor Force	Additional jobs 1973-83
0- 4	161	12.4	-	-	-
5- 9	193	14.9	-	-	-
10-14	193	14.9	3.9	7,500	1,000
15-19	166	12.8	38.9	64,600	9,000
20-24	141	10.9	56.3	79,400	12,100
0-24 Total	854	65.9	17.7	151,500	22,100
Total Population	1,296.2	100.0	31.0	401,900	

If this is added to the present deficit of 30,000, then something at the order of 50,000 new jobs will be needed between now and 1984 - very roughly 10,000 a year. The future is too uncertain to enable a breakdown of job creation by sector. If possible, the proportion of jobs in manufacturing should be increased, to relieve pressure on the service sector and also to reduce the prevalance of home-based activities. If possible, the proportion working in agriculture should be maintained. The optimistic pattern of job creation would be 10,000 jobs in industry, with perhaps 6,600 in manufacturing, and 5,000 in agriculture; construction and transport might absorb perhaps 7,000 or more, which will still leave about half to be absorbed by the service sector.

Beyond 1984, the number of jobs required increases progressively, but optimistically it is assumed that the city's absorptive capacity will have increased. Assuming the deficit has been largely eliminated by 1985, rough estimates would indicate that 20,000 jobs will be required by new entrants and 25,000 jobs will be required by the 20 to 24 age group by 1989. This suggests roughly the same level of jcb creation in the late eighties as before. If the birth rate falls, the pressure on job creation for young persons should ease, but this is likely to be counter-balanced by lower mortality rates, as more people will be working longer.

Given that one of the more serious problems in Medan is the low level of productivity at present, and that real growth will only occur if productivity is increased, means will have to be sought of reconciling the need for new jobs while simultaneously increasing output per employee. For this reason it is recommended that policy should be directed towards encouraging medium to large enterprises to invest where possible.

2.3.4 Institutional Factors

Although a number of labor laws which regulate employment currently exist, labor legislation appears to have small impact on the operation of the labor market. Even the law on dismissals (Act No.12, 1964) which prevents sacking without prior consent from an official body is not too binding, and firms either obtain the necessary sanction or evade its effects, possibly by keeping employees on temporary contracts. Union activity is very limited, and strikes are illegal, thus their impact on wage regulation is minimal. Nevertheless, the government provides general guidelines for determining wage rates including the following:

1. Wage policy shall not be based on inflation - so as to avoid the wages - price spiral.

2. Management shall seek to improve the living conditions of employees through education, health care, welfare and accident insurance.

Government has been considering the introduction of a minimum wage. However, the issue is confused and regional wage councils are being established to make recommendations for its implementation. The possibility of adverse consequences from such a policy is recognized.

2.3.5 Training

Government policy on skill formation and worker training is not fully implemented. While the need for training is recognized in Repelita III, programs, are small, inadequately organized and their budgets are low. There is a data gap on this matter as well. Training is entrusted to more than one agency or department and as a result responsibilities overlap. Most programs appear to be directed at the cottage industry level covering handicrafts, tailoring, shoemaking, etc., and a few to learning a basic skill, but they cater to only a few persons each year. The future development and productivity in manufacturing will depend on workers acquiring appropriate skills. Some method of encouraging firms to provide training or, providing greater technical training through municipal or central government programs must be found.

SECTION 3

THE ECONOMY OF MEDAN AND ITS REGION

3.1 THE NORTH SUMATRA ECONOMY

North Sumatra's economy grew rapidly in the early seventies; Regional Gross Domestic Product (RGDP) increased at 12 percent a year between 1971 and 1974, but slowed down to a rate of under 6 percent between 1974 and 1977, which is slightly lower than the country as a whole. Agriculture, generally a slow growing sector, contributes one-third of RGDP and has declined a little over the period.

The service sector is the other main sector of activity and accounts for between 40 and 45 percent of RGDP. Within that total, general commerce is the most important activity. Transport and communication have grown rapidly in importance. Government and public service account for nearly 15 percent of the sector. Banking and financial services increased sharply from a low base, but contribute less than one percent at constant prices to RGDP. The construction sector is weak.

The industrial sector is small, though its contribution has increased from 13 percent to 16 percent in constant prices. This due in part to prices rising less rapidly in this sector than others. Between 1969 and 1973 the value of manufacturing at constant prices nearly doubled, rising at 17 percent a year. Since then, the rate of increase slowed to 5.5 percent a year between 1974 and 1977. Above average growth might have been anticipated in the manufacturing sector, but in the years 1974 to 1977, these expectations were not fulfilled as shown in Table 3.1.

Estimates of RGDP at constant prices have been prepared for each sector of activity: 1973, the year of the rice crop failure stands out as a period of high inflation - 41 percent for total RGDP; 60 percent in the agricultural sector and more in the construction sector. Since then the rate of inflation has moderated to around eight percent a year. During the same period, manufacturing prices rose less sharply and have decreased since 1975. The service sector has experienced variable price increases. Government services rose faster than average, while financial services increased quickly, but general commercial activity has increased more slowly than average.

TABLE 3.1

NORTH SUMATRA - REGIONAL GROSS DOMESTIC PRODUCT (RGDP) 1971, 1974, 1977
VALUE IN RUPIAH BILLION 1971 CONSTANT PRICES

INDEX: 1974 = 100

	1971			1974			1977		
	RGDP Value	Index	Percent of total RGDP	RGDP Value	Index	Percent of total RGDP	Value	Index	Percent of total RGDP
Agriculture, forestry & fishing	114.5	78.0	37.5	146.7	100.0	34.4	166.9	113.7	33.0
Mining and Quarrying	12.0	78.9	3.9	15.2	100.0	3.6	13.3	87.5	2.6
Manufacturing	41.4	61.3	13.5	67.5	100.0	15.8	80.2	118.9	15.9
Construction & Utilities	8.5	50.6	2.8	16.8	100.0	3.9	20.3	120.8	4.0
Service Sector	129.3	71.7	42.3	180.4	100.0	42.3	224.6	124.5	44.5
Total RGDP	305.7	71.7	100.0	426.6	100.0	100.0	505.3	118.4	100.0

SOURCE: Perkiraan Pendapatan Regional 1971-1977 Facultas Ekonomi USU

Value added per employee at constant 1971 prices was calculated for the leading sectors, in order to obtain an idea in the change in productivity. These data are based on figures for Indonesia, as provincial statistics proved inadequate. It was not possible to obtain an estimate for 1974 to compare the later seventies with the earliest portion of the decade. The average estimated change in productivity is shown in the following Table 3.2.

TABLE 3.2

NORTH SUMATRA - ESTIMATED CHANGE IN PRODUCTIVITY FOR LEADING SECTORS 1971 TO 1977

	Percent change
Total RGDP	+ 5.3
Agriculture, fishing & forestry	+ 2.2
Industry	+ 8.2
Commerce, hotels, & Restaurant	- 0.5
Transport	+ 5.0
Finance	+ 3.9

These data are only indicative, but show that agriculture is a slow growing sector and that industry grew most rapidly and therefore will generate a higher growth per unit of investment and employment. The financial sector grew at well below average, because of its capacity for generating growth, it should be expanded. Transport grew at approximately the average rate.

The apparent stagnation in the service sector may largely be attributed to the proliferation of very small enterprises and an increasing number of one-man home-based operations. In the service sector many firms operate at a marginal level of activity, while others operate in a highly competitive situation where profit margins are slim such as small retailers.

3.2 MEDAN'S ECONOMIC DEVELOPMENT

3.2.1 General Characteristics

Like North Sumatra, Kotamadya Medan experienced fairly high rates of economic growth during the 1969 - 73 period as a result of the recovery from the conditions of the mid-1960's, and then of apparent

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increasing investment and exports during the expansion of the region and of the world economy. During that period, Medan also made notable steps in rehabilitating and increasing its capacities in both economic and social infrastructure.

Investments were made in roads, bridges, ports, communication and power. Private sector expansion in processing, manufacturing, trade, finance and other services stimulated the economy. Similarly, Medan with the assistance of Central Government programs and finance, improved and enlarged education, health, water, housing and other social infrastructure facilities and services.

However, while there are no reliable estimates of metropolitan Medan gross domestic product, investment and other important economic indicators, analysis of available series suggests that the rate of growth of income and investment has slowed and that Medan - the key city in North Sumatra - is not fulfilling its potential, both as a city *per se* and in providing basic services critical to development of the region.

A rough estimate of Medan's gross domestic product, puts it at approximately Rupiah 320,000 million in 1977 current prices, some 27 percent of the provincial RGDP.

The city economy depends on and contributes to the regional economy, and its economic base derives primarily from agriculture, forestry and fishing, both as a source of raw materials to industry, a source of exports and the main source of food. There are good grounds for expecting economic behaviour in Medan to reflect that of the province.

Roughly one-third of the firms in the province are located in Medan. The chief feature is the predominance of very small firms and cottage industry, probably over 95 percent of all firms. Probably not more than one percent of the total is accounted for by firms employing over 100 persons, and there is not much evidence of any increase in the number of these larger firms in recent years. In general, manufacturing remains unsophisticated and has been concentrated in the food drink and tobacco sector and the textile sector. These at present may account for as much as 80 percent of turnover, and approaching half of all manufacturing employment. These sectors usually grow fastest in development areas, however, their growth potential is limited unless a growing export base can be assured.

The sector covering manufacturing tools, machinery and assembly of electrical and transport equipment contains the largest number of enterprises, but turnover appears low. One reason is that repair shops are included in the total, but even so the sectors' performance is poor.

The sector covering china, glass, pottery, cement and cement products provides many materials for the construction industry, such as bricks, tiles and sanitary wares. In recent years it does not appear to have expanded, or improved its products. During 1979, building materials have risen substantially in price ranging from a rate of 30 percent a year for bricks to 91 percent a year for a bag of cement.

The service sector contributes largely to the city's gross domestic product, but in general commerce, mainly wholesaling and retailing is characterised by numerous small enterprises, and low returns. The financial sector remains small due to large remittances outside of Medan.

3.2.2 Overseas Trade

3.2.2.1 Exports

North Sumatra contributes significantly to Indonesia's foreign exchange earnings, accounting for nearly 20 percent of total exports by value in 1978, (excluding oil and copper). But North Sumatra's contribution to total export value has declined since 1975 when it accounted for 30 percent. Nearly all trade passes through the port of Belawan.

TABLE 3.3

VALUE OF NORTH SUMATRA EXPORTS AND IMPORTS AS A PERCENTAGE OF TOTAL INDONESIAN EXPORTS AND IMPORTS 1971 TO 1978

	Exports percent	Imports percent
1971	23.0	9.3
1972	21.7	6.8
1973	19.7	6.8
1974	28.8	7.4
1975	29.6	6.8
1976	23.8	7.2
1977	21.3	6.5
1978	18.7	6.4

Notes: Exports exclude petroleum and products; imports include petroleum and products but cover value of imports through Belawan only, not other North Sumatra Ports.

SOURCE: Trade statistics 1978 for Indonesian exports and imports.

Although the value of exports has increased considerably, in volume terms only palm oil, and more recently coffee, show steady and sustained growth. The tonnage of vegetables exported has nearly halved between 1973 and 1978, rubber and tobacco have remained static. The specific characteristics of exports is shown in Tables 3.4 and 3.5 and briefly described below:

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TABLE 3.4

VALUE OF PRINCIPAL COMMODITIES EXPORTED VALUE: US$ MILLION CURRENT PRICES INDEX 1973 = 100. PERCENT OF TOTAL EXPORTS

	1973			1974			1975			1976			1977			1978		
	Value	Index	%	Value	Index	%	Value	Index	%	Value	Index	%	Value	Index	%	Value	Index	%
Rubber	123.7	100.0	46.7	162.1	131.0	39.6	132.5	107.1	35.6	206.6	166.5	44.3	227.4	183.8	36.9	265.3	214.5	40.9
Palm Oil (Oil kernels)	77.8	100.0	29.4	176.9	227.4	43.2	163.7	210.4	44.0	139.8	179.7	30.0	209.7	269.5	34.0	213.5	274.4	32.9
Tobacco	15.5	100.0	5.9	15.4	99.4	3.8	16.2	104.5	4.4	17.1	110.3	3.7	18.2	117.4	3.0	17.0	109.7	2.6
Coffee	10.6	100.0	4.0	9.1	85.8	2.2	8.7	82.1	2.3	30.0	283.0	6.4	69.1	651.9	11.2	63.7	600.9	9.8
Tea	9.1	100.0	3.4	9.9	108.8	2.4	13.5	148.4	3.6	14.5	159.3	3.1	28.6	314.3	4.6	22.7	249.5	3.5
Shrimps	13.3	100.0	5.0	14.3	107.5	3.5	16.7	125.6	4.5	29.3	220.3	6.3	24.2	182.0	3.9	23.5	176.7	3.6
Vegetables	1.7	100.0	0.6	2.6	152.9	0.6	1.9	111.8	0.5	2.1	123.5	0.5	2.3	135.3	0.4	2.6	152.9	0.4
Wood & Logs		-			-			-			-		13.5	-	2.2	12.6	-	1.9

SOURCE: Data Ekonomi Statistik Sumatera Utara
Bank Indonesia Cabang Medan, 1973-1978

TABLE 3.5

VOLUME OF PRINCIPAL COMMODITIES EXPORTED 1973 TO 1978 TONNES X 1000

	1973			1974			1975			1976			1977			1978		
	Volume	Index	%	Volume	Index	%	Volume	Index	%	Volume	Index	%	Volume	Index	%	Volume	Index	%
Rubber	282.5	100.0	32.4	259.2	91.8	30.4	270.6	95.8	27.6	287.7	101.8	28.0	285.1	100.9	23.3	293.0	103.7	25.3
Palm Oil (Oil kernels)	314.7	100.0	36.0	335.7	106.7	39.4	455.2	144.6	46.4	425.2	134.8	41.4	492.2	156.4	40.3	444.2	141.2	38.4
Tobacco	2.6	100.0	0.3	5.4	207.7	0.6	3.4	130.8	0.3	3.8	146.2	0.4	3.1	119.2	0.3	2.6	100.0	0.2
Coffee	11.8	100.0	1.4	8.8	74.6	1.0	9.5	80.5	1.0	14.1	119.5	1.4	51.6	149.2	1.4	26.8	227.1	2.3
Tea	15.5	100.0	1.8	12.9	83.2	1.5	13.6	87.7	1.4	13.4	86.5	1.3	14.4	92.9	1.2	14.3	92.3	1.2
Shrimps	5.9	100.0	0.7	5.4	91.5	0.6	6.5	110.2	0.7	8.5	144.1	0.8	13.3	225.4	1.1	7.2	122.0	0.6
Vegetation	33.3	100.0	3.8	33.0	99.1	3.9	24.9	74.8	2.5	26.4	79.3	2.6	20.6	61.9	1.7	18.1	54.4	1.6
Wood		-			-			-			-		277.9	-	22.7	265.5	-	23.0

SOURCE: Data Ekonomi Statistik Sumatera Utara
Bank Indonesia Cabang Medan, 1973-1978

North Sumatra's exports consist almost entirely of agricultural produce or based on primary products. Export of agricultural produce in general, have a high labour coefficient*, particularly fruits and vegetables. Thus, even high bulk, low value products should be encouraged because of the employment generated.

Increases in exports of agricultural produce are likely to depend on increases in agricultural output, and there may be a lead time of several years, before certain crops mature — i.e. rubber, coffee etc. North Sumatra's exports by value at current prices increased nearly 2.5 times, between 1973 and 1978, but this masks a poor performance in volume terms.

Palm oil production, an export crop has increased considerably in recent years and exports have increased two and three-quarter times by value and over 40 percent by volume. Coffee has also been able to take advantage of the sharp upward movements in world prices. The volume exported has more than doubled since 1973, while value has increased six-fold. Shrimp exports have also proved a worthwhile export, and the trend is basically upward.

Other crops have been less successful. The volume of tocacco in 1978 was the same as in 1973, but only half the level of 1974. The value of tobacco exports similarly show little change. Exports of tea have remained more or less static though the value has increased with world prices.

The least successful exports have been fresh vegetables and fruit. Production overall of vegetables has increased, and while domestic consumption is not known, exports by volume have been nearly halved between 1973 and 1978, though the value has increased 2.5 times. The reasons for this are not clear. A demand exists for fresh fruit and vegetables in Singapore, though quality control is strict. North Sumatra is fortunate in being able to grow a wide variety of fruits and vegetables and the demand overseas for special varieties should be explored. The potential for increased exports of frozen and canned goods should also be determined. It is noted that production of cabbages and cauliflowers fell dramatically after 1975 though the reasons for this have not been established. However, it is suggested that the volume of fresh vegetables and fruits exported should be examined with an view to increasing exports at least back to earlier levels. If this means improved varieties, quality control and packaging, then there would be a good case for examining this and making the necessary investments. The linkage to packaging could be of particular importance, and lead to the expansion of that industry.

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* Labor - intensity of Indonesia's exports by Douglas Pauww. Ekonomi dan Kauangan Indonesia No.4 December 1978.

No projections have been prepared for exports, but there is clear scope for expansion in terms of volume, though new markets may need to be sought*. It is apparent that North Sumatra's relative contribution to total exports has been declining and that this state of affairs could be revised.

3.2.2.2 Imports

Imports are concentrated in three sectors: (1) food, drink and tobacco, accounting for 25 percent of the total in 1978, of which rice is 15 percent and sugar, six percent, are the main imports, (2) chemical, 21 percent of which is fertiliser, and (3) metals. The rice cultivation program should allow for considerable import substitution, and if the targets are met, the province should be self-sufficient by the end of the Repelita III. Increased domestic fertiliser production should reduce their imports during Repelita III. All metals and machines must be imported at present. The Asahan Aluminium plant will have a restricted impact as most of the aluminum is destined for export to Japan for a number of years.

The import bill is only likely to be reduced through import substitution. If imports are required as an input into industrial assembly and manufacturing, a buoyant and growing economy suggests that the volume of such imports will also be increasing. However, there is scope for import substitution.

The policy under Repelita III is for the province to become more and more (if not completely) self-sufficient in rice production, thus rice imports should decline. At present, this item accounts for about one-quarter of the total value of imports, and this should be considerably reduced over the next five years. Sugar is the other main imported raw food, and this will probably increase. At present it accounts for some 15 percent of total imports by value, if rice decreases, its relative share to the total will increase. The other main item, which should decline as a result of import substitution, is fertiliser.

If the economy is growing, other items in the import bill may be expected to increase by volume as well as value.

Intra-island trade is of considerable importance, as the total value of goods moved is about two-thirds that of foreign trade. Total figures are shown in Table 3.7, but no detailed breakdown was available.

The province is a net exporter, and should continue to have a healthy trade surplus. Exports as a percentage of RGDP at current prices grew from 18 percent in 1971 to 22 percent in 1977. As regards inter-island trade, a similar situation exists, with outgoing traffic exceeding incoming traffic in every year. Inter-island traffic grew faster than overseas trade during the period.

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* Projections of North Sumatra exports and imports are shown in Repelita III Sumatera Utara, pages 310 and 319 respectively.

TABLE 3.6

VALUES OF IMPORTS BY COMMODITY 1977/1978
US$ MILLION CURRENT PRICES

	1977		1978		
	Value	% of total	Value	% change	% of total
Food and drink	70.9	26.5	63.6	-10.3	25.1
of which: rice	43.6	16.3	39.4	- 9.6	15.5
sugar	16.2	6.1	16.0	- o.2	6.3
Chemicals	47.8	17.9	52.5	+ 9.8	20.7
of which: plastic	9.8	3.7	10.5	+ 7.1	4.1
fertilizer	11.9	4.4	14.2	+19.3	5.6
Paper and books etc	9.3	3.5	8.8	- 5.4	3.5
Textiles	9.2	3.4	7.7	-16.3	3.0
Materials	17.0	6.4	12.4	-27.1	4.9
of which: cement	10.5	3.9	5.3	-49.5	2.1
asphalt	1.8	0.7	2.8	+55.6	1.1
Metal goods	51.6	19.3	52.9	+ 2.5	20.9
of which non box	10.1	3.8	9.7	- 4.0	3.8
non sheets	16.5	6.2	17.3	+ 4.8	6.8
Machine and tools	31.8	11.9	31.5	- 0.9	12.4
Transport equipment	20.7	7.7	16.9	-18.4	6.7
of which tractor	4.9	1.8	6.8	+38.8	2.7
buses trucks	1.9	0.7	1.0	-47.4	0.4
cars	1.9	0.7	1.1	-42.1	0.4
Other	8.3	2.0	6.8		2.7
Total	266.6	-	253.1	- 5.1	

SOURCE: Data Ekonomi Statistik Sumatera Utara
Bank Indonesia Cabang Medan 1973-1978

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TABLE 3.7

VALUE OF INTRA ISLAND TRADE IN US$ X 1000

	1971	1972	1973	1974	1975	1976	1977
Inter Island							
Art/current prices	24.967	34.211	43.446	52.681	81.656	90.801	111.237
Constant prices	24.976	32.002	37.028	46.037	52.112	58.887	66.542
Price index	100.0	106.9	117.3	114.4	156.7	154.2	167.2
In/current prices	48.320	62.476	76.632	90.788	104.384	116.910	140.293
Constant prices	48.320	56.624	64.945	73.257	80.462	88.347	96.299
Price index	100.0	110.3	109.6	123.9	129.7	132.3	145.7

SOURCE: North Sumatra: Perkiraan Pendapatan Regional 1971-1977

3.3 INFLATION

Following the very high rate of inflation in 1973, caused by the rice crop failure and expanded money supply, the rate of inflation was kept moderately well under control and increased between 1975 and 1978 30 percent. (See Table 3.8).

TABLE 3.8

HISTORIC INFLATION RATE IN MEDAN

Year	Rate of Inflation
1975/76	+ 15 %
1976/77	+ 13 %
1977/78	+ 5 %
Total Increase 1975-1978	+ 33 %
1978	
Jan - Mar	- 3.2 %
Apr - June	+ 1.9 %
July - Sept	+ 2.9 %
Oct - Dec	+ 3.6 %
1979	
Jan - Mar	+ 4.9 %
Apr - June	+ 8.7 %
July	+ 6.2 %

SOURCE: Medan Cost of Living Index

Inflation increased quickly after devaluation on goods other than food, resulting in a 48 percent annual rate. However, food was rising at only 6 percent a year. In 1979 there are signs that inflation is still accelerating. The construction industry is experiencing particularly severe price increases, both for local and imported materials and wage rates. Thus for the calendar year 1979, inflation is likely to be greater than 20 percent.

3.4 INCOMES *

There are no regularly published income data available. What little can be obtained is inadequate and does not allow simple comparisons over time to be made, nor enable any conclusions to be drawn as

* This information supercedes previous preliminary income data developed in Technical Memorandum No.9 Medan Household Income/Expenditure, August 1979.

to the real improvement in standards of living within different income groups, or any assessment of the redistribution of income. Since 1970, the price level of consumer goods has increased three to four times. Food prices have increased most rapidly; and increase that penalizes the poorer sections of the community who spend a much larger proportion of their incomes on food.

A report by the World Bank* attempted an assessment of the level and distribution of incomes in Indonesia. It concluded tentatively that although average consumption per head had increased for all levels of low-income groups, their rate of increase was less than the average for the country, which implies that redistribution had taken place in favour of the well-off. Thus the gap between the rich and poor had widened. As regards poverty, in North Sumatra some 16 percent were estimated to be below the poverty line 1976, which was defined as consumer expenditure of Rp. 3,000 per month per person or less.

3.4.1 Household Incomes

In 1975, a survey was carried out of the income of 1005 households** living in three categories of house which were distinguished as permanent, semi-permanent, and temporary according to type of construction. The survey found that there were 22 percent permanent dwelling, 32 percent semi-permanent dwelling, and 46 percent temporary dwelling. This distribution is taken very roughly to equate with (1) rich and upper middle incomes, (2), lower middle incomes, and (3), poor incomes.

It is apparently typical for poor households as well as rich to have secondary income sources as on the average most households have more than one income earner. The average composition of household income is shown below: full-time employment 49 percent, secondary employment 9 percent, additional employee in household 11 percent, income from property 10 percent, and other 21 percent.

The average household income was Rp. 612,700 per year. The household sizes were found to average 5.3 persons (lower than MUDS figure), giving an annual figure of Rp. 115,600 per head in 1975.

Applying these figures to the three categories of dwelling the following average incomes by category are obtained (see Table 3.9).

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* Employment and income distribution in Indonesia Report No.2378 IND. 1979

** Penelitian Pola Penggunaan Pendapatan Rumah Tangga di Kotamadya Medan 1977.

TABLE 3.9

INCOME DISTRIBUTION IN MEDAN

	Permanent (upper middle)	Semi-Permanent (lower middle)	Temporary (poor)	Average Income
Average household annual income (Rp)	1,200,604	582,146	361,305	612,700
Percent	21.5 %	32.1 %	46.4 %	100.0 %
Household daily rate (Rp)	3,848	1,865	1,158	1,963
Daily rate per person (Rp)	426	352	218	370

Source: Penelitian Pola Penggunaan Pendapatan Rumah Tangga di Kotamadya Medan 1977.

3.4.2 Household Expenditure

Consumer expenditure by household was obtained from the "Penelitian Pola Pembangunan Pendapatan Rumah Tangga di Kotamadya Medan" for the year 1975. Household income and expenditure by type of dwelling are shown in Table 3.10.

It will be seen from the table that considerable differences in the expenditure patterns exist between the different house types. The least well off, in temporary housing, spend 68 percent of their incomes on food and save some 12 percent, whereas the richer households in permanent housing spend 42 percent of their incomes on food and save one-third. If income levels do not keep up with the rate inflation, then the level of savings will be eroded.

3.4.3 Total Kecamatan Incomes

Although the data are imperfect, the average household income by kecamatan in 1975 has been multiplied by the number of households in 1976, to obtain an indication of the income levels in Medan city (Table 3.11). However, since no comparison is possible with any other year, no estimate of real change in income can be made from these data.

However, the data show that income levels are higher in the four central Medan Kecamatansthan elsewhere, and that all Kecamatans except Medan Kota and Baru are near the average or at the lower end of the income scale.

The worst off Kecamatans are Medan-Labuhan and Deli with annual incomes of Rp. 235,300 and Rp. 264,000 respectively, which are only 51 and 57 percent of the average of income of the city, and only slightly

TABLE 3.10

HOUSEHOLD INCOME AND EXPENDITURE FOR MEDAN BY TYPE OF DWELLING 1975
(THOUSANDS OF RUPIAH PER YEAR)

	Type of Dwelling							
	Permanent		Semi-Permanent		Temporary		Average	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
Total Income	1,200.6	100.0	582.1	100.0	361.3	100.0	612.7	100.0
Total Consumer Expenditure	806.0	67.2	449.4	77.2	317.3	87.8	464.8	75.9
Basic Food	404.7	33.7	259.9	44.6	205.9	57.0	257.3	42.0
Other Food	96.6	8.0	59.0	10.1	40.2	11.1	57.4	9.4
Housing	71.1	5.9	23.6	4.1	14.6	4.1	30.5	5.0
Transport	92.4	7.7	32.3	5.6	14.4	4.0	36.9	6.0
Clothing	41.4	3.5	26.3	4.5	15.3	4.2	24.6	4.0
Health	12.7	1.1	10.4	1.8	6.8	1.9	9.2	1.5
Education	39.4	3.3	17.9	3.1	8.7	2.4	26.3	4.3
Leisure	22.3	1.9	6.4	1.1	2.6	0.7	7.9	1.3
Other	25.4	2.1	13.6	2.3	8.8	2.4	14.7	2.4
Savings	394.6	32.9	132.7	22.8	44.0	12.2	147.9	24.1

SOURCE: Penelitian Pola Penggunaan Pendapatan Rumah Tangga di Kotamadya Medan 1977.

TABLE 3.11

ESTIMATE OF AVERAGE AND TOTAL HOUSEHOLD INCOMES 1975/76

Medan Kecamatan	Average Household Income 1975 (Rp.Thousands)	No of Households 1976	Total Household Income (Rp.million)
Medan Kota	504.2	38,119	19,218.6
Medan Baru	677.0	21,165	14,328.7
Medan Barat	469.6	22,605	10,615.3
Medan Timur	428.5	29,335	12,570.0
Medan Belawan	415.4	11,353	4,716.0
Medan Labuhan	235.3	11,172	2,628.8
Medan Deli	264.0	7,714	2,036.5
Medan Denai	369.9	19,052	7,047.3
Medan Sunggal	479.3	12,956	6,209.8
Medan Tuntungan and Johor	459.8	10,680	4,910.7
Total	457.7	184,151	84,281.7

SOURCE: Data-data Penduduk Kotamadya Medan akhir tahun 1976. Penelitian Pola Penggunaan Pendapatan Rumah Tangga di Kotamadya Medan 1977.

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above the poverty line defined as monthly consumer expenditures of Rp. 3,000 per head.

An indication of the city's total income can be obtained from the incomes for the Kecamatan. This total is estimated to be Rp. 84 billion, which implies an annual 1975/76 income per head of population of approximately Rp. 80,000. If income levels had kept pace with inflation, annual income per head would have increased to roughly Rp. 100,800 by the beginning of 1979, or approximately Rp. 100,000 by mid-1979, but there is no published data available to show how income levels have changed since 1975.

3.4.4 Distribution of Household Income - 1980

The full cost of living survey for 11 large cities in Indonesia carried out in 1968/69 was repeated in 1978, but only very preliminary unpublished results are available. Nevertheless by piecing together this data and supplementing it by corroberating evidence from the Department of Manpower and a Kampung survey carried out during the course of the study, estimates for January 1980 have been prepared as set out in Table 3.12 and an income curve obtained. These figures make adjustments to 1978 data to allow for the exacerberated rate of inflation during 1979. The Department of Manpower mentioned rates of increase of 20 to 30 per cent since February 1979. Data for 1978 has been increased by 35 per cent for incomes under Rp.20,000 and by 20 per cent for all other income levels so as to compensate for the fact that public employees have had no salary increase since 1977. The results are considered conservative, particularly taking account of non-money payments received in many jobs.

TABLE 3.12

PERCENTAGE AND NUMBER OF FAMILIES BY INCOME GROUP
ADJUSTED TO 1980

Monthly Family Income Rupiah	Percentage of Families		Families by Income	
	% in Group	Cummulative	Number	Cummulative
Under - 20,000	3.1	3.1	6,043	6,043
20,001 - 30,000	10.2	13.3	19,885	25,928
30,001 - 40,000	14.2	27.5	27,683	53,611
40,001 - 50,000	13.2	40.7	25,733	79,344
50,001 - 60,000	12.1	52.8	23,589	102,933
60,001 - 70,000	11.3	64.1	22,029	124,962
70,001 - 85,000	10.0	74.1	19,495	144,457
85,001 - 100,000	7.6	81.7	14,816	159,273
100,001 - 120,000	6.5	88.2	12,672	171,945
120,001 - 140,000	4.3	92.5	8,383	180,328
140,001 - 200,000	4.1	96.6	7,993	188,321
200,001+	3.4	100.0	6,629	194,950

The number of households between 1976 and 1977 showed a decrease. Accordingly the number of households has been estimated by dividing the estimated total population for Kotamadya Medan by estimated household size (six) in both years.

The median of monthly household income was calculated at Rp.57,700. This compares with a median figure of Rp.48,000 in the Kampung survey in Medan 1979.

Between the 1968/69 cost of living survey and the 1977/78 survey, there have clearly been shifts in the structure of income distribution. In particular, it is clear that there has been an increase in the average number of wage earners per household. Whereas in 1968/69, 78 per cent of households had only one wage earner, nine years later this figure had dropped to 53 per cent, with 32 per cent having two wage earners compared to only nineteen percent in 1968/69, and nine per cent having three wage earners compared to only two percent earlier. This move will have had a significant impact on household incomes.

3.5 CREDIT SITUATION IN MEDAN

At the beginning of 1979, there were a total of 105 banks operating in North Sumatra, over 40 with offices in the municipality of Medan. Current assets in North Sumatra stood at Rp.28,893 million — 82 percent held by state banks, and 18 percent by private banks. This compares with assets of Rp.12,588 million in January 1977.

Deposits at the end of 1978 stood at Rp.136, 8 billion, an increase of 24 percent at current prices during the year, but fell to Rp.122.7 billion by June 1979. The credit position from 1973 to mid-1979 is tabulated below (Table 3.13).

TABLE 3.13

NORTH SUMATRA ACTUAL CREDIT OUTSTANDING BY SECTOR OF ACTIVITY IN CURRENT PRICES (BILLIONS RUPIAH)

	Production	Export	Other	Total
End of				
1973	31,303	4,733	14,430	50,466
1974	49,154	8,462	13,028	70,644
1975	62,738	6,806	21,013	90,557
1976	68,589	11,152	27,874	107,615
1977	81,744	11,504	38,366	131,614
1978	95,666	14,489	54,356	164,511
1979				
June	106,561	16,144	63,297	186,002

SOURCE: Bank Indonesia Cabang Medan
Data Ekonomi Statistik North Sumatra 1973-1978 and May/June 1979.

Credit, which has risen 3.5 times since 1973, goes primarily to the production sector, while export activities receive less than 10 percent.

Investment credit accounted for some 40 percent of total credit. Table 3.14 shows its application by sector for May 1979 and December 1976.

TABLE 3.14

APPLICATION OF ACTUAL INVESTMENT FUNDS BY SECTOR

	Value Dec. 1976	Percentage of Total	Value May 1979	Percentage of Total	Percent Change
Total	46,994	100.0	69,971	100.0	+ 49
Agriculture, forestry, fishing	35,550	75.7	42,563	60.8	+ 20
Mining	10	-	3	-	- 70
Industry	6,549	13.9	18,720	26.8	+ 186
Services	2,551	5.4	3,273	4.7	+ 28
Other	2,334	5.0	5,412	7.7	+ 132

SOURCE: Bank Indonesia Cabang Medan
Data Ekonomi Statistik Sumatera Utara
1973 - 1978 dan Mei - Juni 1979

Investment funds grew by nearly 50 percent over the period. Although still receiving the much larger share of funds, agriculture's share has dropped to less than two-thirds. Investment funds to industry over the same period nearly tripled, but account for only one quarter of funds allocated. For Indonesia as a whole the allocation differs: funds both to industry and to tourism outweighed those to agriculture from 1976 to 1978.

3.5.1 Loan Conditions

Loan conditions can be hard to meet and depend on rates set in Jakarta. The interest current rate is 13.5 percent annually for manufacturing and service industries over three to five years. High levels of collateral are required to service loans, usually around 80 percent, however in many cases collateral requirements can be in excess of 100 percent. Loans are generally medium term, of one to three years, which make repayments difficult for newly established enterprises, and particularly infrastructure projects showing a profit. Loans may be extended for further periods, but this means renegotiation of existing loans and prevents the bank from processing new loan applications. Bank credit

policy tends to be conservative. One factor encouraging this is the banking sector's position regarding bad debts. They lack the ability to fare, close on debts. Furthermore delays in processing loans may extend to two years, which frustrates the smooth running of the credit system.

3.5.2 Small Scale Enterprise Credit Program

Access to credit for small scale enterprises is available through three programmes:

1. Credit Investasi Real (KIK) which provided investment funds

2. Kredit Modal Kerja Permanent (K.M.K.P.) which provides working capital and

3. Kredit Mini Program which provides very small loans to cottage industries.

All businesses with a turnover of less than Rp.10 million monthly are eligible for the first two programs, with a ceiling on loans of Rp. 15 million. These loans are not dependent on collateral and up to 80 per cent of the project can be funded. A program of technical assistance is available for the beneficiaries, in selected cities through aid financing but Medan is not included. Interest rates on these programs are near commercial rates, 10.5 per cent for KIK and 12.5 per cent for K.M.K.P. allegedly to cover the greater risk attached to working capital loans. Both programs remain small in North Sumatra, and the condition and processing procedures may deter small business from applying.

The Kredit Mini program is only operated by the one bank with funds lent from the Bank of Indonesia at concessionary terms. Loans range from Rp.10,000 to Rp.100,000 and attract an annual interest of 12 percent over one to three years. The program is flexible regarding repayment schedules and has met only fair success as default rates are high.

The North Sumatra program is less than 3 percent of the National Programme. Medan recieves nearly 30 percent of KIK funds in the province and nearly 40 percent of KMKP funds. Table 3.15 gives the details of the allocation of these funds at January 1977 and July 1979.

Sectoral distribution is more significant than the number of loans, which will vary according to the time of the year. For example, there appears to be an increase in loans to commercial enterprises, which will not necessarily be productive, and could include doctors, lawyers and offices.

The distribution of loans by sector should ensure that loans go to sectors which will generate real growth, and satisfy those areas of increasing demand. If the overall commercial demand is not increasing, increasing the number of supplies may reduce each enterprises value added. It might be advisable to give certain types of loans, say for manufacturing, a priority rating.

3.5.3 Real Investment

All figures in the foregoing paragraphs have been presented in current prices. This is misleading as it takes no account of the effects of inflation on credit. If the figures for total credit are deflated by the General Cost of Living Index, the following set of figures (Table 3.15) are obtained:

TABLE 3.15

SELECTED DATA ON CREDIT SITUATION AT CONSTANT PRICES

	1973 Rp.	1977 Rp. Current	1978 Rp. Constant
Total credit outstanding	50,466	164,272	81,082

Total credit in real terms increased 60 per cent over five years or 10 per cent a year. If the total KIK and KMKP program for North Sumatra is taken from January 1977 and a rough estimate of price increases made to July 1979 (full data is not yet available) the programme would still have doubled in real terms in the year and half period.

SECTION 4

THE DELIVERY OF BASIC SERVICES: HEALTH, EDUCATION, WATER SUPPLY, SANITATION AND HOUSING

One measure of the overall well-being of Medan's population is the extent to which the population benefits from health, education, water supply and sanitation services provided by the public sector. As many of these services are almost completely subsidized, it is quite difficult to adequately measure the benefits accruing to the population due to increased supply or improved quality of services through an analysis of consumption expenditures.

In recent years investments in social services in Indonesia have grown rapidly. Recent estimates reveal an extraordinary growth in real expenditures on health (37 percent per annum), education (45 percent per annum), housing and water supply (31 percent per annum) for the period 1971/72 to 1977/78*, reflecting both the rapid expansion of the public sector which resulted from oil revenues as well as the nation's commitment to a fuller distribution of its wealth to all members of the population. The developments in health care, education, water supply and sanitation in Medan are briefly outlined below.

4.1 DEVELOPMENTS IN HEALTH CARE

The distribution of the 10 most commonly reported diseases in Medan from 1974 to 1978** indicates that annually: colds increased by 24 percent, tuberculosis 29 percent, nutritional anemia 15 percent, upper respiratory infections 28 percent, scabies 27 percent, diarrhea 57 percent, ascaris 25 percent, vitamin deficiencies 19 percent, malaria 30 percent and accidents related diseases increased by 37 percent.

While the percentages of annual increases are partially a result of increased attendance rates during the same period (14 percent per annum for Puskesmas) and there are discrepancies caused by the inadequate reporting processes, it is clear that the population, for a variety of reasons, has not benefitted in proportion to the increases of facilities and services over Repelita II.

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* Since 1973/74, the various INPRES programs represented a considerable amount of the social development expenditure.

** Dinas Kesehatan Kotamadya Medan. Based on reports of Puskesmas, Public and Private Clinics.

The problems faced in combating these diseases include shortage of facilities, shortages of disease control workers and immunization workers, a poor reporting system, a low awareness among the people concerning health, and the limited budget of the Health Department for operation, transportation and equipment.

4.1.1 The Existing Health Facilities

Health facilities in Medan are provided by the government and private sector as well.

Public and private health facilities are shown in Table 4.1. For the all of Medan's total population of 1,116,200 in mid 1978 there were 26 hospitals with the total capacity of 2,609 beds, 62 maternity clinics, 22 Puskesmas, 29 mother child clinics, 84 policlinics, 81 dental clinics, 42 family planning clinics and 2 laboratories.

Despite the current low level of provision, the development of new health facilities particularly in the public sector has been slow. During the Repelita II period, the number of Puskesmas was only increased by three, policlinics increased by two, there was no increase in maternity clinics, and family planning clinics increased by ten.

As shown in the Table 4.1, the distribution of most health facilities is uneven with high concentration of facilities in certain parts of the city. The main problem faced in locating facilities is the difficulty in acquiring land for buildings, particularly in the central areas. Because of this problem, there is a tendency to locate the facilities in areas where the land in available, while neglecting the areas having the greatest need for facilities. The corresponding problem of accessibility (high transportation costs) in many cases limits full utilization of these facilities.

The high costs of services, shortage of facilities, low awareness of people towards health facilities, traditional beliefs and accessibility are the major causes of underutilization of health facilities.

4.1.2 Manpower

The Health Department currently employs a total of 495 persons consisting of: 57 physicians, 19 dentists, 1 pharmacists, 3 health control officers, 34 nurses, 19 midwives, 2 nutrition control officers, 36 pharmacy assistants, 13 dental nurses, 11 hygiene control officers, 51 midwives assistants, 1 laboratory worker, 69 administration/supporting staff, and 80 health workers. Health manpower data outside of the Health Department is incomplete. However, it was estimated that 84 specialists and 362 physicians are currently practising in Medan. Additionally, there are 90 dentists, 210 nurses and 251 midwives.

Thus, for the all of Medan there are: 0.08 specialists per 1,000 population, 0.32 physicians per 1,000 population, 0.08 dentists per 1,000 population, 0.22 nurses per 1,000 population, and 0.22 midwives per 1,000 population. It is important to note that the accessibility of the majority poor population cannot be measured in terms of such ratios.

TABLE 4.1

DISTRIBUTION OF HELATH FACILITIES IN MEDAN, 1978

Kecamatan	Population 1978	Gross Population Density (persons/hectare)	Public								Private				
			Hospital beds	Puskesmas	Mothers & Child Clinics	Policlinics	Maternity Clinics	Laboratories	Family Planning Clinics	Dental Clinics	Hospital beds	Policlinics	Maternity Clinics	Special Clinics	Dental Clinics
Belawan	60,000	78.1	12	1	2	1	-	-	4	1	-	4	2	-	-
Labuhan	54,031	6.7	-	1	-	3	-	-	1	1	-	3	1	-	-
Deli	51,456	24.6	-	1	2	1	-	-	-	1	-	5	1	-	1
Timur	178,790	143.7	880	2	4	-	1	-	5	2	-	6	9	2	7
Medan Kota	232,230	244.5	-	5	2	-	1	-	7	1	209	19	20	1	29
Baru	121,508	69.0	141	2	4	1	-	-	8	2	477	9	8	-	22
Barat	132,287	121.6	800	5	3	2	-	2	9	1	90	7	9	-	8
Denai	119,416	65.4	-	1	4	2	-	-	-	-	-	4	5	-	-
Johor	54,660	19.6	-	1	3	2	-	-	4	-	-	1	-	-	1
Tuntungan	17,475	5.9	-	1	1	3	-	-	-	-	-	-	-	-	-
Sunggal	94,383	32.2	-	2+	4	2	-	-	4	1	-	9	5	-	3
Total			1833	22	29	17	2	2	42	10	776	67	60	3	71

SOURCE: Dinas Kesehatan - Kotamadya Medan
USU, Repelita III - Draft, 1979

As shown in Table 4.2, there are 12 health educational facilities in Medan graduating 580 students per year.

TABLE 4.2

HEALTH MANPOWER EDUCATION IN MEDAN, 1979

Type of Facility	Number of Facilities	Average Annual Number and Type of Graduates
University	2	200 Physicians
Nursing School	3	90 Nurses
Midwife School	1	30 Midwives
Sanitary School	1	40 Sanitarians
Pharmacy School	3	160 Pharmacist assistants
Dental Nursing School	1	30 Dental nurses
Laboratory School	1	30 Laboratory Analists

One problem faced in the manpower sector is the limited recruitment of health personnel by the government due to a limited operational budget. Furthermore, no strategy exists to permit the effective participation of medical students and others improving health conditions in Medan as part of their studies (for example, through work experience programs).

4.2 DEVELOPMENTS IN EDUCATION.

Table 4.3 show the general picture of educational attainment of Medan population in 1971 and 1978. As can be seen there was considerable improvement in education in this area during that period, especially in the primary level due to the greater emphasis of Government policy on the development of primary education and great expansion of school facilities during the Repelita II through the INPRES Program.

Significantly, the situation in the junior and senior high schools, and higher education as well, has not greatly changed. This situation is possibly due to the limited government budget for expanding these kinds of facilities, the slow development of physical facilities and the inability of the majority of Medan's low income population to put their children in higher level education. A similar situation is also revealed in specialized education; less guidance and budget from the government has contributed to the slow development in the specialized education. Table 4.4 shows the distribution of schools in 1978.

TABLE 4.3

EDUCATIONAL ATTAINMENT OF THE POPULATION OF KOTAMADYA MEDAN AGED 10 YEARS AND OVER, 1971 AND 1978

(Percentage of Population)

	1971	1978
No school	9.50	11.15
Illiterate		(1.65)*
Literate, but has not attended school		(9.50)*
Not finished elementary school	28.70	27.35
Elementary school	31.70	36.77
Junior high school	17.67	15.05
Senior high school	10.52	8.64
Academy/University	1.91	1.04
Total	100.0	100.0

* Estimated by Penmas, not included in total.

Source: USU Research Institute, Repelita III of Kotamadya Medan, Draft I
BPS, 1971 Population Census of North Sumatra, March 1974.

TABLE 4.4

DISTRIBUTION OF SCHOOLS IN MEDAN, 1978

Kecamatan	Population mid 1978	Elementary Schools	Schools per 1000 pop.	Junior High Schools	Schools per 1000 pop.	Senior High Schools	Schools per 1000 pop.
Kota	232,230	109	0.47	39	0.17	40	0.17
Timur	178,790	98	0.55	34	0.19	27	0.15
Baru	121,508	59	0.49	30	0.25	21	0.17
Barat	132,287	89	0.67	24	0.18	6	0.05
Denai	119,416	70	0.59	13	0.11	4	0.03
Labuhan	54,031	33	0.61	1	0.02	1	0.02
Johor	54,660	44	0.80	3	0.05	4	0.07
Tuntungan	17,475	19	1.09	5	0.29	1	0.06
Sunggal	94,383	53	0.56	16	0.17	8	0.08
Deli	51,456	31	0.60	3	0.06	-	-
Belawan	60,000	53	0.88	8	0.13	1	0.02
Total	1,116,236	658	0.59	176	0.16	113	0.10

Source: Kanwil P & K Propinsi Sumatra Utara.

4.2.1 Pre-primary Education

The present situation of pre-primary education in Medan indicates that there are 59 kindergartens with the total number of pupils 6,820. The average number of classrooms per school is 2.5, while the average number of pupils per classroom in 57.2. The estimated attendance rate is about 20 percent.

4.2.2 Elementary Education

During Repelita II the number of public elementary schools in Medan almost doubled (90 percent), subsidized schools increased by 19 percent and private schools by 46 percent. This increase was accompanied by an increase in the number of pupils. In public schools the number of pupils increased by 49 percent, while subsidized school pupils increased 34 percent. Private school pupils increased by 27 percent. In fact, attendance rates exceeded Repelita II targets. The major cause of this achievement was the huge investment made by government through the INPRES program on school provision. The situation of the elementary education in Medan by the end of Repelita II was:

Attendance Rates	: 96%*	
Number of population to school	: 1,643**	(3,700)
Number of classrooms to school	: 5.0	(6.0)
Number of pupils to classroom	: 59.7	(50 and 100 for double shifts)
Number of pupils to teacher	: 36.1	(40)
Number of pupils to school	: 303.8	(300 and 600 for double shifts)

In the inner city areas (Baru, Timur, Barat, and Kota) all public schools and about 50 percent of the private elementary schools have conducted a double shift program.

Although considerable improvements have been achieved, many problems still exist. Those which need to be given emphasis in the future are: increase the quality of education, reduce the number of dropouts and repeaters, and provide more land for the school sites. There also is a need to increase the quality of education in S.P.G. (Teachers Education School) by improving the existing curriculum and facilities and to upgrade the existing teachers through a regular training program.

The priorities for action are increases in the provision of text books, libraries, teaching aids, and qualified teachers in order to obtain a better quality of education.

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* Target for attendance rates in Repelita II was 85 percent.
** Figures in the parentheses indicate the national standards.

Land for the school sites is also a critical problem due to the shortage and cost of land, particularly in the central areas and the limited budget for the land acquisition purposes. In certain areas, school development has had to be postponed due to the difficulties in getting land.

4.2.3 Junior High School

The provision of junior high schools has lagged far behind the progress made in the elementary education during the Repelita II. The number of classrooms in public schools increased by 41 percent compared to a 67 percent increased in the number of classrooms but the number of pupils increased by 28 percent. In private schools, the number of classrooms increased by only 16 percent compared to a 61 percent increase in the number of pupils.

The ratio of pupils to classrooms in public schools is a critical problem, and almost all schools have conducted a double shift program. Without expansion of school facilities the situation in the near future will worsen. Moreover, 80 percent of the Junior High Schools are owned by private organizations, only 10 percent are public schools, and the rest (10 percent) are subsidized schools since private schools apply high SPP or school fees. The access to this level of education for Medan's low income population is poor.

Shortages of qualified teachers, text books, teaching aids and laboratories are also acute at this level. Furthermore, official figures indicate that the present attendance rate is only 42 percent.

4.2.4 Senior High School

During the Repelita II period, the number of senior high schools only increased by three percent, while the number of pupils increased almost two fold (85 percent). Only 20 percent of the schools were owned by government. Of the rest (64 percent) were private schools, or subsidized schools (16 percent). Since these schools require a high education fee, the access to this level of education from the majority of the population is very low.

The situation by the end of Repelita II shows:

Attendance Rate	:	25.04%	
Number of population to school	:	20.294	(13,600)*
Number of classrooms to school	:	7.91	(6)
Number of pupils to classroom	:	62.0	(40 and 80 for double shifts)
Number of pupils to teacher	:	29.41	(15)
Number of pupils to building	:	485	(240 and 480 for double shifts)

* Figures in brackets indicate the national standard.

Beyond the problems of shortage of text books, libraries and qualified teachers, the difficulties in getting land for the schools sites has become critical. The local education department feels that the budget allocated in the DIP for land purchase is not sufficient.

4.2.5 Specialized Schools

Specialized schools include economic schools, home economic schools, teachers education schools and technical schools. In 1978, Medan had 66 specialized schools, 18 schools at the junior level and 48 schools at the senior level.

Between 1976 and 1978, the number of pupils in some specialized schools, e.g. economic and junior schools, tended to drop. In economic schools, the major cause of the decrease is the lack of guaranteed employment which results in graduates who do not have sufficient practical skills. Moreover, most of the workshop equipment is obsolete and needs to be replaced. Because of the decrease of pupils and the acute shortage of school facilities, the local education department has decided recently to integrate these technical schools into junior high schools (SMP).

4.2.6 Community Education (PENMAS)

The community education program, (PENMAS) was developed during Repelita II to give educational services to the community with special emphasis on people 15 to 45 years of age who are dropouts from schools. PENMAS is also responsible for family education and for reducing the number of illiterate people. A wide range of educational services including environment, civics, workshops, skilled labor, languages, office administration, and home economic education are offered. The PENMAS program in Medan is still small due to its limited budget. In 1978/1979, it conducted seven types of courses covering a total of 900 people. Current local efforts by PENMAS are directed at identifying courses which can contribute to an increase in the income of the participants. Thus far PENMAS courses have not been able to establish such linkages in a significant way. The program proposed by local PENMAS in Repelita III will concentrate on that critical facet and on the construction of buildings and the provision of text books, teaching aids and workshops for specialized education, as well as increasing the number of tutors. The target groups will include the dropouts of elementary schools and illiterate people.

4.2.7 Higher Education

There are two public higher institutions and about 16 registered private universities or academies in Medan. The public institutions are the University of North Sumatra (U.S.U.) and the Institute of Teachers Training and Educational Science (IKIP), while the major private higher institutions are the Nomenses University, the Islamic University of North Sumatra (UISU) and the University of Cut Nyat Din. U.S.U. and IKIP play a significant role in higher education as their students are 71 percent of the total number of North Sumatra students. In 1977, these two higher institutions had 13,492 students and 1,229 staff, while

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private universities had 5,435 students and 870 staff. During the Repelita II period, students and staff in these two public universities increased annually by six percent and ten percent respectively, while in private universities they increased by seven percent and three percent respectively.

U.S.U. has a significant potential role in the development of Medan and North Sumatra. There are eight faculties in U.S.U.: economics, medicine, agriculture, engineering, arts and language, law, pharmacy and dentistry. For the purpose of research activities there are three research institutions at the university level: U.S.U. Research Institutions, U.S.U. Center for Population Studies, and U.S.U. Center for Environmental Studies. Besides, there are also six research institutions at the faculty level in economics, agriculture, medicine, engineering, dentistry, law and veterinary science. These are still underutilized, possibly because of the shortage of research funds provided by government and the limited use of research activities by both the government and private sector. The present orientation of education in U.S.U. emphasizes long-term study to produce an academic qualification rather than short term (diploma) programs. Presently, only the Faculty of Economy has a diploma (three years) program in the disciplines of accountancy, administration and secretarial practice.

4.3 WATER SUPPLY AND SANITATION

4.3.1 Water Supply

Approximately 25 percent of Medan residents are served by the municipal water utility (Tirtanadi); the remainder obtain their water from open, often contaminated, public and private shallow wells. A very few people obtain water from public standpipes, most of which are either in a state of disrepair or have water at adequate pressure for relatively short periods. Those served by the municipal system are predominantly the upper and middle income groups who can afford the very high connection charges currently levied by the utility. The present connection fee (ranging Rp.200,000 to 300,000) is structured to cover not only conventional connection costs (line from street main plus meter and appurtenance), but also a portion of other capital and operational and maintenance costs. These high connection fees, coupled with inadequacies in distribution facilities, effectively limit, service provided to lower income groups and encourage the development of alternative sources for both residential and non-residential uses.

Just under 60 percent of the estimated non-residential water demand is met by Tirtanadi; the remainder is obtained from privately constructed deep wells. Although adequate sources of water are available locally, the rate of development of these sources has generally lagged increases in connected demand. The general characteristics of the existing potable water use in Medan is summarized below in Table 4.5, while the characteristics of residential consumption is shown in Table 4.6

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TABLE 4.5

CHARACTERISTICS OF MEDAN'S WATER USAGE, 1978

Consumer Category	Estimated Present (1978) Water Use, in l/s		
	Municipal	Non-Municipal	Total
Domestic	469	709	1,178
Institutional	135	16	151
Commercial/Industrial/ offices	161	190	351
Unaccounted for losses	252	296	548
Total Present Water Use	1,017	1,211	2,228

It is significant to note that as household incomes decrease the quality and quantity of residential water consumption are also drastically reduced. Upper and middle income groups living in permanent dwellings and connected to the municipal water supply currently consume 176 litres of water per capita per day, while persons living in high density, low income settlements lacking individual access to municipal supplies only consume 35 litres per day or less.

TABLE 4.6

PRESENT DOMESTIC WATER SUPPLY

Residential Category	Type of Water Supply	Present Unit Water Use (l pcd)	Population Mid-1978
Upper and middle income, permanent dwellings	Municipal, metered connection	176	270,000
Middle income, medium density	Individual household shallow well	100	696,000
Low income, high density	Rivers, standpipes, and shallow wells serving multiple dwellings	35	150,000
Total			1,116,000

4.3.2 The Wastewater System

Wastewater collection and disposal is provided by individual systems such as pit latrines and septic tanks. Soil conditions in the study area generally severely restrict subsurface disposal of wastewater. Separation of wastewater flows into grey and black water components is typical throughout the city. Grey waters are discharged to the surface drainage system, open roadside ditches, or underground drainage conduits. Black waters (toilet wastes) are discharged to septic tank/soak-away pit systems, which because of the restrictive soil condition, can be expected to perform with only limited success. A considerable quantity of septic tank effluent finds it way directly or indirectly into the surface drains.

In many of the more densely populated areas of the city, the connection of septic tanks directly to underground drainage conduits is allowed by special permit. Prior to 1969 the connection of raw sewage discharges was common in a limited area of the city which can be considered now to be served by a system of combined sewers.

The results of a social and economic survey carried out in Medan in 1978 and 1979 jointly by Bappeda S.U. and the provincial census and statistics office indicated the following levels of service for disposal of sanitary wastes:

Households with toilet	84.3 percent
Households without toilet	
Streams	5.8
Joint use	2.8
Yard	1.3
Public toilet	1.1
Fish pond or rice paddy	0.2
Other	4.5
	100.0 percent

A sanitary survey field inspection, carried out as part of this project, identified high density low income areas of the city in which there are virtually no household toilets and in which extensive use is made of streams, public toilets (some of which were out of service), and open latrine areas for excreta disposal.

The grossly polluted ditches constitute both a nuisance and a health hazard to the residents of the city of Medan. The Deli River, the major receptor of all wastewater flows, is extensively used for bathing and individual water supply.

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4.3.3 Solid Wastes

At the present time, municipal solid wastes collection and disposal facilities are provided to only heavily urbanized portions of the study area. Figure 4.1 shows the boundaries of the present solid wastes service area. This area is divided into primary and secondary areas. Dinas Kebersihan Keindahan Pertamanan (DKKP) provides all labor and equipment for solid waste collection service controlled jointly with the kampung administration. In the secondary area, DKKP provides transfer of solid wastes to disposal areas on an irregular basis.

4.3.3.1 Collection

The types of collection services currently provided by DKKP are as follows:

House to house - solid waste collection workers enter the compound and carry the solid wastes to a collection truck or gerobak.

Curbside - householders place solid wastes in a container located at the edge of the road in front of each house or shop. The solid waste collection worker empties the container and places the solid waste into a truck or gerobak. There are many types of roadside containers in use and most are in an advanced state of disrepair.

Community pool - householders or a contractor, acting on behalf of cooperative group, carry solid wastes to a central location where it is stored until picked up by a solid wastes collection vehicle.

At the present time service is provided to only about 23 percent of Medan's households (see Table 4.7). The level of domestic service provided is illustrated by the following results of an area social and economic sample survey carried out in Medan by Bappeda Sumatra Utara and the provincial statistic office in 1978 and 1979.

TABLE 4.7

COLLECTION OF SOLID WASTES IN MEDAN

Household Disposal Method	Percentage of Households
Solid waste container which is removed at a certain time	6.7
Burned at certain time	56.0
Thrown out for burial at a certain time	7.8
Thrown out to a solid waste pool	16.3
Thrown out to a stream, river or ditch	12.4
Other	0.8
Total	100.0

Observation made during sanitary survey field inspections in various areas of the city confirm that the level of collection service and consequent rise of inadequate local disposal methods constitute a significant health hazard and nuisance to the residents of the city.

4.3.3.2 Transportation and Disposal

Solid wastes collected by gerobak are transported to a pool site to which householders may also carry their wastes. There are also pool sites servicing the markets of the city. At the pools, wastes are transferred to trucks and transported to the disposal sites.

With the exception of market pools, the pool sites are little more than an allocated space at which solid wastes accumulate and at which a few facilities are provided to facilitate gerobak unloading, storage, and truck loading.

At some of the pool sites visited, solid wastes were stored in the open for periods of several days constituting a serious health hazard and nuisance to nearby residents.

At the present time, there are many informal salvage operations located at the various pool and disposal sites. Materials salvaged include plastic, metals, glass, wood and bones.

4.3.4 Drainage

Principal natural drainage channels in the Study Area include the Percut, Kera, Deli, Babura, and Belawan rivers. These rivers constitute the waterways to which storm water drains from the city of Medan, as shown in Figure 4.2. All these rivers flow from south to north, have little slope, and frequently meander to a great extent. Solid wastes from urban areas and silt are carried by the streams settle and reduce their discharge capacity. In some densely populated areas there are some bank improvements and dikes, but most river reaches are unimproved.

Due to the limited capacity of Medan's existing drainage system and the frequent high intensity rainfalls, many areas are prone to flooding. Property damage and traffic hindrance due to flooding are common events in the city. Almost all of the local surface drains are of the open channel type, and many are blocked with refuse. The surface drains receive much of the grey water component of the wastewaters generated in the study area, some sanitary wastewater, and some trade wastes. Stagnant water in these drains provides a breeding ground for mosquito and other insects and poses a significant health hazard to the community.

The existing drainage system serves primarily the central urbanized area. Almost all of the urban area drains are open channel ditches located at the edge of the road. A few circular conduit drains have been built recently under major streets. There are approximately 473 km of local surface drains, 12 km of which are of the circular conduit understreet type. These drainage channels carry commercial and domestic

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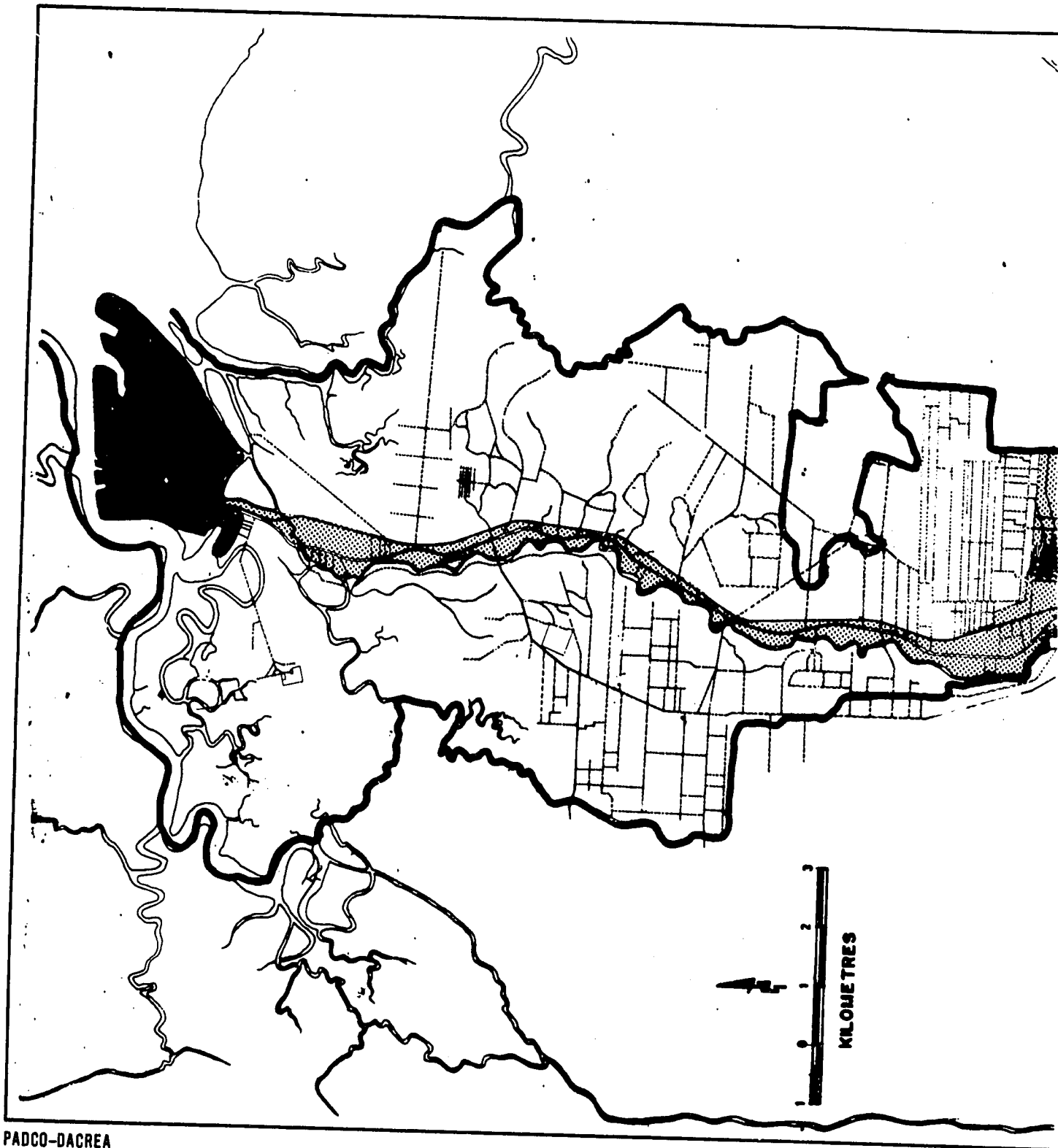

PADCO–DACREA

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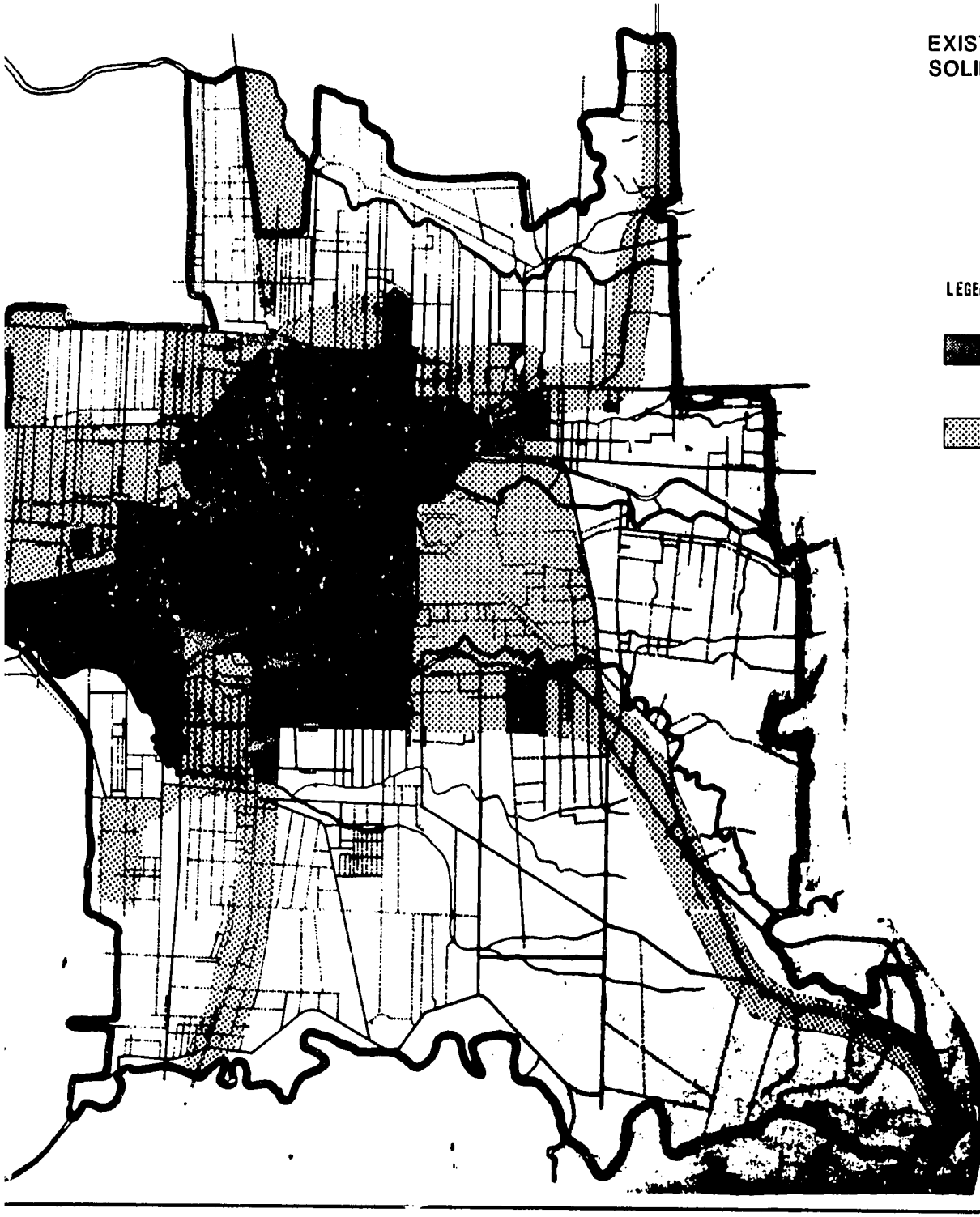
FIGURE 4.1



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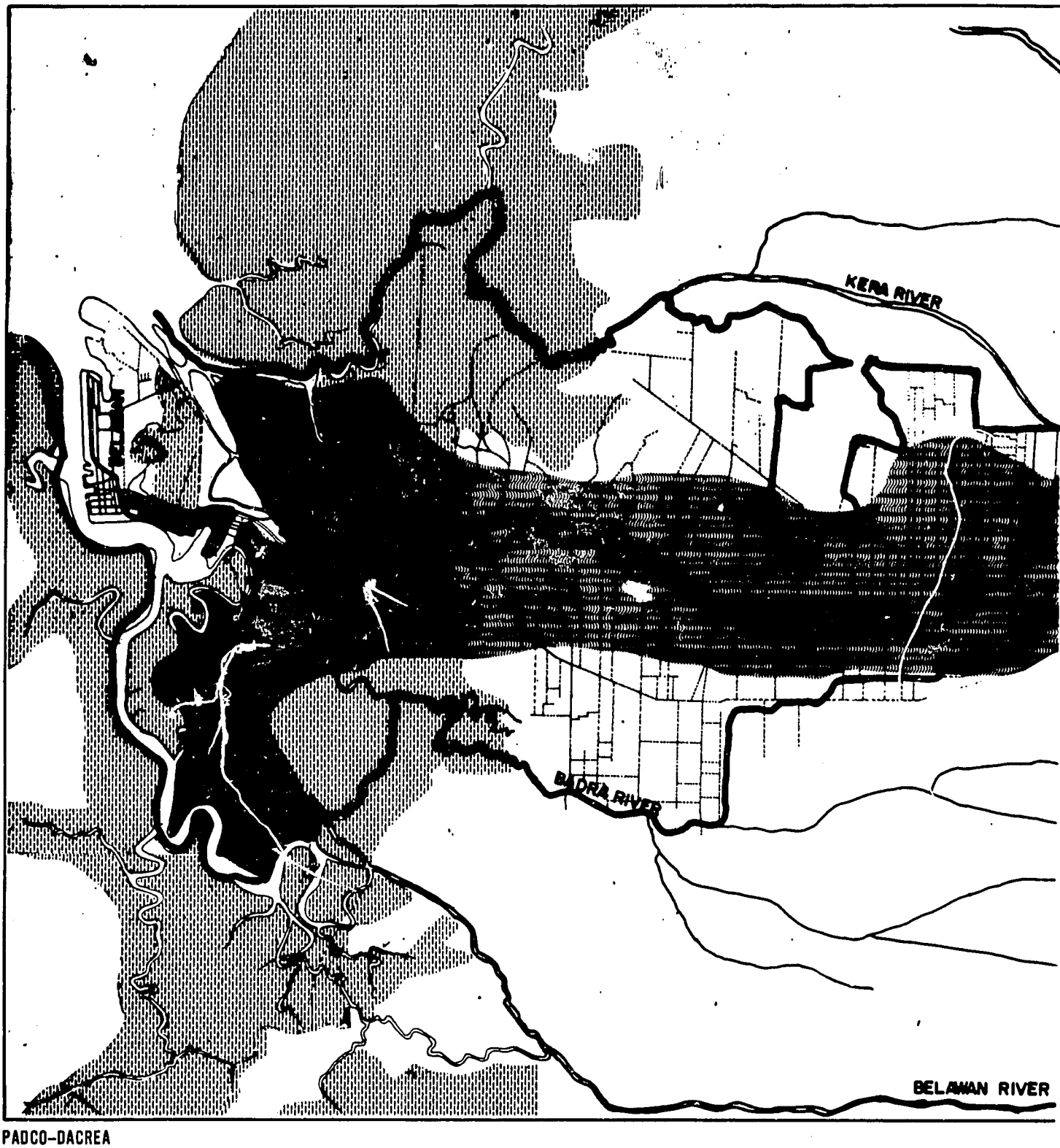

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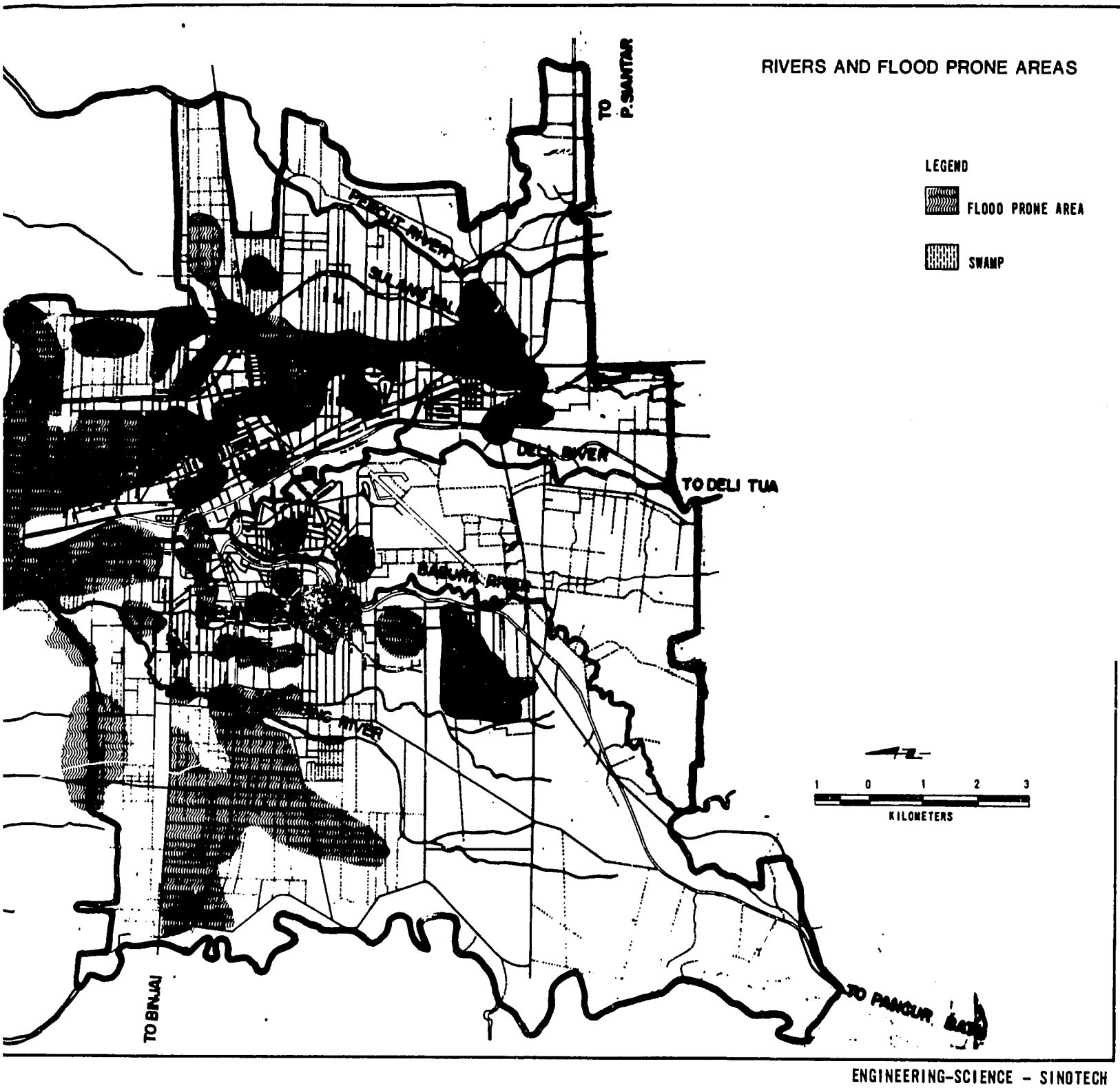
FIGURE 4.2



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wastewater and storm water. The drains discharge directly into the nearest river.

Areas subject to regular flooding have been identified based on the available Departmental information and field inspection, as illustrated in Figure 4.2. Records of flooding frequency and extent of damage are, however, inadequate to determine the relative severity of flooding for each specific trouble area.

The major factors which cause serious flooding problems in Medan are as follows:

1. Only about 25 percent of solid wastes generated within the urban area are presently collected and removed. Much of the remainder in deposited in the open drainage channels.

2. Channel siltation.

3. Many of the existing drainage channels are, given the existing channel slopes, inadequatedly sized to handle even the relatively high frequency storm flows.

4. The drainage system management organization Dinas Pekerjaan Umum (DPU) does not have enough man-power and equipment for adequate cleaning of the drainage channels.

4.4 HOUSING

4.4.1 The Current Housing Stock

The Kantor Sensus and Statistik Daerah ennummerated 153,051 buildings in Medan in 1975 housing a population of 1,047,000, and having an average occupancy rate of 6.84 persons per unit. The stock consisted of three major construction categories, permanent construction built mainly with masonry, semi-permanent built from a combination of masonry and wood, and temporary built from wood and other traditional materials. Roughly 78 percent of the stock was found to be either semi-permanent or temporary in condition. These conditions are shown in Table 4.8.

During the same year a random survey of 1,000 households, shown in Table 4.9, indicated that there was a close correlation between household income and living conditions. For example, the average incomes of the groups occupying the poorest quality housing (i.e. temporary) were only about Rp 30,000 per month. However, as average household income increased, so did the quality of housing. Thus the 26 percent of households living in permanent housing had average monthly incomes of Rp100,000.

TABLE 4.8

DISTRIBUTION OF BUILDINGS BY DISTRICTS, MEDAN, JUNE 1975

	Permanent	Semi Permanent	Temporary	Total
1. Medan Kota	10,545	8,378	11,608	30,531
2. Medan Baru	4,699	5,098	7,907	17,704
3. Medan Barat	7,039	8,052	8,252	23,343
4. Medan Timur	5,456	11,435	7,259	24,150
5. Medan Sunggal	1,344	4,077	5,447	10,868
6. Medan Tuntungan	155	621	1,240	2,016
7. Medan Johor	1,413	3,046	3,230	7,689
8. Medan Denai	1,114	4,213	8,216	13,543
9. Medan Deli	149	1,923	4,711	6,783
10. Medan Labuhan	181	1,174	5,734	7,089
11. Medan Belawan	814	1,549	6,972	9,335
Total	32,909	49,566	70,576	153,051

SOURCE: Kantor Sensus and Statistik Daerah Tingkat II Medan.

TABLE 4.9

MEDAN HOUSEHOLDS BY HOUSE TYPE AND INCOME, 1975

Type of Construction	Percent of Household Living in Each Type	Average Annual Income (Rp)	Average Monthly Income (Rp)
Permanent	21.5	1,200,604	100,050
Semi-Permanent	32.1	582,146	48,512
Temporary	46.4	361,305	30,109
Total	100.0	612,644	51,054

SOURCE: Penelitian Pola Penggunaan Pendapatan, Rumah Tangga di Kotamadya Medan, 1977

Since 1977, the start of the government's low cost housing program, 7,700 housing units have been constructed by public agencies for government and military employees in Medan. Although exact estimates of private construction are not available, real estate agents estimate that roughly 800 units per year were built privately by middle and upper income groups*. These combined building activities result in an annual increase in housing stock of about 3.4 percent. However, since the life on much of the housing stock is relatively short due to the poor quality construction of much of the housing in temporary and semi-permanent categories, roughly three percent of the housing stock requires replacement annually. Furthermore, the Tata Kota has estimated that 16,300 or nine percent of households in 1975 were living in overcrowded, illegal dwellings along river banks and in other precarious areas. Since 1975, due to the lack of public or private action to improve the living condition of these households, conditions have probably worsened in those areas.

4.4.2 Housing Needs in Medan

Total housing needs were projected to ascertain the scale of the housing problem in Medan and to indicate effectiveness of public agencies and current construction trends in meeting those needs. As shown in Table 4.10, there is an estimated total housing need of more than 28,000 units in 1979. This need is based on the replacement of deteriorated housing, new houses for new households formed by population growth, and new houses to reduce overcrowding in dense low income areas**. At current construction rates, only about 5,700 households are being supplied with housing from all sources. Therefore, a total housing deficit of over 22,000 units remains. This deficit is expected to increase up to a 29,500 houses in 1990, if current trends persist.

The following sections describe conditions in various kampungs selected for upgrading under KIP, the current low cost housing program of the Bank Tabungan Negara, and Perumnas sites and services /low cost housing program.

4.4.3 Kampung Housing

A wide range of housing conditions are found in Kotamadya kampungs which have developed spontaneously without public sector development assistance. In general, the worst housing conditions are found in the interiors of the "old" kampungs which surround the Kotamadya's commercial district, the temporary residential areas located along the Babura and Deli Rivers, along the rights of way of railways and in close proximity to many of the city's markets. In these areas, individual plots are small and poorly defined with the bulk of the area built upon.

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* Building permits for housing for the same period averaged 339 units per year. However since many developers do not apply for building permits or build multiple units under the same permit, permits are not a reliable source of building activity information.

** These estimates assume that current trends of 1.15 households occupying the same dwelling unit will continue.

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TABLE 4.10

HOUSING NEEDS IN MEDAN, 1975-1990

Year	Population ('000)[a]	Number of New Households	Total Number of Households Needing Housing[b]	Number of Households Supplied with Housing[c]	Total Number of Households Needing Housing but not Supplied with Housing[d]
1976	1,079	4,823	26,271	5,653	20,618
1977	1,104	4,958	26,880	5,670	21,210
1978	1,140	5,098	27,506	5,687	21,819
1979	1,170	5,241	28,149	5,700	22,449
1980	1,200	4,986	28,407	5,721	22,686
1981	1,231	5,115	29,026	5,738	23,288
1982	1,263	5,248	29,660	5,755	23,905
1983	1,296	5,385	30,311	5,772	24,539
1984	1,330	5,525	30,978	5,789	25,189
1985	1,364	5,669	31,662	5,806	25,856
1986	1,400	5,816	32,364	5,824	26,540
1987	1,436	5,967	33,084	5,842	27,242
1988	1,474	6,122	33,821	5,858	27,963
1989	1,512	6,281	34,578	5,876	28,702
1990	1,551	6,445	35,354	5,894	29,460

a. Based on population growth rate of 2.8 percent per annum between 1976 and 1979 and 2.6 percent after 1979. Household size was kept at 6.1 persons. Any decrease in household size would increase the number of households and increase total housing needs.

b. Based on new households, the number of households living in structurally poor housing and the number of households living in overcrowded housing.

c. Based on an estimated housing construction rate of 3.4 percent per year and 1.12 households per house.

d. Total number of households needing housing minus number of households supplied with housing.

An average dwelling unit is approximately 55 sq m. The type of construction within these kampungs varies from the citywide averages shown in Table 4.8, as a larger percentage of the households live in semi-permanent housing (43 percent) than live in temporary housing (36 percent).

Type of Construction	Percent of Total Households
Permenent	22.0
Semi-permanent	42.5
Temporary	35.5
	100.0

There are primarily three types of dwelling units in low income kampungs: tunggal (single family units), gandeng dua (duplex units), and gandeng banyak (barracks or row housing) which can accommodate up to 15 to 20 families and accounts for about 15 percent of the housing stock. Duplexes comprise about 20 percent.

4.4.4 Rents within Kotamadya Low Income Kampungs

A random sampling of 300 rental units within low income kampungs selected for KIP was conducted by MUDS staff in September 1979. From that survey a distribution of monthly rents was developed and is shown in Table 4.11. Roughly 51 percent of low income households pay between Rp.4,000 to 5,000 per month in rent. Although the actual proportion of total household expenditures due to rent is not available, it is likely that expenditure patterns follow Medan patterns in general, i.e., housing expenditures comprise between 8 to 15 percent of total monthly expenditures.

It is significant to note that a large portion of the rents shown are actually annual rents collected once or twice a year. These annual rents range between Rp.24,000 to over Rp 100,000. While they probably place a severe strain on household incomes and may force a household to borrow at unfavorable interest rates, they also indicate a capacity for downpayments for housing loans, particularly since downpayments are only made once during the period of a housing loan.

TABLE 4.11

MONTHLY HOUSEHOLD RENTAL DISTRIBUTION FOR MEDAN'S KIP AREAS, SEPTEMBER 1979

Household Rental Category (Rp/month)	Total Number of Households Living in Kampungs	Percent of Total Surveyed Households	Cumulative Percentage of Total Surveyed Households
1,000 - 1,999	1,253	11.3	11.3
2,000 - 2,999	822	7.4	18.7
3,000 - 3,999	1,899	17.2	35.9
4,000 - 4,999	1,701	15.4	51.3
5,000 - 7,499	2,779	25.1	76.4
7,500 and over	2,610	23.6	100.0
	11,064	100.0	

SOURCE: MUDS September 1979 survey of 300 households which rent housing.

4.4.5 The Housing Program of the Bank Tabungan Negara

The Bank Tabungan Negara (BTN) was established to provide institutional housing for government employees, military and private groups. Between 1973 and 1977, it financed a total of 6,700 high standard housing units in Medan for various government agencies. This institutional housing was 20 percent of the permanent housing stock. Since initiation of the national low cost housing program in 1977, the BTN has changed the scope of its projects and has financed an additional 478 units, all of which are occupied by government or military employees. It currently has approved and allocated funds for an additional 932 units of its ongoing program of 1,410 units involving a projected expenditure of 2.5 billion rupiahs.

Standards for the various projects vary, but under its current low cost housing program, plot sizes have generally been about 300 square metres, while house types have ranged from 40 to 90 square metres. Costs for BTN housing during 1979 have ranged from 2.4 to 4.8 million rupiahs. However, recognizing high construction and land costs, BTN has lowered its standards and is now encouraging developers to reduce plot sizes to 200 square metres. The major components of these costs are land, 14 percent; building, 65 percent; BTN administrative charges, 1 percent; interest during construction, 15 percent*, and land registration

* Based on 70 percent financing at 1.75 percent per month over a 12 month construction period.

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charges 5 percent. Details of BTN's current low cost housing program are presented in Table 4.12

BTN does not provide housing finance to individual homeowners. In order to qualify for a loan, a minimum of five borrowers from the same employer must form a group and agree to be located within a project having a minimum of 50 units. The maximum qualifying individual income must be Rp 200,000, while the minimum government or main income source must be Rp 40,000. However, in addition to a minimum individual income of Rp 40,000, a qualifying household must also have a minimum gross income of Rp 70,000. BTN will allow a borrower to spend up to 33 percent of gross household income for monthly loan repayments.

Once a group of five borrowers is formed, they must approach a developer who already is constructing an approved BTN project or has land and can meet other BTN project requirements. When BTN approval is obtained, the developer is issued a committment letter which can be used to obtain financing for up to 70 percent of the project excluding land costs. However, the BTN approval process is complicated and ultimately involves getting either permits or approvals from a minimum of 11 other government agencies. Furthermore, neither project approval nor approval for individual housing loans can be made in Medan. All project and loan approvals are made in Jakarta.

The Bank Tabungan Negara is currently lending to prospective homeowners at nine percent over 15 years. Its policy is to provide up to 95 percent financing of all housing costs including land, infrastructure and registration costs for units costing less than Rp 2.5 million and 90 percent financing of more costly units. However, recent construction cost increases, forced BTN to reduce financing to between 75 and 90 percent of total project costs. The remainder of these costs must be negotiated between the buyers and the developers.

Since BTN does not provide finance for the land costs which developers incur, it has little control over those costs. While it does attempt to maintain a ceiling on land costs, developers can make large profits in land transactions. Ultimately, since BTN, and for that matter, other government banks are restricted from financing land purchases under current banking regulations, the costs of housing developments are increased through this lack of control over land costs and through higher interest rates which developers must pay for private financing of land transactions. Finally, the lack of control over land costs restricts the access which lower income groups have to the housing market.

There are no direct capital subsidies in BTN projects as all costs are passed on to the buyers. However, as the primary source of BTN financing is loans from the Bank of Indonesia at concessionary terms, there is an implicit interest rate subsidy of 31 percent in total costs. This subsidy is due to the difference between the current deposit rates and BTN's 9 percent lending rate. A much greater subsidy would result if BTN were financing its programs from savings deposits and loans from other banks.

TABLE 4.12

BANK TABUNGAN NEGARA'S MEDAN HOUSING PROGRAM, 1977-1980

(1) Developer Number	(2) Expiration Date of Commitment Letter [a]	(3) Targeted Number of Units in Project	(4) Amount Allocated for Project (Rp Million)	(5) Number of Units Completed	(6) Total Expenditure on Project to Date (Rp Million)	(7) Average Amount of BTN Financing Per Unit [b] (6)% (5) = (7) (Rp'000)	(8) Total Unit Costs for Different House Types (Rp'000)[c]	(9) Average Plot Size (sq m)	(10) Average Building Size (sq m)	(11) Average Land Costs (Rp/sq m)	(12) Average Unit Building Costs Minus Bank Administrative Costs (Rp/sq m)	(13) BTN Housing Loans as a Proportion of Total Unit Costs
1. a.	31 Oct 77	60	123	57	115.1	2,019	NA	NA	NA	NA	NA	-
b.	31 Aug 79	78	182.5	76	164	2,158)	a. 3,370	300	70	2,147	38,186	85%
c.	31 Oct 79	74	155	71	165.1	2,325)	b. 2,919	300	60	1,933	38,500	84%
d.	31 Dec 79	298	768.1	128	310.6	2,427)						
2. a.	31 May 77	75	102.6	69	94.4	1,368	a. 2,074	200	40	NA	NA	81%
b.	1 Dec 79	265	649.4	77	100.1	1,300	b. 2,325	200	46	NA	NA	83%
							c. 3,035	300	56	NA	NA	79%
							d. 3,224	300	63	NA	NA	84%
							e. 3,443	300	72	3,480	37,500	82%
3. a.	31 Dec 79	85	227.8	-	-	(2,680)	-	-		-	-	-
4. a.	31 Dec 79	130	372.8	-	-	(2,868)	a. 3,254	392	70	NA	NA	89%
							b. 2,980	392	64.5	NA	NA	89%
5. a.	31 May 79	55	149.9	-	-	(2,725)	a. 3,698	400	62.5	1,748	47,484	75%
							b. 2,858	400	55	1,731	38,846	87%
6. a.	31 Dec 79	80	272	30	102	3,400	3,822	300	70	NA	NA	89%
7. a.	31 Mar 80	160	537	-	-	(3,357)	a. 3,283	200	70	2,100	46,428	89%
							b. 4,215	200	90	2,100	46,666	88%
							c. 3,040	200	45	NA	NA	88%
							d. 3,266	200	50	2,100	45,000	88%
							e. 4,189	200	60	2,100	45,833	89%
							f. 4,339	200	70	NA	NA	88%
8. a.	NA	50	NA	50	NA	-	a. 3,408	660	77.25	Land Owned by Project Owner	43,663	89% (House only)
							b. 3,124	660	68.9		49,869	89%
							c. 2,550	660	57.3		44,013	89%
Total		1,410	3,540.1	558	1,051.3							

a. Commitment letters are issued for a period of six months and can be extended for an additional period of six months.
b. The averages in parentheses are the average value of the units for which funds have been allocated but for which not actual expenditures have been made.
c. Actual cost of units to buyers.

4.4.6 Perumnas Sites and Services and Low Cost Housing Projects

Perumnas began developing housing projects in Medan in 1976 with its Medan I Helvetia housing project of 4,658 units. In 1978, it started its second project, Medan II targeted for 7,581 units. Since commencing operations in Medan, Perumnas has constructed 4,620 units in Medan I and 2,620 units in Medan II. Of these, a total of 3,317 (46 percent) units have been allocated and are currently occupied. Thus about 41 percent of its existing program is not yet completed. Perumnas is now in the early stages of developing an estimated 8,400 more units targeted for Medan III which will be constructed in the early 1980's.

Perumnas housing standards tend to be much lower than the standards of other existing public and private projects since it is providing housing for lower income groups. As a result, plot sizes range from 60 square metres to 200 square metres, while housing units have built areas ranging from 12 to 70 square metres. However, the bulk of Perumnas housing has been built on 90 square metre plots. Total unit costs range from Rp.338,000 for the 60 square metre plots to Rp.3,033,000 for the 200 square metre plots on the Medan I site*. Perumnas, recognizing the high costs of building construction, has attempted to reduce costs through less stringent standards and through experimentation with alternative, lower cost building materials. As a result, it has encouraged the establishment of building materials industries in Medan. Due to its efforts, Perumnas has made significant strides in reducing the unit costs of its Medan II site through reduction in standards.

All of the Medan I site was allocated to civil servants and the military, as are the completed units on the Medan II site. However, Perumnas is investigating the possibility of selling a portion of the Medan II site to private workers. The Medan Perumnas housing projects are serving income groups ranging from Rp.30,000 to 200,000 per month.

Purchasers of the Medan I site, and possibly the Medan II site (although policy is not established) are being allowed to rent their units for the first two years**. After that period, the occupants will be given the option to buy the units. Annual rents are roughly four to five percent of total costs. Since none of the units have been occupied more than two years, repayment terms have not been established. However, they are likely to be similar to BTN terms of 9 percent over 15 years with a downpayment of five to 10 percent since BTN will probably be approached to handle the loan repayments.

Perumnas contractors, once contracts have been awarded, can get short term construction financing of 60 to 80 percent of the project costs at annual interest rates of 21 percent. As a result, the major cost components of Perumnas projects are land, 8 percent; buildings, 66 percent; infrastructure, 12 percent; interest during construction,

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* 1978 costs.

** Perumnas' current policy is to allow households to rent for two years in lieu of paying downpayments.

TABLE 4.13

PERUMNAS SITES AND SERVICES LOW COST HOUSING PROGRAM MEDAN

Unit Type	Plot Size (sq m)	Unit Size (sq m)	Targeted Number of Units	Number Completed	Estimated Cost Rp	Cost to Purchaser Rp[b]	Subsidy percent[c]
Medan I Helvetia Site							
D25	90	20	898	898	661,636	600,386	37%
D36	120	36	2,094	2,038	1,236,490	1,160,041	35%
D45	160	45	1,404	1,404	1,390,382	1,290,297	36%
M70[a]	200	70	262	262	3,033,159	2,912,403	33%
Subtotal			4,658	4,602			
Medan II Site							
Phase I							
D12[b]	60	12	181	-	338,000	288,000	41%
D 9[b]	90	9	148	-	336,000	269,000	44%
D21[b]	90	21	1,996	940	488,000	422,000	40%
D24[b]	90	24	550	550	622,000	555,000	38%
D33[b]	90	33	1,350	1,130	794,000	728,000	36%
Subtotal			4,225	2,620			
Phase II			3,356	-			
TOTAL MEDAN I & II SITE			12,239	7,222			

a. Costs have been estimated by MUDS

b. Estimated unit costs minus land costs, however actual policy of unit sales have not been finalized for Medan II.

c. The subsidy is due to a capital cost subsidy of land and an estimated interest rate subsidy due to the difference between Perumnas terms of 9 percent per annum on deposit rates of 12 percent per annum.

Source: Perumnas and MUDS analysis

11 percent and Perumnas administrative costs, 2 percent*. Due to contractual agreements with PAM Tirtanadi and PLN, Perumnas project buyers are not required to pay connection costs. Thus, as with BTN financed housing projects, construction finance at an effective rate of more than 21 percent per year becomes a major contributor toward project costs. Lower alternative contract financing could have a significant impact in reducing costs.

Total subsidies of Perumnas projects due to land and interest rate subsidies can be high. These subsidies range between 33 to 40 percent of total costs**. These subsidies negate the effects of reducing standards and using alternative building materials since the income levels of the project buyers are high enough to afford amortization of total project costs.

4.5 CONSTRUCTION IN MEDAN

4.5.1 Composition of Construction

The Walikota of the Kotamadya had prequalified 160 contractors for municipal construction projects in Medan as of June 1979. These contractors ranged from small firms having capital resources of less than Rp.10 million to three large companies having resources greater than Rp.1,000 million. However, the bulk (59 percent) of them were fairly small having resources less than Rp.75 million (see Table 4.14). Due to the uncertain nature of employment in construction firms, the Walikota does not keep records of actual number of workers per firm. However, interviews with contractors indicate that firm sizes range from 20 workers to over 500 workers. Many of the firms in the latter category are actually branch offices of Jakarta firms.

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* Based on estimates of Perumnas costs. Interest is assumed to be at 1.75 percent per month over 12 months and is calculated on 70 percent of building costs since Perumnas acquires land directly from owners.

** In other cities where BTN has ultimately financed Perumnas housing, these subsidies are much higher. BTN receives interest free funds from the Bank of Indonesia for three projects which it on lends at five percent to Perumnas program beneficiary households. Thus the total implicit capital and interest rate subsidy is in the order of 74 percent of total project costs.

TABLE 4.14

CONTRACTORS REGISTERED WITH THE WALIKOTA

Capital Resources	Number	Percent
Less than Rp.10 million	21	13 %
Rp. 10 - 25 million	36	23 %
Rp. 26 - 50 million	37	23 %
Rp. 51 - 75 million	21	13 %
Rp. 75 - 100 million	9	6 %
Rp.101 - 500 million	23	14 %
Rp.500 -1000 million	4	2 %
Greater than Rp.1000 million	3	2 %
No response	6	4 %
Total	160	100 %

SOURCE: Walikota Kotamadya Medan.

4.5.2 Construction Projects

An indication of construction project value and construction cost components is given in Table 4.15. Labor contributes a fairly small component of total construction costs (13 percent) due to the low wages paid and the availability of unskilled labor as well as the labor intensive nature of construction in Medan. However, direct expenditures contributing to overhead costs tend to be a significant portion of costs (28 percent). These high overhead costs are probably due to the difficulty which contractors have in getting successive contracts in Medan due to the low volume of construction projects in Medan. Item 11, other Unspecified Costs, which is nine percent of total construction value, is a large component of total costs, and when combined with profits (Item 13) results in 17 percent of total construction value*. These unspecified costs are probably due to the myriad of registration requirements which contractors must comply with in order to qualify for government projects as well as other costs incurred during tendering, and losses sustained due to price increases during project implementation which cannot be passed on to owners due to fixed escalation clauses in contracts.

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* It should be noted that most construction contracts itemize contractor profits at 15 to 20 percent of total costs, not 8 percent as shown in the Table.

Although the actual number of construction projects performed in the city are not recorded, various indicators show that the volume has not been great. Since 1976, building permits have only averaged about 496 permits per year*. While permits do not indicate the total number of projects, since owners of small construction projects do not attempt to get permits, they do indicate the volume of larger scale projects. Information from banks granting contractor financing indicate that while the annual number of loans has been increasing, the total number of loans is still quite small. The largest of the five government commercial banks granting contractor loans has only increased the number of loans it has granted since 1976 by 24 loans, while the average value of the loans granted has only increased about 13 percent per year**. Finally since the start of government low cost housing projects in 1977 executed by Perumnas and the Bank Tabungan Negara, only about 18 contracts involving about 10 contractors have been awarded.

TABLE 4.15

CONSTRUCTION VALUE AND COST COMPONENTS, 1977

Item	Medan Value (Rp. millions)	Percentage
Subcontracts		
1. Supply of Labor	183.6	
2. Supply of Labor & Raw Materials	50.9	
3. Raw Materials Used	9,822.0	
4. Wages	2,286.7	
Costs of Whole Construction		
5. Raw Materials	9,822.0	57.1
6. Subcontracts	234.5	1.4
7. Wages of Field Labor	2,286.7	13.3
8. Other Direct Expenditures (overhead)	4,855.0	28.2
9. Total Construction Costs	17,198.2	100.0
Total Construction Value		
10. Total Construction Costs (10.)	17,198.2	83.4
11. Other Unspecified Costs	1,844.7	8.9
12. Project Value (11. + 12.)	19,042.9	92.3
13. Revenues (Profits)	1,590.3	7.7
14. Total	20,633.2	100.0

SOURCE: MUDS Analysis.

* City Building Department.
** Unpublished Commercial Bank Statistic.

4.5.3 Construction Cost Increases

Between the November 15, 1978 devaluation and September 1979, there have been large increases in both building materials and construction costs. Cement has increased 76 percent, while the unit costs of reinforced concrete has increased 34 percent. Unskilled and skilled labor wages have increased 60 and 50 percent respectively*. With the exception of the steel reinforcement in reinforced concrete, all of these costs are local in nature and therefore increases have not been due to increased costs of imports due to the devaluation. As a result of the large labor and building material increases, contractors now estimate that the unit costs of low income housing such as those being built by Perumnas, have increased as much as 76 percent since November 15.

4.5.4 Construction as a Component of Medan's Economy

The construction sector's contribution to Medan's economy has been unspectacular. It provides only about 5 percent of Medan's employment and only 4.8 percent of Regional Gross Domestic Product. Within the Medan Region (Region A - WPU-A), the generation of new housing, a primary component of construction, has accounted for only 3.4 percent of the regional growth, which is less than the sector's contribution to North Sumatra's growth, 4.3 percent (see Table 1.2). Furthermore, in spite of the large number of firms registered with the Walikota, the total volume of construction has been small due in large part to a lack of finance for new projects and the high costs of the finance. As mentioned, short-term interest for construction financing can equal up to 15 percent of total costs. Furthermore government construction contracts have traditionally taken a very conservative view towards construction cost increases during projects. While unit costs have increased 30 to 70 percent, government contracts have allowed increased of only 25 percent. The remainder of the increased must be borne by the contractor.

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* Cost information supplied by Perumnas.

SECTION 5

LAND USE AND DEVELOPMENT

5.1 THE LAND SITUATION

Urban land availability is essential for guiding planned urban development. Well located land at reasonable prices and in sufficient supply to meet the needs of a growing urban area is a prerequisite to efficient economic and social development of the city. Unfortunately, land availability is a major problem confronting all of the cities of Indonesia in their quest for planned growth. One of the primary reasons for haphazard and inefficient growth patterns is the inability of the Government to control timely access to urban land.

The primary cause of this problem is found in the present legal and administrative framework in Indonesia. Land ownership rights are complex, and as a result, multiple ownership rights can occur over the same property. Compulsory land acquisition procedures as outlined under Law Number 20/1961, are so difficult requiring either Presidential or Ministerial level approval, that they are almost never used. While draft planning legislation was proposed in 1970, which would have greatly facilitated control of an orderly urban growth, it has not yet been passed. Thus, in essence, the public sector is forced to enter the land market as any other private party.

Due to the lack of effective compulsory land acquisition procedures, Local Government must negotiate land prices with owners or rely on donations for public projects. Under the instructions issued by the Minister of Home Affairs in 1975, when a Government Department requires land, the Walikota of the Kotamadya must form a land acquisition committee composed of members from the Agraria Department, the Walikota, the IPEDA, the Ministry of Public Works, the Local Camatan's Office and the Kepala of the Kampung where the project is located. The committee, however, has only advisory status. It can only recommend the results of its negotiations with the present owners to the Government Department requiring the land. If agreement cannot be reached over the amount of compensation to paid, the Governor of the province can resolve the dispute, but the process is time consuming. Furthermore, once this process has occurred, further delays due to the lack of adequate budgetary provisions often occur requiring new negotiations with the owner due to the time elapsed.

In practice, due to the high costs of well located land and the lack of municipal budgetary provisions for land acquisition, the Camatans are relied upon to find property owners who will donate property for public

projects. This process often results in inadequate provision of land for public projects. For example, under the Repelita III INPRES Program, an estimated 140 S.D. Schools will be constructed. However, no money has as yet been budgeted for land acquisition. Investment in development and improvement of road networks has suffered for similar reasons. Faced with the difficulty in acquiring suitable land, the Kotamadya Department of Public Works has mainly confined its road construction activities to the rights of way of existing roads. Table 5.1 shows the value and amount of land acquired by the Kotamadya over the past five years. Although the exact amounts of land acquired are not available, the Kotamadya has been acquiring less than five hectares per year. Furthermore, less than five percent of its combined municipal and INPRES budgets have been devoted to land acquisition. As a result, there is a tremendous backlog in municipal land requirements.

TABLE 5.1

LAND ACQUIRED BY THE KOTAMADYA FY 76/77 - FY 78/79

Year	Purpose	Area (ha)	Total Value (Rp Millions)	Average Land Value (Rp/sq m)
FY 75/76	Roads	na	19.7	
FY 76/77	Roads	na	1.8	
	Terminals	0.15	1.3	850
	Others	na	1.1	
	Bridges	na	2.9	
	Kantor Koramil	na	5.0	
	Total FY 76/77	0.15	12.1	
FY 77/78	na			
FY 78/79	Roads	na	46.0	
	Abattoir	5.0	25.0	500
	Market	0.58	35.3	6,086
	Puskesmas (Clinics)	0.15	10.0	6,700
	Camat Office	0.16	5.0	3,125
	Total FY 78/79	5.89	121.3	

Source: APBD Development Budget.

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Under the Basic Agrarian Law, the Department of Agraria is responsible for registering land holdings. Under that authority, the Kotamadya Department of Agraria has been registering about 100 land holdings per month. However, since none of the actual registering is done in the Medan office, the process takes a minimum of 55 days. Parcels of land greater than 2,000 sq m must be registered by the Ministry of Home Affairs in Jakarta, a process which can take several months. Registration itself, is not compulsory and is only required when obtaining a building permit, bank loan and other procedures involving a government agency.

Fees for registration vary according to the type of land use, the type of land rights and the size of the holding. These fees can be substantial and can act as a deterrent to low income households registering their plots. For example, in a recent BTN housing project, the registration and certificate fees for a 300 sq m plot are about Rp.175,000 while the addition of a hipotek loan agreement can add a further Rp.100,000. The two together amount to six percent of the total project costs.

Land acquisition within Medan is further complicated by restrictions on changing the use of agricultural land to urban uses. Before the land acquisition committee can act, the Governor of the province must seek approval from the Director General of Agraria of the Ministry of Home Affairs in Jakarta. This same process must also be followed by private developers prior to registration of the property. As a result, unused agricultural land can lie vacant for long periods and cause temporary land shortages which further increase speculation in existing urban land.

Another major problem in all major Indonesian cities including Medan is land speculation. Land speculation acts to the detriment of the social equity objective of the Government because it prices low income households out of the land market and limits Local Governments' abilities to supply urban services requiring land.

Government investment in infrastructure and housing is one of the major sources of land speculation. The increases in surrounding property values due to the development of housing projects such as the Perumnas Helvetia project have ranged from 200 to 400 percent over a two year period. However, more dramatic increases have occurred in areas surrounding the proposed Toll Road as land values have changed from agricultural to urban prices. Over the same period, these increases have equalled more than 1,233 percent (see Table 5.2). Such increases limit the form of development which can occur around these government projects and reduce the impact which these infrastructure projects could have had on provision of urban services to low income groups.

Local Governments do not have an adequate means of capturing a portion of these new land values created by Government's own investment. As mentioned in Section 7, IPEDA tax assessments are low and there are no tax incentives to encourage development of vacant land. Furthermore, there are no betterment taxes which would tax the increase in land values. The revenues generated could be used to provide low income groups with urban services.

TABLE 5.2

INCREASES IN LAND VALUES SURROUNDING GOVERNMENT PROJECTS

Project	Location	Land Price (Rp/sq m)	1979 Land Price (Rp/sq m)	Percent Increase 1977-79
1. Increase in Land Values Surrounding Existing Projects				
a. Perumnas Medan I	Helvetia-Sunggal	400	2,000	400
b.	Mandala-Denai	500	1,600	220
c. Medan Industrial Estate	Mabar	200	1,000	400
d.	Titi Kuning	300	1,000	233
2. Increase in Land Values Surrounding Government Projects: Proposed or under Construction				
a. Toll Road		150	2,000	1,233
b. Komples Kodam	Cinta Damai-Sunggal	250	2,500	900
c. Yayasan Kadan (Sumut)	Sunggal	400	3,000	650
d. Yayasan Karyawan Kehutanan	Tanjung Sari-Tuntungan	400	3,000	650
e. Yayasan Kanker Mama	Tanjung Mulia-Deli	400	2,000	400
f. Perumnas II	Mandala Denai	500	1,600	220

Source: Recent land sales conducted by Medan real estate agents.

5.2 EXISTING LAND USE AND LAND AVAILABILITY

The results of a detailed land use survey conducted in 1976 by the Provincial Agraria Department are shown in Table 5.3. From this survey, a generalized land use map, shown in Figure 5.1, has been developed.

The Medan Municipality contains 26,510 hectares of which 16,350 or 62 percent are open space in one form or another. However, much of this open space has not been developed because it is either low lying swamp, subject to regular flooding, or in productive agricultural use.

Residential areas predominate over all other uses within built up areas. These areas comprise 90 percent of the developed area. However, their use is mixed as many residential plots have small shops within their boundaries.

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TABLE 5.3

ESTIMATED LAND-USE AND POPULATION DISTRIBUTION 1976

Kecamatan	Residential Areas (ha)	Commercial Areas (ha)	Industrial Areas (ha)	Government Offices (ha)	Institutional (ha)	Open Space* (ha)	Total Areas (ha)	Total Population	Gross Residential Density (P/ha)	Gross Density (P/ha)
Johor	1,836.0	7	22.5	6.8	2.1	909.3	2,783.7	52,576	28.6	18.9
Baru	961.86	47.42	11.07	35.49	120.29	582.87	1,759.0	117,517	118.2**	66.8
Kota	858.57	100.58	8.33	6.07	26.15	39.29	1,039.0	226,838	244.5**	218.3
Denai	1,085.56	8.33	9.57	4.88	9.17	707.49	1,825.0	111,714	93.0**	61.2
Timur	1,046.37	41.87	9.98	16.39	76.87	52.52	1,244.0	177,431	163.7**	142.6
Barat	771.84	80.53	37.21	59.44	46.92	92.06	1,088.0	133,539	159*	122.7
Tuntungan	127.8	-	-	-	-	2,841.2	2,969.0	16,773	131.2	5.6
Sunggal	849.7	19.7	28.0	6.4	5.2	2,025.0	2,934.0	86,995	102.4	29.6
Belawan	112.9	19.1	75.5	2	-	558.5	768.0	58,162	515.2	75.7
Labuhan	694.3	16	50.4	5.6	-	7,235.7	8,002.0	51,346	74.0	6.4
Deli	745.5	-	35.9	-	-	1,316.7	2,098.1	46,479	62.3	22.1
T O T A L	9,090.4	340.53	288.46	143.07	286.71	16,360.63	26,509.8	1,079.370	118.7	40.7
%	34.3	1.3	1.1	0.5	1.1	61.7	100			

Source : 1. Land-Use Map 1976, Kotamadya Medan, scale 1 to 10,000, Agrarian Department North Sumatra.

2. Medan Years Book 1976, Kotamadya Medan.

* Including agricultural, vacant, cementary, park, airport and reservation areas.

** Including shop areas where the top floor (s) used for residential.

The land use pattern reflects four distinct areas:

1. Kotamadya Medan: The city centre and the primary location of commerce, banking, institutions, government offices, industry, and the highest density older kampungs plus the higher income residential areas such as Polonia. The centre has a concentric urban pattern with a road system which tends to funnel traffic into the centre. Surrounding the urban core are less dense peripheral kampungs and agricultural uses. The Kotamadya Medan comprises roughly 10,150 hectares. Land values within the Kotamadya range from Rp.50,000 per square metre in commercial zones and upper income residential areas such as Polonia to Rp.2,000 per square metre in residential zones being newly developed.

   A narrow corridor of development consisting mostly of industry and kampungs extends from the Kotamadya to the Belawan Port. Land within this narrow strip can range Rp.4,000 to 6,000 per square metre. However, a few hundred metres away from the Medan Belawan Road low laying undeveloped paddy land and swamp land is available in large tracts for under Rp.500/sq m. The port itself is a densely developed island surrounded by swamp land. Extension of the port area is difficult due to the amount of fill required.

2. The Binjei Corridor: Urban growth is already pressing out of the municipal boundaries along the road to Binjei as industry and residential kampungs are infilling along the road. Much of this development, particularly that outside the municipal boundaries, is being developed without planning controls, but nevertheless benefits from its proximity to the services and resources provided by Medan. As a result of this development, the Sunggal district of Medan is one of the most rapidly growing areas in Medan. As shown in Table 5.2, land values in this corridor growth have increased rapidly.

3. Tebing Tinggi Corridor: The Tebing Tinggi corridor is along the Trans-Sumatra Highway. Several small towns near Medan are already experiencing growth due to this corridor, and the road is prooving to be an attractive site for industry. Land values along the road itself range from Rp.1,500 to 2,500 per square metre. However, 500 to 1,000 metres away from the road there is still dormant agricultural land which is not urban priced and is available for under Rp.1,000/sq m.

4. Pancur Batu and Deli Tua: Urban development has already advanced along the roads leading to these two small centres. The two corridors are separated by the airport. Nevertheless, under current development controls, there are large land areas between the two roads south of the airport available at prices around Rp.500 to Rp.1,000 per square metre. Along the Brastagi Road towards Pancur Batu, residential and small scale industrial development has occurred. Land values range from Rp.200 to Rp.1,000 per square metre depending on the distance the site

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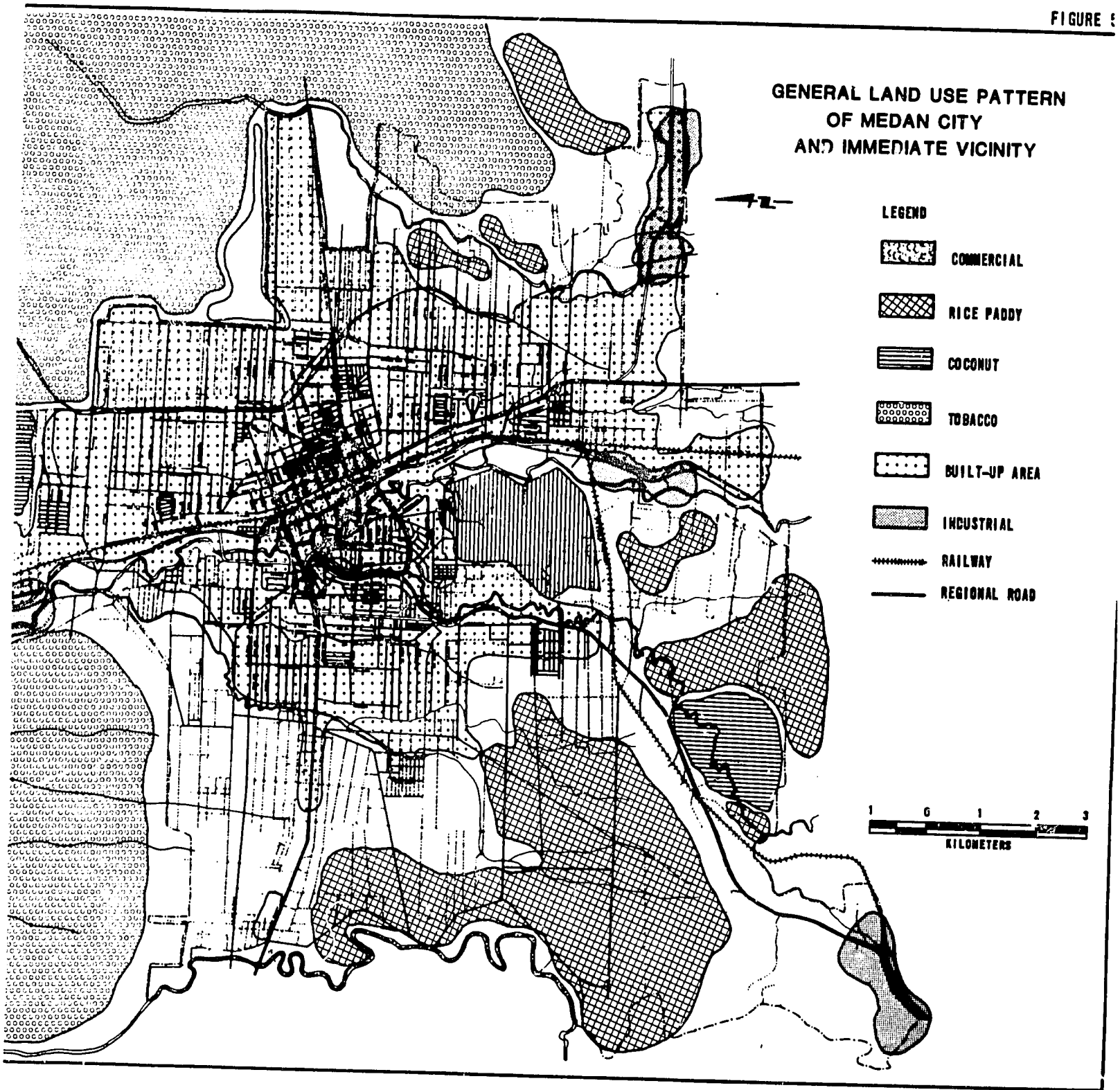
FIGURE 5



ENGINEERING-SCIENCE - SINOTECH

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lies from the main road. Land on the road, being subject to ongoing development, is already priced comparably with other recently developed areas of the city.

Overall, it can be seen that urban growth has already exceeded the municipal boundaries and has started to form strong urban corridors reaching towards surrounding small towns.

5.3 EXISTING NORMS AND STANDARDS FOR DEVELOPMENT

5.3.1 Planning Standards of the Medan Master Plan

Residential areas in Medan under the Master Plan are organized in a hexagonal planning concept whereby basic neighborhood units comprising 5,000 to 10,000 people are joined together in a building block fashion to form larger administrative areas for which urban services are provided on a progressive basis. For each Master Plan neighborhood, standards have been developed for educational, health, public or community buildings and religious facilities as well as parks, recreational and commercial areas. When combined, these Master Plan standards result in a land use requirement of 22.75 sq m/person.

5.3.2 Comparison of Existing Provisions with Master Plan Proposals

An analysis of existing land areas devoted to public facilities conducted in 1976 in six urbanized Kecamatans of Medan indicates that a total of 570 hectares had been developed for commercial, education, health, and religious facilities, while an additional 47 hectares was devoted to parks and recreational areas. Since these six Kecamatans had a total population of 795,000, they provided only 7.76 sq m/person of public facilities. When purely private uses such as commercial activities are subtracted from the 1976 provisions, only 2.5 sq m/person of public facilities remains. By way of comparison, the Master Plan standards for the same public facilities calls for a standards of 18.41 sq m/person.

If the Municipality of Medan was to supply public facilities for these six Kecamatans at Master Plan standards, an additional 1,130 hectares would be required, almost double existing provisions. At conservative estimates of land costs of Rp.1,000/sq m, a total of 23 billion rupiahs would be required to provide the additional land necessary to meet Master Plan standards. This financial requirement amounts to 532 percent of the combined 1979-80 municipal and INPRES budgets and would serve for only 70 percent of the 1979 population of Medan.

This deficit in the provision of public use facilities is due to high land costs, the lack of budgetary provisions for land acquisitions, and to complicated land acquisition procedures which make compulsory land acquisition almost impossible. As a result, current land acquisition procedures which rely on Camats to identify and procure vacant land for public projects often are unable to provide sufficient land areas for existing public projects let alone meet Master Plan standards.

5.3.3 Planning Standards of the Tata Kota

The Medan City Planning Department (Tata Kota), has established guidelines for developing residential areas which, while not having the legal status of a building code or planning act, serve to restrict the type of structure which can be built in the five zones which it establishes. These guidelines attempt to serve different income groups through providing a range of minimum plot sizes. The smallest, aimed at low income groups, is 75 sq m, while the largest is 500 sq m.

Tata Kota has also established three classifications of structures - permanent, semi-permanent and temporary, - which refer to the building materials used in construction*. The planning guidelines tend to be very restrictive concerning building classifications since semi-permanent construction is only permitted in zones having the smallest minimum plot sizes (i.e. 100 and 75 square metres). Temporary construction is excluded from all zones. As a result, 79 percent of the structures occupied by Medan households which live in semi-permanent and temporary buildings do not comply with the planning guidelines.

The primary problems which might be encountered with these planning guidelines by developers and low income homeowners are the building materials restrictions and the single storey height restriction in zones aimed at low income groups. Permanent construction of single storey housing can increase building costs by more than 90 percent over the costs of semi-permanent construction. However, wooden building materials can produce housing having a functional life of up to 50 years. Height restrictions further limit the capacity of low income households occupying small plots to improve the quality of their housing by increasing floor area.

Finally, since the planning guidelines lack legal status, Tata Kota has difficulty in enforcing them. While portions of the planning guidelines require revision, they could form the basis for the development of planning controls which could more effectively promote development in Medan in an economic and environmentally sound manner. In particular, as commercial and industrial activities intensify, adequate planning legislation for those activities which are now lacking could encourage their development while preventing environmental abuses.

5.3.4 Circulation Standards

The Medan Master Plan established a hierarchy of roads providing different road widths for different functions. These range from main roads having minimum widths of 25 m designed for high speed through traffic to 10 m wide fourth class roads aimed at local vehicular traffic within residential neighborhoods. These road standards cater primarily to vehicular traffic and do not take account of the pedestrian nature of much of Medan's population. Furthermore, these standards unnecessarily increase the total land requirements and consequently the costs of

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* Details of these standards can be found in Technical Memorandum 40: Housing and Planning Norms and Standards.

developing housing for low and middle income households. For example, if a combination of fourth class and third class roads are used to provide access to an area of 75 sq m plots, 38 percent of the housing development must be devoted to circulation. By way of comparison, Perumnas housing projects generally have circulation standards of between 15 to 18 percent of the housing development. As a result, these Master Plan circulation standards increase the land costs of low income housing by almost 40 percent.

5.3.5 Costs Implied by Planning Standards

When all of these planning standards are combined to design a housing development, they result in costs which are beyond the reach of most households in Medan and severely constrain the ability of the City Government to provide urban services to all groups within the city. As indicated in Table 5.4, the combination of these standards results in a total land requirement for Zone D 100 sq m plots of 337 sq m and a total circulation requirement of 38 percent of the development. While the Tata Kota planning guidelines call for densities within the zone of 80 units per hectare, the Master Plan standards only allow densities of 30 units per hectares.

These excessive Master Plan standards not only result in high infrastructure costs, but also are land consumptive. Furthermore, as shown in Table 5.1, the costs of providing the same 75 sq m plot with water supply, sewerage and paved roads with surface drainage are roughly Rp.750,000. when combined with current connection costs and conservative estimates of land costs, they total almost 1.5 million rupiahs, a cost affordable to less than 10 percent of Medan households.

Reduction in Master Plans standards has a significant impact on reducing those development costs. For example, when circulation standards are reduced to five metre wide roads the costs of street networks and water supply reduces 760 percent. Further reduction in those standards to standards similar to those used in Perumnas projects, (metre wide footpaths with low traffic intensity four metre wide access roads) results in total savings of Rp.665,000 in circulation and water supply costs of a 100 sq m plot*.

5.3.6 Planning Practices Used in Medan

It is important to note that the Tata Kota planning officials and others have taken a flexible approach to planning standards in developing housing estates. In recently proposed private subdivisions, open space occupies between 10 to 12 percent of the site at a standard of roughly 10 sq m/person. Circulation in these developments utilizes between 12 and 20 percent of the land area due to streets having widths as narrow as six metres. However, due to large plot sizes, densities remain low, ranging to 20 units per hectare.

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* Details of this analysis are found in Technical Memorandum No.40: Housing and Planning Norms and Standards.

Perumnas projects, which have accounted for the bulk of new housing development in Medan, have much lower standards. The total open space and community facilities land use standards are about 5.5 sq m/person. The range of plot sizes is greater than suggested by the Tata Kota standards as the Medan II site develops 60 sq m plots for low income households. Footpaths providing plot access have been used to reduce circulation requirements and thereby infrastructure costs to about Rp.98,870 for 90 sq m plots, which is a considerable reduction when compared to the Rp.750,000 needed to develop a 75 sq m plot using Master Plan standards (see Table 5.4).

TABLE 5.4

TOTAL LAND REQUIREMENTS AND INFRASTRUCTURE COSTS REQUIRED BY PLANNING STANDARDS FOR PRIVATE DEVELOPMENTS

House Type	Minimum Plot Size (m2) [a]	Minimum Frontage (m) [a]	Ratio of Length to Width	Street Width (m) [b]	Maximum Block Length (m) [c]	Percent Circulation %	Open Space & Community Facilities m2/person [d]	Total Land Requirement per Plot (m2)	Density (Units/ha)	Total Cost of infrastructure per Plot (Rp) [e]	Total Connection Costs (Rp)	Cost of Undeveloped Land (Rp/m2)	Total Cost of Land + Infrastructure (Rp)	Monthly Payment Required (9% over 15 years) (Rp)	Monthly Income Required to Afford Plot if 10% is Spent (Rp)
A	500	20	1.25	10-14	100	26.9	18	834	12	1,411,763	254,895	1,000	2,500,658	25,400	254,000
B	400	15	1.78	10-14	100	27.1	18	700	14	1,171,637	249,895	1,000	2,121,532	21,500	215,000
C	200	12	1.39	10-14	100	32.9	18	461	22	930,732	237,385	1,000	1,689,117	17,100	171,000
D	100	8	1,56	10-14	100	37.7	18	337	30	849,694	273,385	1,000	1,460,079	14,800	148,000
E	75	6	2.08	10-14	100	37.7	18	297	34	748,444	237,385	1,000	1,282,829	13,000	130,000

a Planning guidelines from City Planning Department, Medan.
b Medan Master Plan road standards consisting of third and fourth class roads.
c Soeffat Standards.
d Total requirements for open space, recreation, schools and health facilities required by Medan Master Plan standards for a community of 60,000 or more.
e Water supplies, sewers, paved roads, and lined drains.

SECTION 6

TRANSPORTATION

6.1 ROAD NETWORK

Medan is a centre of transportation in North Sumatra due to its seaport, airport and land transportation facilities which serve the province. In the metropolitan region, Medan is surrounded by subcentres such as Belawan, Hamparan Perak, Binjei, Sunggal, Pancur Batu, Deli Tua, Tanjung Morawa, Lubuk Pakam, Batang Kuis and Percut. Transportation corridors have been developing naturally to connect these urban subcentres to Medan metropolitan area. Therefore, the present road system of Medan shows a distinctly centripetal pattern. On this main skeleton, created by roads leading from the centre, the principal roads within the main built-up area of the city form a rectangular grid pattern.

Generally the road network and the bridges existing in Medan Municipality area were constructed before World War II, and are not adequate to meet the growing traffic demands. There is not a distinct hierarchy of roads with different functions such as arterial roads, secondary roads and access roads established in the network. Because Medan is a focus of the regional road system, many of the existing roads serve multiple functions as arterials for through traffic, collectors/distributors for intra-urban traffic, and as access roads. Many of the main roads are cut directly by the secondary and tertiary roads so that there are many intersections within short distances. The combination of these conditions along with restricted road widths, roadside activities, increasing use of motor vehicles and insufficient parking areas precludes smooth traffic flow on the main roads.

The total road area, excluding the northern extension of Belawan, occupies about 250 hectares of land which is equivalent to 1.4% of the total city area. The growth rate of all types of vehicles has been extremely high in recent years (see Table 6.1) and shows no signs of diminishing. Clearly, the existing road network with a few main roads in Medan is not sufficient to serve either the current or the future needs of the city and its surrounding area.

TABLE 6.1

ESTIMATED AMOUNT OF VEHICLES IN MEDAN CITY

Year	Passenger Car		Truck		Bus		Motor Cycle	
	No.	Growth Rate	No.	Growth Rate	No.	Growth Rate	No.	Growth Rate
1974	9,126		4,970		1,442		38,581	
		5.5%		5.6%		7.4%		16.4%
1975	9,630		5,246		1,549		44,891	
		0.1%		4.7%		9.4%		14.2%
1976	9,642		5,492		1,695		51,248	
		12.6%		21.2%		13.5%		16.3%
1977	10,857		6,657		1,923		59,582	
		13.9%		18.7%		9.1%		14.4%
1978	12,370		7,900		2,098		68,175	
Ave. Growth Rate		7.9%		12.3%		9.8%		15.3%

Traffic movement in Medan at the present time can be grouped into three main patterns. These are:

1. Traffic patterns which result from the activities of Medan city itself, which is the most dominant pattern.

2. Traffic patterns which result from the mutual communication between Medan city and its hinterland. This movement is mainly economic in nature and utilizes both road and rail networks.

3. Traffic patterns which pass through Medan city. In this pattern, Medan is neither the origin nor the destination of the traffic. It is also the least frequent.

These three traffic movements operate together in areas around the city due to the lack of peripheral highways and the mixed pattern of land use. A traffic survey of the city carried out in 1978 indicated that the "gateway" roads from Belawan, Binjei and Tanjung Morawa are already overloaded and traffic jams frequently take place.

6.2 PUBLIC TRANSPORTATION

6.2.1 Buses

The city buses presently operate 11 routes as indicated in Figure 6.1. The actual situation of city bus transportation is shown in Table 6.2. Nine companies with a total of 349 buses serve an estimated 142,300 persons per day.

Thus far the city bus system does not play an important role in public transport in Medan. The operating routes are restricted to a few main roads, and all lines depart from the Central Market area in the central business district.

Kotamadya Medan has another three bus terminals for provincial bus lines. The first one is located on Jalan Singamangaraja, near the stadium, for routes to the south. The second one is located on Jalan Subroto, at Jalan Wahid Hasyim, for the Binjei direction. The last one, located on Jalan Yos Sudarso, near Jalan Glugur is for buses to Belawan. Passengers from other cities stop at terminals and change to other modes to reach the downtown area or to reach another terminal for their continuing journey beyond Medan.

TABLE 6.2

ACTUAL SITUATION OF CITY BUS TRANSPORTATION IN MEDAN, 1979

Name of Company	Total Number	Capacity Person/ Bus	Unit Cost Rp. x 10^6	Operation Cost	Maintenance Cost	Hours of Service	Route No. Serving	Frequency Round trip/ Day/Bus	Number of Passengers Carried/day	Fares Rp./ Person	Number of Employee	Driver Salary Rp.	Assistant Salary Rp.	Fee Collect System
1. P. T. PELITA ANGKUTAN	35	40	9-10	Rp.20,000/ day/bus	Rp.10,000/ mon./bus	05.00-21.00	No. 6 (20 buses)	8	12,800	25-100	50	± 72,000	± 39,000	Cash Collection
2. C. V. SETIA	28	45	9.5-11	Rp.6,000/ day/bus	Rp.25,000/ mon./bus	05.30 22.00	No. 6 (20 buses)	8	10,250	20-100	50	72,000 108,000	54,000-81,000	Cash Collection
3. C. V. BUDI	28	45	9.5-11	Rp.6,000/ day/bus	Rp.25,000/ mon./bus	05.30-22.00	No. 6 (20 buses)	8	10,250	20-100	50	72,000 108,000	54,000-81,000	Cash Collection
4. P. N. DAMRI	30 40 5	53 60 28	11 18 8	35%	35%	05.00-22.00	No. 1 (10 buses) No. 4 (21 buses) No. 6 (31 buses)	10 8 10	7,100 11,400 21,500	30/10 km	390 driver 120, collector 150 mechanician 30	40,000		Ticket System
5. KOBUN	33	25	6.8	Rp.7,500/ day/bus	Rp.15,000/ mon./bus	05.30-19.00		12 12	5,500 9,600	30	80	10% of income	8% of income	Cash Collection
6. MEDAN BUS	12	31 24	3 (second hand)	Rp.4,000/ day/bus	Rp.60,000/ mon./bus	06.00-18.00	No. 3 (5 buses)	8	2,000	30	10	45,000	24,000	Cash Collection
7. P. T. NATIONAL	20	40	4 (second hand)	Rp.10,000/ day/bus	Rp.40,000/ mon./bus	05.00-19.00	No. 4 (15 buses)	7	6,500	30	70	20% of income		Cash Collection
8. C. V. DESA MAJU	74	30	6.8 9	Rp.4,000/ day/bus	Rp.100,000/ mon./bus	05.00-22.00	No. 7 (19 buses) No. 8 (20 buses) No. 9 (9 buses) No.10 (13 buses) No.11 (13 buses)	10 11 15 15 15	7,600 8,800 5,400 7,800 7,800	30	160	± 50,000	± 30,000	Cash Collection
9. POVRI	24	33 26	9	Rp.8,000/ day/bus	Rp.100,000/ mon./bus	05.30-19.00	No. 5 (20 buses)	8	8,000	50	88	75,000	45,000	Cash Collection
TOTAL	349							TOTAL	142,300					

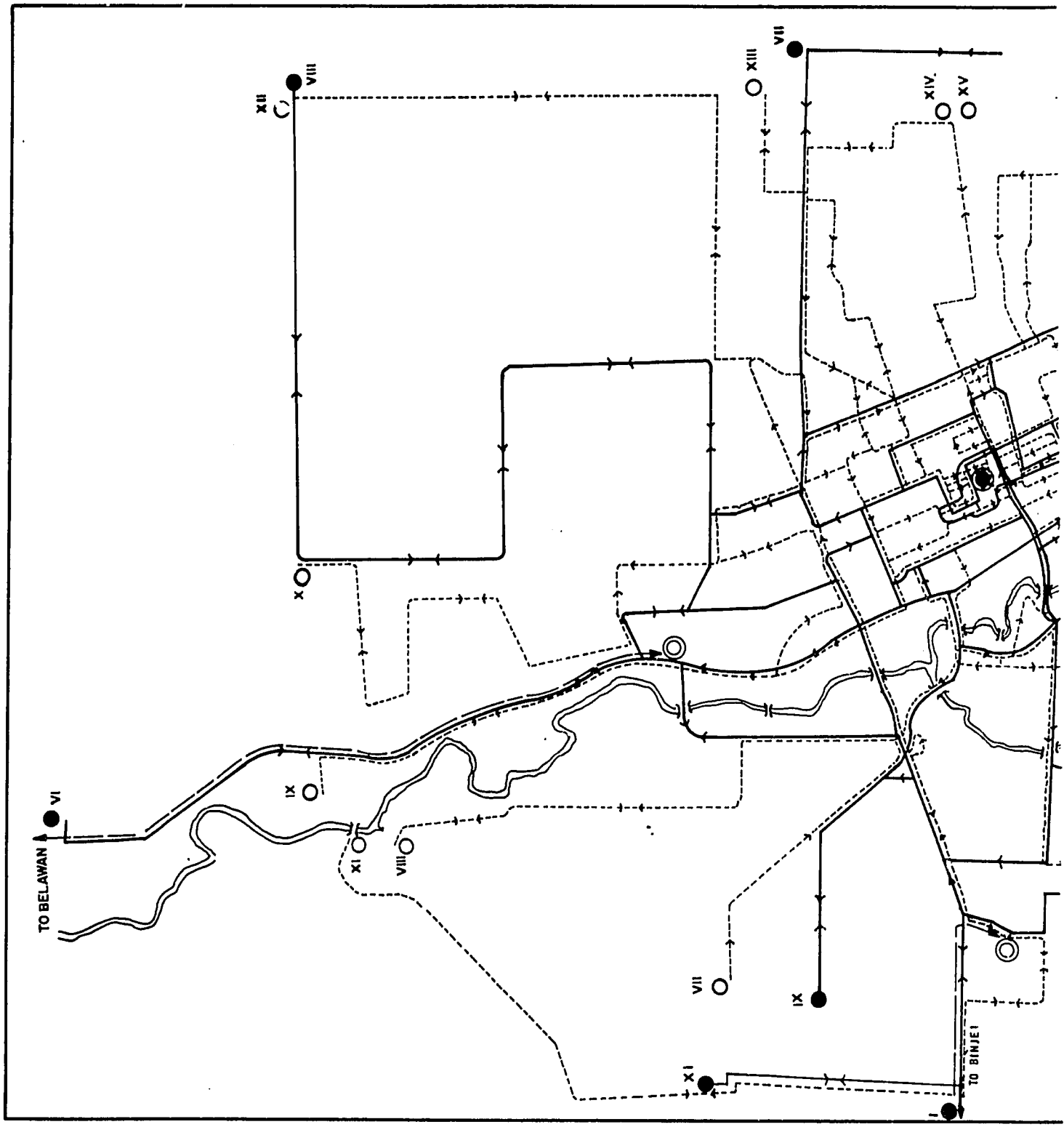

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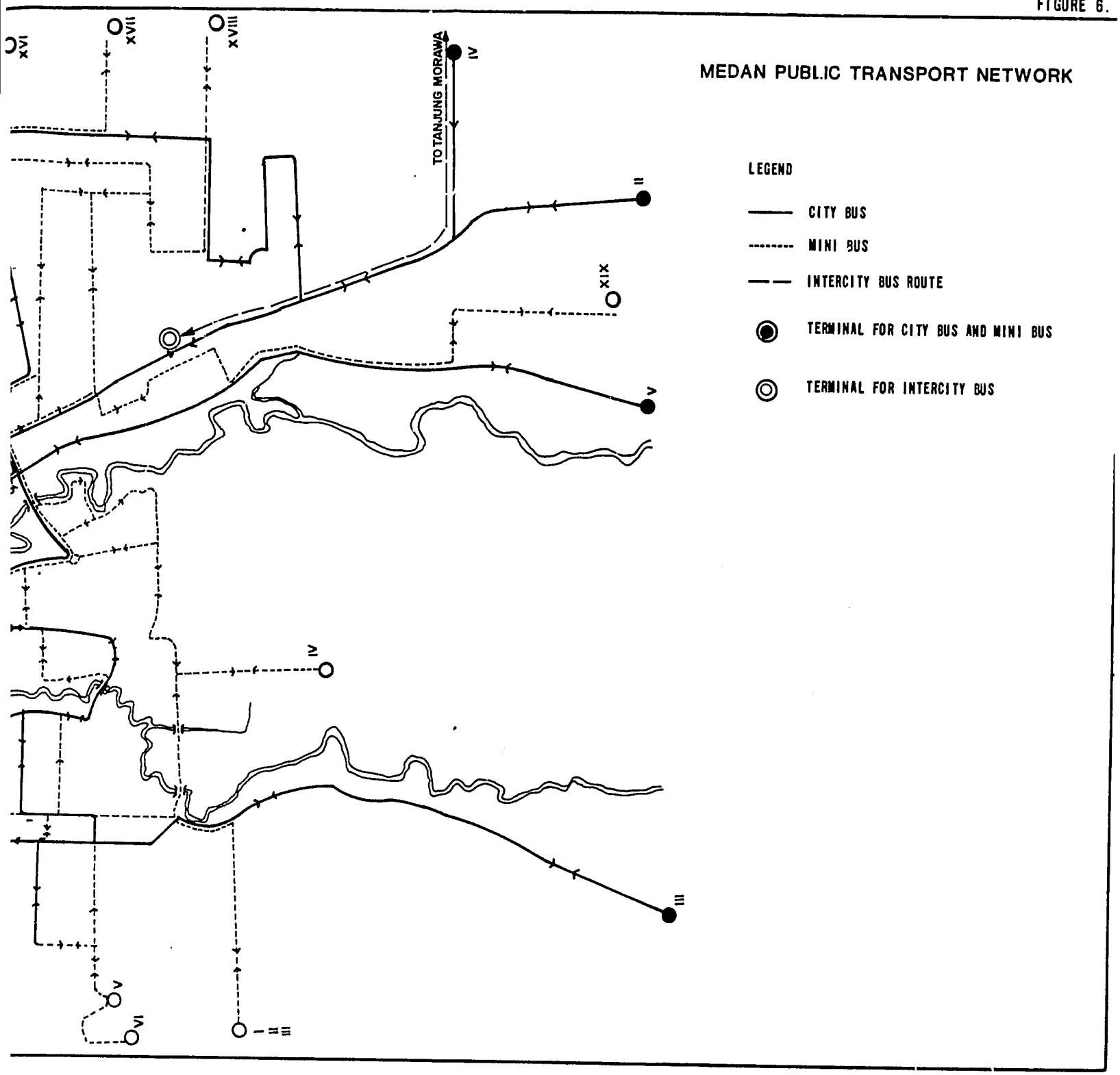
FIGURE 6.



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6.2.2 Bemos and Mini Light Trucks

Bemos are generally three or four-wheeled minibuses with capacity of 7 to 10 passengers. At present, there are probably 2,300 bemos operating on 19 routes. The central terminal is located at Jalan Sambu near the Central Market. They are operated by a large number of private enterprises or small cooperatives and restricted to fixed operating routes and fares. Their network is highly ramified and well-integrated with the city bus system. They pick up and drop off passengers anywhere upon request. Bemos and other public transport modes are shown in Table 6.3.

6.2.3 Becak

Becaks are the most popular form of public transport for short trips within the city. There were 10,000 becaks licensed for public service in 1973. It is estimated that more than 15,000 becaks, licensed and unlicensed, are operating in the city. Only 2,500 becaks are motorized with small two-stroke engines. In addition to passenger becaks, there are also about 3,800 becaks used for goods transport. The becaks drivers hire their vehicles from the license-holders on a daily basis. Daily rentals range between Rp.750 to Rp.1,000. In general, the average earnings for a becak driver are about Rp.1,500/day. The normal capacity of a becak is one or two people. Fares, routes and loading are decided by roadside negotiation.

6.2.4 Taxi

Taxi services are almost negligible for public transport in Medan, and despite an incipient demand, no metered taxis exist. Licensed taxis have maintained an approximate number of 300 since 1973. They can only be hired by the hour by telephoning the depot and do not cruise the street for customers. Some of them operate on regular routes to Binjei, Belawan, Batang Kuis and further afield to Pangkalan Brandan and Siantar.

TABLE 6.3

ESTIMATED AMOUNT OF CITY TRANSPORTATION IN MEDAN CITY

Year	City Bus		Bemo		Motorized Beca		Pedal Beca for Passenger		Pedal Beca for Goods	
	No.	Growth Rate	No.	Growth Rate	No.	Growth Rate	No.	Growth Rate	No.	Growth Rate
1974	285		602		1,935		12,000		3,840	
		0%		-14.2%		0.3%		25.0%		0%
1975	285		517		1,940*		15,000		3,840	
		1.8%		35.0%		1.8%		0%		0%
1976	290		698		1,975*		15,000		3,840	
		3.4%		- 2.3%		1.3%		- 6.7%		0.3%
1977	300		682		2,000*		14,000		3,850	
		13.3%		0%		25.0%		- 7.1%		1.0%
1978	340		682		2,500*		13,000		3,887	
Ave. Growth Rate		4.5%		3.2%		6.6%		2.0%		0.3%

SOURCE: Sub Dit Ketertiban Umum Kodya Medan, Seklantas Komdak II Medan
Kantor Statistik Kodya Medan

* Temporary

6.3 KEY PROBLEMS

The key problems of transportation in Medan can be described in terms of: land use, road network, traffic control system, mixed traffic constituents, goods movement, and the railway.

6.3.1 Land Use

The locating of land uses at present time has not yet been orderly and effective zoning controls have not yet been developed. The distribution of land use, such as light industrial areas, central business and administrative areas, and residential areas, are scattered all over the city. Many conflicting land uses such as warehousing and industry are still found in the downtown area. Thus it attracts almost all types of traffic and lacks an orderly pattern of traffic movement. Furthermore, the increasing land values within business and administrative centres causes difficulty in providing sufficient parking areas. Consequently, the vehicles use the roadside for curb parking and further impede the traffic flow.

6.3.2 Road Network

The total area of the existing roads is only about 1.4 percent of the developed urban area, while the overall vehicle growth rate (averaging 8.5% per year) is increasing much faster than that of road space. Consequently, the present traffic flow is far beyond the capacity of the existing road network.

The road pattern in the city centre was developed during colonial periods with small blocks and has too many intersections where conflicts occur. Some roads having broad rights of way are only partially paved with asphalt surfaces which decreases their effective width as well as their capacity. Frequently sidewalks, even when paved, are occupied by obstructions, garbage and parked vehicles causing pedestrians to walk along the roadways, thus increasing the friction of traffic flow. Generally, all roads in the downtown area are flanked by buildings abutting on streets without set-backs from the building lines, which will make widening both difficult and costly. Almost all the canals and ditches along roadsides are clogged by garbage due to lack of maintenance of the existing drainage system. This often causes flooding and consequently inflicts damage to the road structures.

6.3.3 Traffic Control System

In Medan city, one-way systems are being implemented to overcome road width restrictions. However, they have not been very effective over the existing short lengths of road because of the increased turning movements due to the large number of intersections. Many cause long detours or cause unnecessary traffic and need to be redesigned. Traffic signal control systems are only provided at important intersections in Medan. Most do not operate well and confuse the traffic flow at these busy intersections. Standardized traffic signals are not installed, making them difficult to maintain because of difficulties in obtaining adequate supplies of spare parts.

Traffic signs are poorly provided at the intersections of main roads and very few traffic markings are provided. Therefore, they cannot effectively direct and control the traffic movements, and consequently accidents occur.

Channelization of traffic flow at intersections is also applied in Medan. Some of them are operating well, while others do not meet the actual needs of traffic movements. Proper channelization integrated with traffic signals, signs and markings is urgently needed to meet the fast growing of traffic in the city.

Lack of law abiding road users and pitiful lack of discipline in the mental attitudes of many drivers are also factors causing chaotic traffic flow and endangering pedestrians. Traffic education needs to be considers as an integral part of the long term strategy for transportation development.

6.3.4 Mixed Traffic Components

Mixed traffic components such as cars, buses, trucks, minibuses, motor becaks, pedal becaks, motorcycles and bicycles with different speeds and capacities cause congestion and stagnation of traffic movements. Separation of slow moving vehicles such as becaks into special traffic lanes would tend to smooth traffic flows.

6.3.5 Goods Movements

Due to lack of a by-pass, the transportation of goods between the region and Belawan passes through the city centre increasing the pressure of traffic on downtown area streets. The warehouses located around the railway station generate a large amount of truck traffic. Stopping, loading and unloading cargo or parking along roads further decreases road capacities in the city centre.

6.3.6 Railway

The railway bisects the city at its centre and impedes free circulation. Railroad crossings at grade cause delays in motor traffic movement, while the freight terminal and warehousing occupy a substantial amount of valuable urban land.

6.3.7 Public Transport

The popularity of small vehicles - minibus and becaks as public transport modes in the city provides a much needed service in Medan. However, their small capacities with different speeds and unrestricted traffic movements have also impeded the development of an orderly traffic system. The present bus routes do not as yet effectively serve the demands of the city for public transportation. The lack of an integrated transportation plan and the absence of effective regulation of both public and private enterprises continues to diminish the services which could be provided by these modes. Furthermore, the present terminal locations present problems. The terminals for intercity buses were located prior to expansion of the city and are no longer suitable, while the city bus terminal located near the Central Market disturbs the flow of the traffic around the area.

SECTION 7

PLANNING, PROGRAMMING AND FINANCING DEVELOPMENT

7.1 NATIONAL, PROVINCIAL AND KOTAMADYA PLANNING STRUCTURES

Metropolitan Medan's planning, implementation and financing of development should be viewed within the context of its relations with the Government of Indonesia and the Province of North Sumatra which guide and approve its programs, plan and operate directly large economic and social projects and programs, and finance significant proportions of Medan's routine and development expenditures.

The Department of Home Affairs (Dalam Negeri) is the main central government agency concerned with regional governments. The Ministry of Finance (Keuangan) and the National Planning Agency (BAPPENAS) also have purview over regional finance and development. Numerous Central Government departments plan, operate and finance large central and regional projects in agriculture, irrigation, transportation, communications, power, water, mining, industry, trade, education, health, and other sectors in the regions with the collaboration of regional lower-level governments.

Such collaboration has improved markedly in the past five years. However, there is still considerable room for further improvement, especially in the areas of overall physical and financial planning and operations in regional governments, while further building regional autonomy. The Department of Public Works which operates many projects in the regions has a special planning and operations office (Directorate Tata Kota and Tata Daerah) specifically concerned with both project planning and broader planning functions.

Planning within the Central Government of Indonesia is under the guidance of BAPPENAS which works directly with Keuangan and the Central Bank (Bank of Indonesia) and the various technical operating departments in formulating the directions, composition, content and financing of indicative national five-year development plans. The Third Five Year Plan (Repelita III) for the period 1979/80 to 1983/84 began in April of this year (1979). The five-year or medium-term plan is implemented in a series of annual plans through annual programming and budgeting in which BAPPENAS, Keuangan and Bank Indonesia determine the amount and composition of national routine and development budgets and of programs and projects for the coming fiscal year under the direction of the President and Parliament and the collaboration of operating departments. The national budget includes provisions for central projects and programs in the regions as

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well as specific allocations of funds to be provided to regional governments (Level I provincial governments and Level II Kabupaten and Kotamadya district and city governments as well as to village or Desa governments). For example, in the 1978/80 national budget over nine percent of total Government of Indonesia development expenditures are to be passed on to the regions to support their investment expenditures for general road, bridges and irrigation infrastructure, education, health, public markets, reforestration, and other projects. In addition, Central Government funds support major salary, honoraria, pension, rice and other subsidies of regional employees in regional routine budgets. The Central Government in many cases determines tax and other rates for land, property, vehicle and other fees levied or collected by lower level governments.

Provincial governments occupying Level I positions in this structure are in principle responsible for all lower levels of government and for re-laying information on their development needs onward to the national government. Provincial governments also, in principle, review the plans, the budgets of local governments and the allocations of some central government funds to them. In some cases, they pass on some provincial revenues in the forms of grants and loans to lower-level governments.

Provincial health and education officers report to the Minister of Health and Education on technical matters and on issues relating to national policy. As KANWIL, they also report to the Governor on administration of all health and education activities in the province. While the province contributes some funds to the development of these sectoral programs, it largely serves as a channel of Central Government financing on a sectoral basis. Effective coordination of sectoral programs and programs and projects is improving but, in many case, further collaboration is required.

At the Kotamadya Level, a local health office (Dinas) exists with the local health officer having dual responsibilities reporting to and receiving instructions from the provincial health officer while also being directly responsible to the Mayor. His office coordinates all health activities in the Kotamadya and particularly the supervision of health centre activities in the city. At the Kecamatan level, he is responsible for all health programs and works with the Camat.

Two education offices exist at the Medan level, Kantor Departemen Pendidikan dan Kebudayaan and Dinas P dan K Tingkat II. Both are responsible to the provincial level, the first being directly responsible to the Provincial KAKANWIL for implementing educational policy, while the latter relates directly to the Governor's office for the logistics and administration of the primary school (S.D.) program. There is obvious overlapping in the functions of these offices, and neither has direct line responsibilities to the Mayor of Medan that a local Dinas would have. In all cases, the major source of financing of educational activities is the Central Government.

The tax and revenue structure of the central, provincial, urban, district and lower levels of government are in accordance with this tiered government functional structure. To finance the Central Government

projects, programs and enable Government to aid lower governments in their programs, the Government of Indonesia assesses and collects the large and income-elastic revenues including oil revenues, personal and corporate income, sales and excise, import and export taxes through central and regional tax offices. Provincial governments are assigned motor vehicle license, title, and transfer taxes and a share of revenue from sales of petroleum fuels in the province. In addition, they levee a series of other fees and charges for use of government land and resources, plus other taxes and revenues from provincial public utilities and enterprises.

City (Kotamadya) and district (Kabupaten) governments plan, implement and finance their current and development requirements and programs within this intergovernmental system. Central and, to a lesser degree, provincial government projects and programs and financial support are of obvious importance. However, at the same time, there is an opportunity under present arrangements for these local governments to influence the higher-level governments in their choice, form and location of projects and programs and in the format of their financial support. Secondly, there is a considerable area for local determination of plans, budgets and projects and for local tax programs and politics within the centrally-prescribed structure. Purposeful local governments are obviously more successful than less-active governments in these functions.

In practice, it appears that while the Ministry Dalam Negeri and the Governor review Local Government's plans and budgets, their approvals are primarily of an official rather than substantive nature. Thus, local governments operate quite independently in these areas. BAPPENAS and the Ministry of Finance provide little guidance or technical assistance in planning, programming and finance. The main developmental influence of the central and provincial governments, therefore, is through the selection, planning and implementation of their own projects and programs in the region through their operating technical departments and in the provision of INPRES and INGUB financial support of regional government projects and programs.

7.2 MEDAN'S PLANNING AND FINANCIAL STRUCTURE

The Mayor and his advisory staff along with the technical operating departments (Dinas) run the city's planning, programming, implementation and financial functions within an organizational structure proposed by the Central Government for Level II governments. This structure in several important regards differs significantly from that of the Government of Indonesia, namely in having most advisory staff and line departments in the areas of development planning, programming and finance reporting directly and separately to the Mayor. In the Central Government, advisory boards and other agencies in these areas operate under the guidance and direction of the State Minister for Economy and Planning to the Minister of Finance to secure overall direction and coordination of plans, budgets and policies.

Overall planning and finance in Medan are performed by the staff agencies: the Municipal Planning Agency (BAPPEDA), Finance (Keuangan)

and Development (Pembangunan) which report directly to the Mayor. Specifically in this format, Keuangan is primarily responsible for planning routine budget expenditures as well as for control of overall budget expenditures. BAPPEDA along with Pembangunan are responsible for planning the development budget, and Pembangunan for monitoring performance of centrally-supported projects as well as those financed by Medan's own resources. Sectoral planning, programming and implementation functions are the responsibilities of line or operating departments which are responsible and report directly to the Mayor. Revenue assessments and collections from 56 revenue sources are not guided or directed by Finance but are planned and implemented separately by 13 line agencies, one of which is Revenue (Pendapatan) which collects over 60 percent of Medan's own receipts.

7.2.1 Planning

The Medan Government is interested in five-year planning but its main concern and focus centres primarily on the much more pressing matter of financing in an orderly manner the annual budget. Due both to the method of annual programming and the shortage and fluctuations in Medan's own receipts, city officials see their main task as raising revenue mainly by ad hoc measures and sanctioning and constraining expenditures to month-by-month availabilities of receipts.

Annual department and project allocations under this framework cannot be approved in total at the beginning of the fiscal year, April 1. Instead, sanctions are granted all through the year depending on the monthly or quarterly availability of funds. Central Government development assistance to the Municipality further complicates even annual planning. These external aid funds are not approved or made available at the beginning of the financial year. In fact, central funds for this year (1979) were only received in September, nearly half-way through the fiscal year. This has been the practice for some period, with the Central Government then, permitting the one-year funds to be carried over automatically into the April-June period and, with further permission, into the July-September period of the following financial year.

This timing of central assistance does not accord well with local weather conditions since these funds are received in September just at the time of the monsoon for North Sumatra resulting in construction and other infrastructure being started at the most unfeasible period of the year. In addition, the need to rush tendering, design and bids causes uncertainty and inefficiency as well as deviations from more technically desirable and administratively clean practices and procedures.

Thus, efforts of the Kotamadya Government largely through Keuangan centre on the treasury function of short-term management of funds and sanctioning of projects. It is recognized in this framework that planning, budgeting and implementation are not being operated on an orderly annual programming basis. It therefore becomes tenuous to require orderly project and program preparation and coordination and project progress according to schedule.

These conditions make consideration of five-year planning almost an academic exercise. Yet it is realized that Medan's economic and social development requirements can only be approached in a planned way over a longer-term period and that Medan's financial plans will also require considerable advance planning if resources are to be available to meet those demands. The Government of Indonesia foresaw these needs in establishing regional planning agencies in 1974 and its Third Plan specifically stresses further improvements in local planning, development and finance in the 1979/80 to 1983/84 period.

Along these lines the Medan Government requested the University of North Sumatra to prepare a study of five-year development requirements and resources for the Repelita III period. The U. S. U. draft plan study received by the Government in July consists of three parts - a general development section, a listing of priority sectors, programs and projects, and a set of projections of Medan's own revenue by collecting Dinas as well as possible external receipts from the Central Government and the Province of North Sumatra for this period. The study provides some bases for considering Medan's development needs and resources over the 1979/80 to 1983/84 period.

The Kotamadya Government reviewed the U. S. U. draft study in general terms but has not issued any official plan as yet. A substantive amount of Government study and work would be required to produce a meaningful plan for Medan (even of an indicative nature) similar to that of Indonesia's Repelita III. Overall development needs, especially those of lower-income groups and areas would have to be studied in detail by the Dinas, Pembangunan and BAPPEDA in accordance with local and national development and equity objectives. Priority projects would have to be evaluated on their own merits and in terms of sectoral and overall Medan development requirements and then, ranked within possible levels of financial resources likely to be available over the course of Repelita III. Much more detailed financial study would be required of the potential of each important tax and revenue source under improved assessment and collection methods. Total revenues would be projected on that basis considering the ability to pay. External funds, including financial support for key economic and social projects, would be estimated after discussion with Jakarta. The composition and growth of routine expenditures would have to be assessed with two objectives in mind: (1) assuring adequate maintenance of priority infrastructure and the provision of priority current services, and (2) constraining the growth of total routine expenditures to provide growth of Medan's own government savings to finance priority economic and social development investment. Finally, there would be the ultimate balancing over the period of Medan's own revenue efforts and the allocation of these scarce resources to the highest priority routine and investment uses. The main purpose and contribution of such a planning exercise would be directed to medium-term development requirements and the means to finance them - rather than a mere set of targets - and, thus, raise Government's sights beyond short-term financial management.

However, the Government is necessarily currently limited by the exigencies of much shorter-term management. Only if improved one-year financial and physical planning and operations is made possible and

additional external funding and technical assistance is provided can Medan move towards approaching its economic potential and improving conditions of, and service to, its lower-income groups and areas.

7.2.2 Financial Performance and Future Requirements

Kotamadya Medan's financial performance in Repelita II and its future requirements are discussed in detail in Section 21 of this volume. A significant financial gap is apparent if the city is to bring its present depleting infrastructure up to par and undertake a series of concerted programs and projects during Repelita III both to develop its economic potential to serve the city and the surrounding region, and to provide the basic minimum housing, health, education and other social services especially to its lower-income groups and kampungs. There are large and vital central transport and other infrastructure projects underway and planned for the region, as noted in other sections of this report, which offer the possibility of sizeable growth potential for Medan and North Sumatra, but which can only be fully capitalized thereon if other integrated urban development projects and programs are undertaken early in view of the lead times required. Lastly, there are indications that - in the absence of such a concerted urban program - Medan's progress in itself and as a key city and growth centre for North Sumatra will be far less than its potential. The Third Plan objectives for the city and province would then only be partially achieved. Significantly, the national plan, Repelita III, points towards a dualistic national strategy of assisting lower-income regions while at the same time aiding other regional growth centres to achieve their potentials.

Kotamadya Medan during the Repelita II period relied for its own-earned income upon 67 sources of taxes, fees and other revenues collected by 13 of its government departments and the jointly-shared IPEDA property tax. In addition, it received Central Government assistance in the form of civil servant wage and pension payments and food and other subsidies for its routine expenditures. The Central Government also provided general infrastructure, education, health and other financial support, including market development loans and sharing of land taxes, for Medan's development expenditures. North Sumatra province provided small development grants and loans.

Table 7.1 indicates the major forms of the Kota's own income in 1978/79. Some 77 percent of the receipts planned for that year were realized with noted differences in achievements by different taxes as collected by the various departments. It is not valid, however, to imply performance from these individual targets and realization. The method of determining many revenue targets is not based on any scientific determination of the real potential base for each source and then determining how much revenue might be feasibly obtained. Rather, for many sources, the method followed in setting annual Dinas budget revenues targets is one of negotiations between the Mayor and his staff, and the 13 concerned government collecting departments (whose work is mainly on operational development or service functions), which stress overall revenues needs. The difficulties involved in revenue collection under

TABLE 7.1

MEDAN TAX, FEE AND SERVICE INCOME, 1978/79

(In Rp. Million)

	1978/79		
	Planned	Actual	Percent Achieved
IPEDA property tax	350.0	285.2	81.5
PRT property tax	252.5	188.7	74.7
Street light charge	160.1	107.8	67.3
Sewage and solid waste charge	52.0	13.9	26.7
Garbage fees	42.5	13.6	32.0
Building permit purchase charges	304.5	229.3	75.3
Land registration fees	50.0	37.2	74.4
Road rebuilding charges	40.0	13.0	32.5
Sub-total	1,251.6	888.7	71.0
Amusement ticket taxes	759.0	648.8	85.5
Hotel, bar, rest and night club taxes	350.0	246.9	70.5
Radio tax	50.0	2.9	5.8
Non-auto transport taxes	121.0	85.0	70.2
Parking fees	36.0	47.7	132.4
Clinic and health charges	49.8	78.7	158.1
Foreigner tax	400.0	302.4	75.6
Sub-total	1,765.8	1,412.4	80.0
Business license fees	255.0	161.2	63.2
Public market fees and charges	442.9	331.2	74.8
Other business fees and charges	107.5	98.9	92.0
Slaughter house and animal charges	208.5	204.9	98.3
Sub-total	1,013.9	796.2	78.5
Other taxes, fees and charges	126.9	102.9	81.1
Total Municipal Receipts	4,158.2	3,200.2	77.0

Source: Keuangan, Kotamadya Medan.

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such a system are obvious. Neither Finance nor Revenue, which operate separately, have the means or authority for preparing analytical tax base estimates for other departments or the authority to assess methodologically departmental collection performance. Finally, the methods followed in actual presentation of charges to and collecting receipts from the individual taxpayer or service recipient vary widely. In some cases, taxpayers have not received a prior bill from the agency and do not know whether the charge presented to them is fair or whether all of the funds collected finally go into formal government receipts.

Thus, the present revenue system is not optimal, equitable or conducive to government integrity. Only with a more centralized and effective assessment and collection system can Medan Municipal receipts be raised significantly to meet development requirements with appropriate citizen acceptance. The present system of giving targets to departments, whose main concern should be on developmental and social functions, results in a mixture of pressures and privileges on taxpayers which does not auger well for the future if city revenues are to be sizeably increased.

Another factor is the fact that tax rates and assessments determined by the Central Government for several taxes important to the Medan Government are extremely low, thus limiting overall city revenue. For example, the property tax assessments and rates, even when increased by the Government of Indonesia this year, result in assessments of 0.005 to 0.01 percent in higher-income residential areas, or tax bills of Rp.7,000 to Rp.31,000. One large mansion on Jalan Sudirman valued at Rp.312.5 million ($ 500,000) was assessed real estate tax of Rp.16,056 ($ 25/70). A partial sample of downtown businesses revealed tax rates of 0.05 to 0.09 percent with large commercial businesses and industries assessed less than $ 1,000 per year. As a result, IPEDA real estate tax receipts for Medan contribute less than 10 percent of Medan's own revenue or less than 5 percent of total revenue from own and outside sources in 1978/79. In many like cities in developing as well as developed countries, property taxes contribute 25 to 40 percent of urban revenue from all sources.

Collection of taxes is another important area of concern with many taxes and charges not being paid. At the present time there is no Medan law or procedure to enforce payment of taxes.

The actions necessary to effect an improvement in Kotamadya Medan's financial performance are discussed in detail in Section 21.

SECTION 8

DISTRIBUTIVE INVESTMENT STRATEGY PLAN: OBJECTIVES, STRATEGIES, AND GOALS

8.1 INTRODUCTION

While some progress has been made in recent years toward the greater decentralization of decision making power within the government, the key questions of policy continue to be resolved in Jakarta. A workable balance between the conflicting requirements of centralization and decentralization in the management of the development process has not, as yet, been achieved. Part of the problem has been the scarcity of skilled managerial staff and the hierarchical nature of the civil service, which continues to overburden top ranking officials, while stifling initiative at the lower levels and providing little on-the-job training. A contributing problem has been the limited effectiveness of the planning and implementation process to facilitate effective horizontal and vertical coordination.

The Distributive Investment Strategy Plan (DISP) proposed for Medan places highest priority on the decentralization process and the linking of national, regional and provincial and local planning, and on the development of effective relationships between planning and implementation at the urban, regional and national levels. It is a clear pre-requisite that the issues of growth and social equity be dealt with on a continuing basis given the apparent uncertainty in the development process and the need for a high degree of flexibility in the implementation of plans.

The problems of preparing implementable plans for Medan and its region do not lend themselves to the comparative simplicity of a well organized private business trying to maximize its net returns. The nature of both government and the problems it faces requires that many types of costs and benefits be taken into account, not all of which may be quantifiable. The interests and capacities of many persons and groups must also be recognized in the process of planning and implementing urban and regional development. A great proportion of the factors important to the achievement of the DISP objectives will lie outside the control of an individual agency or group. Despite an awareness of the problem, the effectiveness of the governmental processes in achieving the required coordination has been quite limited.

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Under the Repelita system neither the implementation through interdepartmental coordination which is done in sectoral form, nor the processes of vertical coordination between the central and provincial governments and between provinces and districts or cities effectively facilitates the types of integrated planning and implementation required by the DISP over both the short and long term.

The development finance system for local development projects at the Kotamadya Medan level is largely sectoral and does not facilitate horizontal nor vertical coordination. Important development projects located in Medan generally have financing, at least in part, from a higher level of government, and therefore involve various levels of central and provincial bureaucracy. The budgets of these projects appear neither in municipal accounts nor in municipal plans. The approval process for "DIP" documents at every level reflects a refining of financial aspects of the projects and the timing of receipt and expenditure of funds by the project manager, but very little refinement of qualitative goals. Furthermore, neither a quantitative nor qualitative monitoring has yet been formalized into the development project planning system. Most importantly, perhaps, local priorities and policies have almost no influence on sectoral policies, plans and programs which are "applied" to Medan.

Significant changes in the ongoing planning, programming and budgeting system will be required under DISP. These of course must be based on realistic assessment of both the contraints and possibilities. The financial and technical resources available to implement the priority action programs and projects which have been identified will come from the municipal, provincial and national levels. Every effort must be made to maximize their potential positive impact not only with respect to the problem itself, but also with respect to the reinforcement and development of personnel and institutions. The middle term implementation program will need to be flexible and not be limited only to providing the traditional "business as usual" sectoral programs of national and provincial agencies. Rather, it must seek to have a direct and substantial impact on the mobilization of resources through the coordination of sectoral activities (planning, programming, and budgeting) of the participating agencies.

In the DISP, the differences between objectives and the means to achieve these objectives will not always be clear. The value of productivity objectives under the DISP is not independent of such things as the process of education (both for the target group and the instruments of government action) through which that productivity is achieved. Further the educational process itself has a value in addition to the value of the changes in productivity it produces. The whole pattern of events necessary to achieve what is supposed to be an objective may be part of that objective or have an intrinsic value in addition to the value of the object itself. Because of that it will be necessary to

establish and recognize as much as possible the entire process of achievement not just the end products themselves. In that sense, the DISP should be a primary catylitic force in stimulating both decentralization and institutional development through the very process of implementing priority programs and projects to meet basic human needs in Medan.

8.2 OVERALL OBJECTIVES

The DISP proposed for the city of Medan is based on objectives, strategies and criteria that are internally consistent and directly related to the basic social and economic objectives of national development. The basic national objectives for Repelita III place primary emphasis on social equity, within the context of continued growth and stability.

The principal avenues for achieving social equity are increased services and facilities to meet essential consumption needs, greater distribution of income, enhanced employment and business opportunities, greater popular participation in development activities, regional legislation, and equal justice under the law.

The regional development objectives, as identified for Repelita III, have designated Medan as the growth centre for Region I which encompasses South Sumatra, West Sumatra, Aceh and Riau Provinces. Within the context of the existing situation, and the constraints imposed by the need for functional, economic and institutional viability, the DISP takes as its major objectives the following:

1. Increase the levels of essential consumption for all of Medan's population, giving priority to a more equitable distribution to low income groups of opportunities for adequate housing and basic essential public services including water and sanitation, health, education and recreation.

2. Stimulate the formation or reinforcement of capital resources as a basis for sustaining increased levels of future consumption with special attention given to the resources available to low-income groups. Of particular importance are:

   - A more equitable distribution of the control over productive assets, including land.

   - A more equitable distribution of wealth, through increased savings capacity and access to credit.

   - A more equitable distribution of household income.

   - A more equitable distribution of basic levels of health, education and economic capacity.

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3. A more equitable distribution of essential rights and privileges, particularly those concerned with the participation of individuals in decision-making that is likely to affect their welfare.

4. A more equitable distribution of accessibility to places of employment, centers of trade and commerce, community services and high-amenity locations through improved transportation services for all segments of the population.

5. Economic, institutional and physical flexibility to facilitate adaptation to unforeseen circumstances and rapidly changing conditions.

6. Increased public revenues, providing a more equitable distribution of the costs of providing urban services.

8.3 THE DISTRIBUTIVE INVESTMENT STRATEGY

The DISP is concerned with improving conditions for the Medan metropolitan and regional population (although its immediate focus is Medan). It presumes national and provincial policies that are concerned with greater equity in Indonesia as a whole. It is especially concerned with achieving greater equity immediately, not just in the long run.

During Repelita III, equity at the national, inter-provincial and local levels is not necessarily related in such a way that the achievement of greatest possible equity at one level guarantees its achievement at each of the other levels. In the formulation of policy, equity may have to be defined in a series of steps, perhaps beginning with the levels of equity sought at the national level. Then levels of inter-provincial equity would be sought at the local level within the constraints imposed by the equity required at each of the other two levels. Conversely, policy formulation could proceed in the other direction, beginning with a definition of the levels of equity sought in Medan, where present inequities are the direct objective of the MUDS project. The interrelationships among the standards of equity being proposed for Medan in Repelita III and beyond will need to be examined more fully in national and provincial contexts as part of the continuing planning and programming process.

The level of economic output achieveable through metropolitan and regional development is also of concern in the proposed development strategy. Greater equity in Medan will be of little consequence if overall levels of development are very low, but some economic output may have to be sacrificed in the short run in order to achieve greater equity. Because of Medan's significance in national and regional/provincial development and because the proposed strategy reflects a national policy in which equity is of prime concern, the specific target groups upon which the long term strategy would focus include the metropolitan and

regional populations. Medan may support them in various ways by more efficiently fulfilling its specific regional functions.

Ultimately, the performance measures most important for the continuing evaluation of the strategy proposed are its implications for the national balance of payments; the revenues it is capable of generating, especially at the local and provincial level, the household income generated and the distribution of that income, the savings capacities associated with the control over productive assets which are explicit or implicit in it, the quality and levels of housing and the basic urban services associated with it and the number of people having access to such assets, the total transportation costs likely to be associated with it and the distribution of such costs within the effected population, the flexibility it provides and finally, the flexibility of implementing it.

The proposed urban development strategy requires integrated actions at the national provincial and local level. Certain actions are needed immediately. Long-term development of various kinds must be initiated now to provide the basis for sustained growth.

Medan experienced fairly high rates of growth of income, industry trade and services during the 1969-1973 period. During that recovery and growth period, Medan also made notable steps in rehabilatating and expanding its economic and social infrastructure and initiating, though at a low level, programs designed to provide improved education, health and housing which contribute directly to improving living standards and indirectly to economic growth.

As mentioned earlier, there are now some indications that the rate of growth of income and investment are slowing and that Medan as the key city in North Sumatra is not fulfilling its potential, as a city or as a growth center in the region. The development and maintenance of roads, water and sewerage and solid waste systems to date has not raised their capacities to minimum standard levels. At the same time, sizeable new investments will be required during Repelita III to provide improved and expanded basic urban development capacities for urban and regional growth. Given the current budget constraints and those that are foreseeable, a priority task will also be the more effective mobilization, integration, and coordination of the existing national, provincial and local resources (human, institutional, legislative and financial) over Repelita III.

8.4 ACTIONS REQUIRED AT THE NATIONAL AND PROVINCIAL LEVELS

8.4.1 Changes in the Economy

The tightening of overall resource levels which is anticipated in Indonesia over the next five to ten years (because of the slowdown in oil production etc.) will make it extremely difficult to maintain high levels of employment and income growth within the stricture of monetary stability and the country's external balance of payments. In order to maintain rapid growth under present conditions while assuring a greater participation of low-income groups in the development process, the DISP would anticipate a stepped up program of domestic resource mobilization through

a more effective design and application of a progressive taxation program, the reduction or removal of both budgeting and non-budgeting subsidies, the acceleration of government investment and employment creating activities, and incentives for private investment (domestic and foreign), particularly in areas outside of Jakarta.

National and provincial policies encouraging growth outside of Jakarta would include support for business services, the elimination of "bottlenecks" and unauthorized levies, the improvement in the quality and coverage of investment banking services, and other functions necessary to attract industries to existing regional centers and subcenters. National and provincial policies would continue to support agricultural development actively as proposed in Repelita III, such as support for intensive agriculture linked with both urban and export markets.

8.4.2 Initiation of Technological Change

Rapidly increased government spending averaging nearly 20 percent in the period of 1970/71 to 1976/77 greatly assisted the strong growth of low quality employment in the service and small scale industrial sectors in Indonesia. These expansion trends will almost certainly decline with the growing pressure on government resources. Action at national and provincial levels is required to increase government efficiency and to provide supporting policies to stimulate greater development of manufacturing, employment and exports. The rate of labor-intensive manufacturing growth and its regional distribution will be key factors in determining the rate and quality of future employment growth. Labor intensive methods in construction and major attempts to utilize indigeneous materials rather than imports are indicated. Support should be provided for resource conserving innovations in the design of structures.

8.4.3 Human Resources

The DISP for health and education, while recognizing the major expansion of the facilities and physical infrastructure under INPRES, places a much greater emphasis on expansion of services with or without physical facilities. Key problems such as nutrition and water borne related diseases suggest the need to complement increased levels of employment and basic water and sanitation with integrated pilot education programs in functional environmental health and nutrition. The training and more effective utilization of existing manpower resources such as students and the military would need to be given a high priority in both national and provincial programs.

8.4.4 Housing

Since its organization in 1975, Perumnas has launched a large-scale effort to meet the housing needs of the low-income population, especially government workers. However, several key problems still need to be resolved as quickly as possible such as (1) the development of a uniform mortgage instrument, (2) the generation of sources of housing finance, (3) the development of effective methods for repossessing property delinquent in mortgage payments, (4) the effective coordination of the housing programs with the development of basic essential urban services and facilities, and (5) the elimination of all external subsidies.

8.4.5 Land Acquisition and Development

The continuing inability of the government to easily acquire the land it needs for public purposes as well as the inadequate mechanisms by which the government may capture a part of the increased land values resulting from public investments are major constraints on the planning and implementation of orderly urban growth patterns.

Effective implementation of the DISP would require action at the national and provincial levels to develop more effective legislation, regulations and procedures to both control land speculation and facilitate its acquisition for public purposes. It also assumes that the Basic Agragrian Reform Law of 1960 requiring that the rights to land be registered in order to be valid will be implemented.

To ensure that orderly development occurs, land supply should be available when it is required. Therefore, several immediate actions are needed in Repelita III. Among the most urgent is to initiate a comprehensive study by local and foreign experts of land resources, land prices, development controls affecting the supply of land and development cost, and the agencies involved in land use and development in Medan and its surrounding region. From this analysis, it would recommend specific legislation, local level and national actions required to improve land use and development, methods of increasing the supply of low cost land, and necessary corresponding changes in the agencies which administer land use and development controls.

8.4.6 Institutionalization of the Medan Metropolitan Region as a Strategic Area for National Development

The Medan Metropolitan Region (Sub Region III*, North Sumatra) should be recognized as the basic unit and strategic area for the integration and coordination of all of the functions of planning and programming of national, provincial and local public entities in the implementation of national regional and local policies. The governor of North Sumatra would be responsible through the provincial Bappeda for the interpretation of the national plan at this sub-regional level, the organization of annual operative plans of the central and provincial government based on this sub-region, the elaboration of a basic framework for the development of the Medan Metropolitan Region, and the provision of technical assistance to the governments of the sub-region in their individual and collective planning programming and development activities.

8.5 ACTIONS REQUIRED AT THE MEDAN LEVEL

8.5.1 The Local Economy

Significant changes in the structure of Medan's economy are not anticipated under the DISP. Rather, major efforts would be taken to

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* Sub Region III comprises the north east coast with Medan as a core and covers Langkat Regency, Binjai Municipality, Deli Serdang Regency, Medan Municipality and Tebing Tinggi Municipality.

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assist and stimulate new investment and expansion through: (1) the provision of adequate basic urban infrastructure and services at reasonable charges, (2) the development of a more efficient transportation system for the movement of both goods and services and passengers, and (3) the identification of tax and business incentives to stimulate economic growth. A major effort would be made to use unutilized or underutilized capacity - including labor, capital equipment and land (particularly underutilized land in already existing industrial areas).

8.5.2 Development of Human Resources

To make it possible to achieve greater equity, improved health and education services would be delivered to the population as soon as possible. In health, the emphasis would be on preventive medicine and the development of the Puskesmas, Puskesmas Pembantu and the Pos Kesehatan neighborhood service centers. Extensive programs of environmental health education will be developed to complement water and sanitation investments. A major effort would be made to increase technical skills on a widespread basis in order to increase both income and employment. Programs of this type should begin with the poorest and most under privileged segments of Medan's population.

8.5.3 Low-Income Housing

Current efforts by Perumnas and other public and private institutions to provide a basis for adequate housing for all the population would be expanded with emphasis placed on eliminating subsidies through solutions directly related to ability to pay and cross subsidies from middle and upper income groups. Given resource limitations, the Kampung Improvement Program will be focussed on providing a basis for better housing, rather than housing *per se*. Norms and standards for the construction of housing and residential land uses would be revised and brought more in conformance with the affordability levels of the Medan population.

8.5.4 Water Supply and Sanitation

At least minimum essential services for water, sewerage, solid wastes, and drainage would be extended to as many of Medan's households as possible, beginning with those that are least well served at the present. The combination and standards of services installed will be related to the ability to pay and be consistent with the densities at which development is currently taking place.

8.5.5 Land Use and Physical Facilities

A major effort would be made to achieve a better balance between the location of jobs and the location of residences. Segregation by income and/or ethnic characteristics would be reduced as much as possible. To the extent it is consistent with a better balance between job opportunities and places of residence, inner areas of Medan that are not yet utilized would be brought into development. Average densities would be considerably higher than present densities due to budget constraints and the desire to increase accessibility to both jobs and services.

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Investments in physical facilities would be directed to priority needs which cannot be met through the more intensive utilization of existing facilities such as implementation of double shifts or the multi-use of other existing facilities in order to utilize capital more fully and conserve basic resources. Norms and standards for the space requirements of physical facilities would be revised and brought more in line with realistic resource levels.

8.5.6 Transportation

The emphasis under DISP would be on mass transportation and an extension of improved transportation services and facilities to all segments of the population. Effective urban/metropolitan rail transit will not be possible before 1985, but would be introduced soon afterwards. The use of private automobiles or other private transportation that is inefficient from a social point of view would be actively discouraged. Overall transportation costs would be kept as low as possible - in terms of both direct costs and travel time - and all segments of the population would have access to similar levels of transportation service. Investment in the road system would be kept as low as possible consistent with the need to bring major and secondary roads up to minimum standards to facilitate the movement of both regional as well as local goods and services. Better traffic management and control is basic for both short and long-term progress.

8.5.7 Organization, Administration and Financing

Primary emphasis is placed on the need to develop both human and institutional resources as an integral part of the development process. The degree of local and provincial control over regional and urban development which is necessary to relate DISP programming directly to local needs and capacities can only be expected over the long term. Despite this reality, it is important to recognize that the types of long and short term actions recommended by the DISP will not take place simply because a long term development strategy exists, nor because national and regional legislation has been developed which reflects the DISP equity concerns. There are and will continue to be problems at all levels of government in changing their approaches and operating procedures. Officials will persist in pursuing old patterns and proposing only marginal changes in development and social projects to aid the lower income groups.

The DISP will be effective only it is possible to inaugurate a development process in Medan which not only implements high priority action projects but which also incorporates the staged institutionalization of a realistic urban development planning, programming and financing system as an integral part of such project implementation. The establishment and implementation of such a process, integrated with corresponding supportive actions at the provincial and national levels of government, is the paramount objective of DISP. To that end a pilot implementation program would be established under the overall direction of a DISP Steering Committee to be established by the national government and the Kotamadya of Medan.

8.6 THE PRIORITY DISP OBJECTIVES FOR REPELITA III

Relative to the existing situation and within the constraints imposed by the need for functional, economic and institutional viability, the DISP has established a series of specific priority objectives and goals to be achieved over Repelita III. These objectives and goals are not all inclusive but rather reflect those priority actions and achievements required over the next five years in the sectors focussed on by the MUDS Study. While they are expressed in sectoral terms, it should be noted that they are not functionally separable. In most cases the effective achievement of one will depend on the achievement of others. Their implementation in a integrated way will represent the initial step in establishing an integrated planning and programming process which is linked at the provincial and national levels.

The specific priority objectives and goals are:

8.6.1 Health

8.6.1.1 Basic Objective

Provide easy access to minimum health services for all segments of the population, to provide free or minimal cost medi-care and to develop an extensive program of preventive medicine.

8.6.1.2 Goals for Repelita III

Provide decentralized neighborhood health services to approximately 420,000 persons through the construction and staffing of 14 Puskesmas and 28 policlinics.

Recruit and train 54 community workers, integrating them within the intensive health efforts directed at high priority Kampungs as part of the overall KIP community development/participation program.

8.6.2 Education

8.6.2.1 Basic Objective

To provide access to minimum levels of educational services for all segments of the population, emphasizing the development of a widespread basis of environmental health literacy and technical skills.

8.6.2.2 Goals for Repelita III

Basic Education

- Construct and staff and maintain 140 SD, 4 SMP, and 4 SMA.
- Extend the double shift program throughout the school system (elementary and secondary levels) in every area where sufficient demand exists.

- Eliminate unauthorized costs frequently being paid by parents to matriculate and maintain their children in public elementary schools.

Specialized Education

- Provide environmental and community education and skills training to 4,000 elementary school dropouts and 2,000 secondary school dropouts through an amplified PENMAS program directed at increasing employment and incomes. Recruit and train 500 tutors and 100 lurahs for participation in the program in priority KIP areas, and throughout the city.

- Develop and implement an annual work experience study curriculum and program for 1000 university students in the fields of medicine, social sciences, and engineering, linking these resources with DISP efforts in water and sanitation, and environmental health, and skills training programs.

8.6.3 Housing

8.6.3.1 Basic Objective

To provide better access for lower income groups to the total pool of capital and management resources allocated for housing in order to achieve rapid upgrading in standards of living for the lowest income groups.

8.6.3.2 Goals for Repelita III

Kampung Improvement Program

Provide upgraded physical infrastructure, roads footpaths, and bridges, water supply and sanitation services, and improved opportunities for basic health and education services for 110,000 residents of priority kampungs selected for KIP. (Note: With the exception of roads and footpaths and bridges, the nature of the specific types of improvements is cited in the respective sector of this section).

Sites and Services/Low Cost Housing

Develop approximately 8,400 SSCH/LCH units on plot sizes ranging from 60 to 300 metres for and estimated population of 50,000 people. Provide a full complement of education, health and social facilities as required.

Land Development

Carry out a comprehensive study of land resources, land prices and development controls to determine specific legislation, and local and national actions necessary to increase the supply of land at reasonable costs as well as determinethe changes required at the institutional level necessary to administer land use and development controls.

8.6.4 Water Supply and Sanitation

8.6.4.1 Basic Objective

Provide essential minimum levels of services for water, sewerage, solid wastes and drainage to as many of Medan households as possible at service levels related to affordability.

8.6.4.2 Goals for Repelita III

Water Supply

- Expand the Sunggal water treatment plant from its planned 900 l/s capacity to provide an additional 300 l/s.
- Implement a groundwater exploration program to delineate the extent to which less expensive groundwater can be substituted for surface water supplies. Plan to increase groundwater supply by 520 l/s.
- Establish flow monitoring stations at recommended points on the Sunggal and Deli rivers to enable more accurate estimates of the possible safe yields. Establish the magnitude of existing water rights on the Sunggal and Deli rivers downstream from Medan.
- Reinforce and expand the existing distribution system, to include construction of 290 km of major mains, 890 km of minor mains, 108,000 cu m of reservoir capacity, and pump stations with a peak capacity of 2,855 l/s.
- Expand and upgrade the public standpipe system by adding 1,300 standpipes. Add approximately 17,000 new house service connections. The population served by the municipal water system should be increased from the present 25 percent of the study area population to over 60 percent.
- Reduce water connection fee to Rp.40,000 and change the present unit water charges to a stepped rate structure wherein larger water users are billed at a higher rate than small users.
- Improve the sanitary conditions of 10,000 shallow wells.
- Provide a technical assistance/regulatory/public education program aimed at upgrading the public safety of existing and new shallow wells. Demonstration projects and/or financial assistance to groups or individuals in constructing wells with appropriate sanitary seals, covers, and hand pumps should be integral parts of this program.

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Waste Water

- Construct 36.85 km of collector sewers to serve 705 hectares of the central urban core area including high density low income areas.

- Construct 9.85 km of trunk sewers, two sewage pump stations, and 2.05 km of force main to deliver waste-water to a waste stabilization pond having a total surface areaof 18.3 hectares.

- Provide 100 MCK's to serve high density, low income population in the study area.

- Accelerate the existing private latrine improvement program from the present 1,000 water-seal latrine slabs per year to 5,000 per year.

- Provide technical assistance for the development of local capabilities in the manufacture of vitrified clay sewer pipe, prestressed concrete pipe, and other precast concrete products required for construction of sewerage systems.

Solid Wastes

- Upgrade and extend service to include all of the primary and secondary areas, the corridors of regional roads and selected satellite residential areas within the tertiary areas. The population coverage should be increased to 660,000.

- Introduce five different levels of service (increasing later to seven) for different customer categories.

- Increase levels of charges in line with ability to pay, incorporating substantial cross-subsidisation of the poorer sectors of the community by the better-off.

- Acquisition of approximately 100 hectare sanitary landfill site.

Drainage

- New drainage works in areas where current flooding problems are critical and the cleaning, clearing and dredging of existing channels to maximize their flood control potential.

- Establish an ongoing maintenance system to keep the existing drainage system in optimum working order.

- Monitor existing flows and level of flooding.

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8.6.5 Planning, Programming, and Financing Development

8.6.5.1 Basic Objective

Provide the Kotamadya Medan with technical assistance in developing and implementing an integrated annual planning, programming, budgeting and monitoring system which could effectively select development projects and programs, assure early and full funding for them and monitor their physical and financial performance.

8.6.5.2 Goals for Repelita III

The primary goals of the program would be to increase the levels of municipal finance which are available for providing the urban services being recommended under the MUDS proposals. In addition, the technical assistance team would assist Kotamadya and national governments through:

- Analyzing and developing improved taxation procedures which would be based on progressive ability-to-pay principles.
- Assisting the Kotamadya government in developing and passing appropriate tax enforcement procedures.
- Analyzing and advising Kotamadya, Provincial and Central governments on means of assuring earlier and more regular sanctioning of high level government loans and grants.
- Analyzing the full financial implications of the proposed accelerated Medan Urban Development program and devising a means to handle the initial and subsequent city contributions within the newly devised budget and tax system.

8.6.6 Economic Development

8.6.6.1 Basic Objective

To provide the Kotamadya Medan with Technical Assistance in identifying and eliminating the impediments to economic growth.

8.6.6.2 Goals for Repelita III

The primary goals include the development of action programs to eliminate existing impediments as rapidly as possible through adjustments in actual procedures and of necessary legislation and the simultaneous implementation of special programs to stimulate the development of medium and small-scale enterprises.

SECTION 9

POPULATION

9.1 TOTAL POPULATION GROWTH

In the DISP, the annual rate of growth of population in Medan would decrease in comparison with the rate of growth over the last fifteen years, due to a government policy that would complement existing growth trends by improving employment opportunities in rural areas and secondary cities in the Medan Metropolitan Region and North Sumatra as well. This approach should work to control any pronounced imigration pressure on Medan, and in combination with the successful continuation of the government's family planning initiatives will permit the growth rate to hold steady or drop to about 2.5 percent per year.

The completion of the urban rail transit project as well as other planned projects such as the Asahan Area Project are also considered critical factors in facilitating the distribution of future population growth throughout North Sumatra and could potentially lower Medan's anticipated growth rate even further.

The population projections for Medan are based on national, regional and local growth trends from the years 1971, 1976, 1977 and 1978.

1. The national population growth rate is approximately 2 percent, projected to drop to 1.7 percent by year 2000.

2. North Sumatra population went from 4,984,000 to 7,249,000 between 1961-1976, for a compound growth rate of 2.52 percent. It is projected to drop over the next twenty years. Repelita III identifies a growth rate of 2.5 percent.

3. Certain assumptions were made in the population projections.

   - There will be a decrease in the fertility rate of 30 percent in the next twenty years

   - The mortality rate will drop only slightly (this assumption recognizes that a reduction in the incidence of water borne disease could significantly affect the mortality rate in Medan. At the present time, statistics on infant mortality are not reliable enough to project a rate of reduction in the mortality rate).

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- Migration patterns will continue as previously experienced, with cyclical migration within the province. For the total province, there will be a slight net loss of more emigrant families moving out than immigrant familities moving in.

- Migrants are not a major source of urban growth, nor do they appear to be a major source of urban problems. The economic prospects described for Medan will not induce large numbers of migrants to move to Medan.

- The degree of urbanization will change in relation to the above, thus Medan will grow at a slower pace.

These trends, strengthened by DISP implementation will assure a moderate stable growth with a Medan urban population of 1.95 million by the year 2000.

9.2 DETAILED POPULATION FORECASTS

Table 9.1 shows one possible allocation of this population by Kecamatan starting with the bench mark years of 1976 and 1978. Such a pattern presumes the continuation of existing trends with Medan city as the focal point of development. This is not likely to be fully implemented given the DISP long range growth strategy discussed earlier, but it does provide a useful basis for future comparisons.

TABLE 9.1

PROJECTED POPULATION DISTRIBUTION BY KECAMATAN
(thousands of people)

Kecamatan	1976	1985	1995	Observations
Medan Kota	227	249 Full	275	Assumes no growth (1%) with overspill population moving to new areas
Timur	177	192	225	By year 1985 area will be at capacity
Baru	117	139	176	Infill as well as limited peripheral sites. Airport potential in 1995 - 2000
Barat	134	152	192	
Denai	112	138	187	Growth area - low and middle income

TABLE 9.1--Continued

Kecamatan	1976	1985	1995	Observations
Labuhan	51	63	79	Development curtained to discourage new housing areas
Johor	53	63	79 16	Good growth area
Tuntungan	17	20 36 Medan III	74 10	Good growth area
Sunggal	87	109	155 25	Good growth area
Deli	46	62	76	Certain parts suitable for growth
Belawan	58 Full	64	71	Poor growth area - should only serve port
Medan II		52	63	
TOTAL	1,079	1,340	1,719	

Table 9.2 indicates the number of households, population and overall density in Medan, Binjei, Deli Serdang, and North Sumatra as a whole.

The absence of explosive growth in Medan will provide a substantial opportunity of improving the standard of living of all the people over time. The specific projection estimate of 1.95 million in the year 2000 can contain a margin of error of between 10 and 15 percent either way without significantly affecting the planning decisions to be made now.

TABLE 9.2

NUMBER OF HOUSEHOLDS, POPULATION, AND DENSITY 1977

Regency/ Municipality	Number of Households	Population	# people/ Dwelling Unit	Population Density sq km
Medan	181,440	1,104,000	6.1	4,230
Binjei	11,238	71,994	6.4	3,600
Deli Serdang	205,810	1,177,406	5.72	189
North Sumatra	1,323,673	7,469,833	5.64	103

Source: Statistical Year Book
Census & Statistical Office of North Sumatra

9.3 HOUSEHOLD SIZE

Based on past trends in Indonesia, it is expected that household size under the DISP would decrease due to the following factors. Family planning would be adopted more and more as an acceptable method to control family size, especially as the program develops as a community oriented effort and not just a clinic oriented one; there would be a significant increase in housing construction which in turn would permit smaller family units; modernization would lead to a more nuclear family, with corresponding decreases in family size.

While no detailed forecasts have been made with respect to changes in household size in Medan, it is anticipated that the average family size would drop from 6.0 in 1979 to between 5.5 and 5.7 by the year 2000.

9.4 LITERACY

Basic literacy for both children (over five years old) and adults is a basic prerequisite for achieving the social and economic mobility envisaged by DISP. Such literacy would permit the people to participate more fully in the life of Medan, to be more competent in dealing with the civil bureaucracies as well as more capable of improving their own economic and social condition. As described in the education section, the existing literacy rate in Medan (which is relatively good compared to other urban areas of Indonesia) would be close to 100 percent by the year 2000. Under DISP heavy emphasis would be placed on orienting basic literacy education about the most critical environmental health needs as well as the functional literacy necessary to survive and contribute economically in the Medan urban environment.

SECTION 10

PRINCIPAL ECONOMIC ACTIVITIES

10.1 BASIC STRATEGY FOR ECONOMIC DEVELOPMENT

At present, there are a number of important and varied development projects under implementation and planning or under consideration for the North Sumatra region, which favourably affect the future development of Medan and the province. Nevertheless, investigations and analysis of Medan's growth constraints and prospects suggest that although these planned and possible projects are a necessary condition for future development, they may not be sufficient to accelerate the pace of growth at Medan and in the region. Indeed, there is strong evidence to conclude that further economic and social investment and changes in government, institutional and fiscal methods and procedures are necessary both to capitalize on the current program of development projects and accelerate Medan's and regional growth.

Four areas in which action should be focussed can be identified and will be examined:

1. Infrastructure
2. A framework of industrial policy
3. Ancillary and support services
4. Provision of well trained and skilled labour force

10.1.1 Infrastructure

The lack of existing infrastructure is self-evident, and the program under implementation now and during Repelita III will only partially remedy this deficiency. Nevertheless, this situation must act as a deterrent to foreign investors considering Medan as a possible location. The requirements of the business sector should largely conform with the needs of the city generally, though perhaps to a higher standard, so that the additional financial cost should not be severe, and should in any case be fully recoverable through the charging policy. For investors, continuity of performance, including regularity of supplies and services and movement of final goods is of paramount importance.

Under this head, therefore, is included additional investment in the road and transport and traffic system, to bring major and secondary

roads up to minimum level standard and improve traffic circulation, and to educate the public to make proper use of the system and implementation of integrated public transport system to meet the needs of all segments of the community from low income households to the business community. This will entail an efficient bus system, also a suitably designed metered taxi service to meet the demand for rapid personalized travel. Communications too should be improved to meet the needs of the business community, the telephone and telegraphic system should be regarded as a tool essential to the running of a business. Port and airport improvements are vital to attract additional business or allow existing business to expand. The provision of adequate water and power supplies must be assured.

10.1.2 Policy Framework for Industrial Investment

Both for foreign and domestic investment, a stable and simple policy framework within which business can operate is important. Repelita III states that foreign investment is to be encouraged. Study will be required of the operation of Medan banks with regard to their abilities and practises, particularly the policy on the granting of short and medium-term credits, KIK and KMKP loans and foreign trade credit, to facilitate expansion and development of manufacturing, commerce and other services. Improved monitoring and control of bad debts may be required before banks can be expected to operate less conservatively. Adequate hotel facilities also need to be provided to cater for the needs of businessmen as well as tourists.

If Medan is to attract investment, it will need to mount a serious promotion campaign. Ways of promoting Medan should be studied, particularly ways of attracting foreign investment because of its ready access to capital and the higher level of technology it uses. The industrial estate study noted that potential investors claimed that the single most important factor underlying investment location decisions was a clear framework embodying a concise set of rules for establishing and operating business and some guarantee of continuity of policy, which would give security. It was suggested that the most effective contribution government could make was assistance in the streamlining of administrative procedures and the elimination of hidden costs, and that such measures would in the long run outweigh other factors such as the cost of land or financial incentives. Thus to attract foreign investment it is necessary to simplify government legislative and fiscal methods and procedures and systems of land registration and transfer of titles.

10.1.3 Ancillary and Support Services

Medan is a regional capital and its functions as a service centre supporting the region is important and growing. The level of services provided at present to the region is poor, particularly, if compared to other nearby cities such as Singapore, Kuala Lumpur, and Jakarta. Lower initials costs at Medan may be outweighed by the uncertainties and hidden costs extant in the city. The basic services required by business in the regional context need to be examined, to ensure their provision ahead of demand to the required standard. The provision of banking, insurance, and other financial services is of critical importance to the region. The feasibility of initiating a business promotion office to assist Medan

and the region should be studied. This would provide a service to local and foreign investors. Other growth impediments to business such as tax and customs policy and procedures should be studied to develop ways of making Medan more attractive to foreign investors.

Government services will need to support these investment policies with the provision of information and advice which must be backed by a good data base which is regularly updated and analysed covering production, employment and export and import matters, and taxation regulations licencing. This will be of importance to producers located in rural areas of the province who may lack such knowledge, as well as to overseas investors.

In the long run a good business environment must be founded on mutual trust and confidence and not on the expectation of short-term gain. Delays and ineptitude are a cost to investors. Some of the suggestions outlined above require only procedural amendment, while others may include substantial capital investment and funding. At the moment a cost cannot be placed on these, but will require further study.

Care needs to be paid to the requirement of small enterprises as well as the large enterprises. Policy should be directed at improving the quality of product and efficiency of these enterprises, and developing an environment in which they can expand. Marketing services should be made available to them, particularly where export opportunities exist. Market research of new products should be undertaken and should be introduced where a new market is discerned. Access to credit of affordable and economic terms should be ensured. In line with Repelita III policy, marketing cooperatives might be encouraged. If these are set-up and are supported by enterprises, they must be managed and operated along commercial lines and be fully accountable to their members. Alternatively, marketing boards and supply centers could be established as alternative methods of helping small enterprises to increase output and profits. Finally the constraints to expansion of business in Medan require study.

10.1.4 Training

There is an evident lack of a well-trained and skilled labor force. A remedial program should be drawn up to remedy this gap, so that the lack of skills will not contribute to the problems of attracting production investment to Medan. Certain skills are common to all operations namely, accounting, book keeping, secretary, switchboard operators, and machine operators. These should be developed without delay, so that trained personnel are available before the Industrial Estate is ready.

In the employment sector, two positive features stand out regarding North Sumatra. The first is that agricultural laborers are not abandoning the land and flocking into the city to seek work, and the second (which may partly explain the first feature), wage rates for laborers and unskilled workers in the town do not appear too different. Finally, there are a large number of young job seekers for whom employment needs to be found, and who should be attracted into technical training programs. To partially achieve these training objectives, companies should be actively encouraged to undertake on-site training programs.

It is therefore concluded that an appropriate development program for Medan should consist of a series of concerted investment and improvement programs in priority economic and social sectors on a scale which would significantly improve the basic economic and social infrastructure and the effectiveness and efficiency of the Metropolitan Government. In accordance with Repelita III objectives, these economic and social programs should be designed to yield both increased income and employment and significantly larger services to lower income groups. The expenditure programs should be realistic, in keeping within the enhanced financial capability of the Medan's financial planning and budgeting systems.

Additional financial and technical assistance will be required for these priority programs and projects from the Central and Provincial governments and from foreign aid.

SECTION 11

WATER SUPPLY AND SANITATION

While the growth of Medan over the last 15 years has averaged less three percent per annum and in recent years has been slowly dropping, thus far technologies and institutions necessary to cope with this level of urbanization have yet to be developed. The tremendous deficit of water supply and sanitation in Medan is a clear example of that lag. Water supply, sewerage, drainage and solid wastes disposal are so poor that serious health problems have been created. The municipal water supply system is basically limited to upper and middle income groups and covers only about 25 percent of the population. It also covers about 60 percent of the non residential water requirements. Virtually no sewerage system now exists and the existing drainage system, located primarily in the center of the city, carries both domestic wastewater and storm water, discharging these directly into the river without any treatment. Of the estimated 880 tonnes of solid waste generated in Medan each day from residential, shopping and market areas, only about 150 tonnes are collected by the current municipal collection and disposal system.

In the DISP there would be a rapid improvement in the basic essential service levels of water supply and sanitation services provided to low and lower-middle income groups in particular, and the differences in the levels available to different income groups would be much smaller than at present. A key aspect of the proposal is the progressive integration of population groups in residential areas, the development of a progressive water rate structure based on levels of consumption, and the reduction of unduly high water connection costs. This should result in increased public support for improved utilities and make it possible to provide services to low-income groups at prices they can afford.

11.1 LEVELS OF SERVICES

11.1.1 Water Supply

In DISP the water supply strategy would serve 60 percent of the Medan population with at least the minimal essential levels of water supply by 1985 and increase that coverage to 80 percent by the year 2000. Table 11.1 provides a summary of the strategy by target group.

By 1985, 270,000 middle-income persons currently believed to be using individual shallow wells would be converted to the municipal system

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TABLE 11.1

MEDAN DOMESTIC WATER SUPPLY PROJECTION
DISTRIBUTIVE INVESTMENT STRATEGY PLAN

Consumer Category	Present Available Water Supply	Proposed Water Supply	Population/Land Use 1978	1985	2000	Unit Water Use 79-2000 79-85-2000	Proportion Of Pop For Muni Supply-Percent 78	85	2000
DOMESTIC REQUIREMENTS	(Total Est. Population)		1,121,200	1,351,100	1,966,200				
i. High/medium income permanent dwellings	Municipal individual connections	As present supply	(19.6%) 220,000	(20%) 270,220	(20%) 393,240	215 225 260 175 - 215	100	100	100
	(Estimated Population not-served By House Connections)		901,200	1,080,880	1,572,960				
ii. Middle income permanent dwellings	Individual shallow wells & well points	Staged conversion to municipal individual connections (50% of unserved)	450,600	540,440	786,480	145 160 200	0	50	75
iii. Low-income permanent dwellings	Shallow wells serving multiple dwellings, municipal standpipes	Staged conversion to municipal public stand pipes (45% unserved pop.)	405,540	486,396	707,832	35 - 35	5	55	83
iv. Low-income temporary dwellings	Rivers & streams	Conversion to municipal public standpipes (5% of unserved pop.)	45,060	54,044	78,648	35 - 35	0	30	100
TOTAL DOMESTIC REQUIREMENTS Total for Served percentage of gross population							25	60	80

Source: MUDS Project Estimates

through individual water connections. This would represent about 50 percent of the total 1985 middle-income target groups. About seventy five percent of that target group (approximately 589,860 persons) would be connected by 2000. In order to accomplish these targets, a reduction of the present high service connection charges is required to induce conversion.

Approximately 265,000 low-income persons living in permanent dwellings would be converted from common shallow wells serving multiple dwellings to a municipal standpipe system by 1985. This would represent about 55 percent of that target group at that time, with 75 percent being served by 2000. In order to encourage this conversion, a level of service, convenience and price close to that of the original supply must be offered. The supply must be constant, and the carrying distance for water must be similar to that of the shallow wells being replaced. Some form of cross subsidy through the structuring of progressive rate structure would be necessary in order to make the conversions economically attractive to this target group.

Finally, the DISP would attempt to convert approximately 30 percent of the lowest income groups to municipal standpipes by 1985 and 100 percent by 2000. This group currently depends mainly on shallow wells for water supply.

The successful implementation of the DISP water supply strategy will depend heavily on the complementary environmental and family education program to be developed under the kampung improvement program (KIP). This program will include the more effective utilization of medical students and the training of community health workers. These education efforts would be carried out continuously in all area covered by the water and sanitation program, but would focus on those low-income kampungs selected for the pilot KIP.

Under the levels of service proposed by the DISP, it is estimated that municipal water production requirements would rise from the present level of 1,200 l/s to 2,255 l/s by 1985 and to about 4,880 l/s by the year 2000. Water use for governmental, commercial industrial, and institutional areas is estimated to be 41,000 l/hectare per day.

11.1.2 Waste Water Service

Under the DISP, priority is given to those elements of the wastewater management program which minimize public contact with human wastes. In high density, low-income areas which now have poor sanitary facilities, priority will be given to encouraging households to construct individual water seal pit latrines or MCK's shared by two households.

The construction of separate sanitary sewers to provide for the collection of wastewater will only be considered in areas where the individual project can be self-financing through the development and application of appropriate charges. However, the portion of the wastewater systems which serves the high density, low-income groups in the central city area will need to be subsidized. Several areas of Medan with concentrations of upper income households and/or commerce could

potentially qualify for non-subsidized systems. Specific pre-project contacts by the Camats with the community in order to assure interest and financial feasibility will be a pre-requisite to the development and implementation of such projects, especially over the short and medium range.

11.1.3 Drainage

The existing drainage system serves primarily the central urbanized areas. Due to its limited capacity, many areas of Medan are subject to flooding after high intensity rainfalls. Given the present situation and the real constraints upon both financial and trained manpower resources. The DISP would give priority consideration to correcting local urban flooding problems. High priority would be given to areas with generally poor environmental and socio-economic conditions, particularly those identified for action under the Long-term Kampung Improvement Program.

The cleaning of clogged drains and the identification of capacity bottlenecks in the existing major drains would be important parts of immediate actions to minimize ponding and reduce flooding. Relatively modest design criteria should be used in order to provide an acceptable level of flood protection within the financial capacity of the community.

Under the DISP, the first stage efforts would be focussed on improving open drains by frequent cleaning and maintenance. Lining, and enlargement of drains to facilitate isolation and containment and to prevent the ponding of wastewater will be undertaken on a limited basis as financing permits.

Second priority under DISP will be given to the replacement of existing intermediate size drains with those of more adequate capacity. Clearing debris and solid wastes from major river channels and major dredging and channel straightening should be approached (after monitoring flow rates) with some caution due to the magnitude of capital which will be required for such projects.

11.1.4 Solid Wastes

The DISP would provide for substantial expansion of the solid wastes management system directed at: (1) increasing the quantity of solid waste collected, (2) upgrading the quality of service, particularly in relation to the operation pool and disposal sites, and (3) providing adequate disposal of solid wastes collected.

The extended collection service will cover all of the densely populated areas of Medan with the standards of collection varied to suit the requirements of each area, the physical constraints (such as vehicular accessibility) and the financial capabilities. The collection process will continue to be a predominantly labor intensive operation.

Projections of solid wastes to be collected under the DISP have been based upon the following expansion of the service area to include in the short term (prior to 1985) service to:

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1. The primary and secondary areas (Kecamatan Medan Kota, Timur, Barat, Baru and Kota Belawan).

2. Along all regional roads outside the primary and secondary areas.

3. To priority isolated sattelite residential areas such as the Perumnas housing development.

By 1990 it is envisaged that service would be extended to include all of the urbanized parts of the study area excluding only low density rural development.

11.2 THE CAPITAL INVESTMENT IN WATER SUPPLY AND SANITATION

The capital investment required in water supply and sanitation under DISP will be large, even to achieve the relatively modest consumption targets proposed. A summary of the projected requirements to 1985 and beyond to the year 2000 is listed in Table 11.2.

TABLE 11.2

MEDAN WATER SUPPLY AND SANITATION PROGRAM
CAPITAL INVESTMENT REQUIRED TO MEET DISP TARGETS
(IN RP. MILLION)

Aspect	End of Repelita III 1983/84	Repelita IV and V 1984/85 to 2000
Water Supply Improvements	15,700	40,452
Drainage	7,100	33,730
Sewerage	4,800	14,237
Solid Wastes	4,300	84,416
Total Capital Investment	31,900	172,835

11.3 THE PRICING OF WATER SUPPLY AND SANITATION

The capital cost of providing utility connections to residential consumers is only part of the problem. Many low-income households, even if they could afford to amortize their connections cannot afford the monthly rates of the services supplied. In the DISP, one objective is to improve access to water supply and sanitation among low-income groups. To accomplish this may require a pricing system which would require the higher income groups to pay more for their utility services so that

services can be made available to the lower income groups at prices they can afford. These higher charges would also cover the necessary environmental health education and action program, an integral part of water supply and sanitation programming. The DISP strategy and long term program for accomplishing this includes:

- The reduction of the present high connection fees (Rp.200,000 to Rp.300,000 per household connection). The recommended water rate structure calls for a drastic reduction in the connection fee to Rp.40,000 and changing the present unit water charges to a stepped rates structure wherein larger water users are billed at a higher rate than small users. In order to effectively meet the anticipated demand for services once connection costs are lowered, the program would be operated in stages in specific areas of Medan. In the interests of maximizing the programs impact in terms of both coverage and social equity, the densely populated central areas of Medan have been identified for the initial stage. Increased connections in those areas will have major positive direct and indirect effects on the basic consumption levels and costs for low income households.

- A technical assistance/regulatory/public education program aimed at upgrading the public safety of existing and new shallow wells and latrines should be implemented. Demonstration projects and/of financial assistance to groups or individuals in constructing both latrines and wells with appropriate sanitary seals, covers, etc., should be integral parts of this program. University engineering students made available through the workstudy programs proposed under the DISP education strategy could be utilized for this component of the program.

- The cost of any separate sanitary sewer system constructed in high density, low income central areas of the city would be subsidized from other portions of the system serving upper income groups.

SECTION 12

HOUSING

The basic strategy of the DISP is to provide better access for lower-income groups to the total pool of capital and management resources allocated for housing. The purpose is to achieve a rapid improvement in standards of living and thereby achieve a greater distribution of social equity in Medan. Housing in the DISP is considered to include housing supply, the construction and regulation of housing, land use and development policies controlling residential development, and the basic urban services necessary to support basic shelter solutions. The resolution of the housing problems therefore includes many other sectors and aspects.

The basic city-wide housing strategy under DISP responds to the real needs of all income groups in addition to recognizing the special importance of low-income groups. Thus it should be possible under the DISP to provide more housing stock to upper-income groups than would be possible under current levels of activity. With respect to low-income groups, the DISP does not propose any massive subsidy to them because over the long run, a meaningful level of subsidy is not possible. Low-income households would be expected to pay their share of the program costs with additional support provided in the form of internal transfers of capital created by differential pricing policies between upper and lower income groups, and preferential treatment in locational choices to reduce transportation costs.

Prior to developing the detailed components of the DISP strategy, it is necessary to determine the magnitude and composition of the various groups requiring housing under the strategy. Once the groups have been identified, their economic capacity to afford housing, or effective demand for housing, can be matched with the current economic realities of the housing supply. Therefore the following section briefly discusses the markets seved by BTN and Perumnas and then discusses the total housing market.

12.1 EFFECTIVE DEMAND

Since the BTN and Perumnas began developing and financing housing in Medan, all the units built have been allocated to either military or government employees, a group which 1979 labor force estimates project to be roughly 51,000 employees. As of mid 1979, roughly 14,400 units have been built and allocated. During Repelita III, an additional 13,631 units are projected to be built, again mainly for government employees. Thus the total number of actual and projected housing units designated for government and military employees will equal 28,000 units or one unit for every 1.8 public employees by 1985.

An analysis of the applications by government employees for BTN and Perumnas housing would seem to indicate that their current markets are becoming saturated. Since 1977, BTN has received 1,533 applications for housing loans of which it has approved 1,437. Perumnas has marketed its units through direct solicitations among government employees. It has sent 10,000 solicitations to government employees to purchase its units, of which it received 8,000 applications. Out of those 8,000 applications Perumnas has allocated roughly 7,000 units. When the number of applications not supplied with housing from both BTN and Perumnas are combined, they yield a demand among government employees for only 1,100 units. However as noted above, the two public housing institutions have plans to construct an additional 13,600 units for government employees.

Government and military employees at best only comprise about 27 percent of Medan's 192,000 households *. However as shown in Table 4.10 of Section 4, about 15 percent or 28,000 of Medan's households will actually require new housing in 1979. Table 12.1 shows the composition of the effective demand for housing represented by different income groups within this demand. Using that analysis, the demand for housing at monthly incomes of Rp.70,000 (the minimum qualifying household income for BTN housing), is only about 4,200 households, of which about 22 percent will be served by BTN's current projects. However a cumulative group of 25,300 households would qualify for the smallest Perumnas SSCH/LCH option of a 60 sq m plot. However, within that group, only about 2,800 households have incomes which would limit them to that minimum housing option. The rest could afford housing options with higher standards.

New housing, however, only forms one component of the effective demand for housing. Analysis of the living conditions of Medan households already housed, shows that roughly 59 percent or 113,000 households could benefit from some form of urban upgrading program such as the Kampung Improvement Program. Although exact estimates are not available, it is likely that up to 78 percent of those households living in semi-permanent or temporary housing could probably benefit from some form of home improvement program such as building materials loans, loan for improved sanitation, or others.

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* The actual proportion of Medan households is likely to be much smaller since lower paid and younger military and government employees are likely to be members of other households.

TABLE 12.1

EFFECTIVE DEMAND FOR HOUSING IN MEDAN, 1979

Percentile Ranking of Income Group	Income Group (Nov. 1979)	Maximum Housing Cost which can be afforded by Income Group [a] (Rp.)	Number of Households which can afford Housing Option	Description of Possible Housing Option Based on 1979 Costs and Perumnas Land Prices, Except where noted, 15% of Income is assumed available for Housing
10	25,000	378,000	25,334	Site and services housing such as 60 sq m plots with communal water, and 16 sq m house built from woodwool or alternative materials. Access provided by footpaths, sanitation: MCK's. NOTE: Smallest Medan II Housing Option.
20	34,000	515,000	22,519	Sites and services low cost housing such as 60 sq m plots with communal water and 22 sq m house built from woodwool or alternative materials. Access provided by footpaths. Or 90 sq m plot with individual water supply and 18 sq m house built from woodwool or alternative materials. Access provided by footpaths, sanitation for both options: MCK's. NOTE: Similar to Perumnas Housing Option.
30	42,000	636,000	19,704	Sites and services low cost housing such as 90 sq m plot with individual water supply and 23 sq m house. Access via footpaths, sanitation: MCK's. NOTE: Similar to Perumnas D21 Option.
40	49,000	742,000	16,889	Site and services low cost housing such as 90 sq m plot with individual water supply, and 30 sq m house built from alternative materials such as woodwool. Access via footpaths, sanitation: MCK's. NOTE: Similar to Perumnas D33 Option.
50	58,000	878,000	14,074	Sites and service low cost housing such as 90 sq m plot with individual water supply and 35 sq m house. Access via footpaths, sanitation: MCK's. Or 120 sq m plots with 30 sq m house. Access footpaths and minor roads.
60	68,000	1,029,000	11,259	Low cost housing such as 120 sq m plots, individual water supply, 37 sq m house, access via footpaths and minor roads, sanitation: MCK's. Or 160 sq m plot with 33 sq m house.
70	80,000	1,211,000	8,440	Low cost housing option such as 160 sq m plot with individual water supply, 36 sq m house of alternative materials. Or if 25% of income is used for housing, a 160 sq m plot with a 71 sq m house of alternative materials or a 160 sq m with a 35 sq m house built from brick and conventional materials.
80	98,000	1,483,000	5,629	Conventional housing option: 160 sq m plot with a 44 sq m house built from brick and concrete.
90	130,000	1,968,000	2,814	Upper income housing, must be determined on individual basis.

a. Affordability based on ammortization rates of 12 percent annual interest over 20 years with a 10 percent downpayment.

b. BTN minimum qualifying income of Rp.70,000/household/month falls in this range. If 33% of income is used to determine affordability as BTN permits, a household at the 62nd, percentile (Rp.70,000/month) could afford a house costing Rp.2,331,000, however if 15% of income is maintained, the same household can afford Rp.1,060,000 on a low cost housing option.

12.2 THE PRINCIPAL ELEMENTS OF THE DISP STRATEGY

12.2.1 Direct Public Sector Investment: Kampung Improvement Program

There should be a major effort to develop the Kampung Improvement Program (KIP) as a primary element of Medan's urban programming to meet the most urgent needs of low income groups. In particular, KIP strategy should focus at providing assistance to densely populated kampungs through providing improved water and sanitation, access, and where possible, assistance in the form of home improvement loans. During implementation, KIP strategy would recognized traditional institutional responsibilities as well as seek out other institutions which have programs which could play a role in KIP. It would seek to strengthen both institutional and inter-institutional coordination and capacities during the implementation process. The costs of improvement should be recovered from the beneficiaries whenever possible, and the levels of service should be based on affordability.

The primary components of KIP would be physical such as improved water and sanitation, access, solid waste disposal and drainage, and socio-economic programs such as improved land tenure through increased land registration, home improvement loans, improvement of health and educational facilities, and employment generation. The latter could be achieved through assistance to small scale industries located within kampungs, technical training, as well as general programs in other sectors to stimulate industrial development and employment.

12.2.2 Sites and Services/Low Cost Housing Programs

The current SSCH/LCH programming in Medan by Perumnas should be continued and include:

- Revised standards for infrastructure and housing to more adequately meet the effective demand of low-income households.
- The stimulation of integrated development through a mixing of housing types and income groups in order to provide better access for low-income families to urban facilities services and employment opportunities.
- The development of cross subsidy sites.
- Development of residential densities to sponsor public facilities at costs affordable to project residents.
- Use of construction techniques that would maximize labor inputs and provide a training ground for unskilled labor.
- Maximum utilization and training of small-scale local contractors.
- Neighborhood design concepts that would provide opportunities for small-scale industry, cottage industry, and local retail activity within residential areas.

- Foreign exchange costs for housing construction would be minimized through the maximum use of local materials.

- Providing greater access by low-income groups to Perumnas housing than has been available in the past.

- Extensive opportunities for self-help housing would be provided to individual households in order to improve living standards and reduce demands on capital resources by making use of the households own labor.

Under the DISP, public sector activities would be used to generate surpluses from charges to upper-income groups for sites and utility services which could be used for internal transfers within projects for low-income groups. Residential location policies would seek to keep transportation costs as low as possible for all households, and allocate high-amenity sites as equitably as possible. The basic urban policy would maximize the increase of net additions to the housing stock by avoiding urban renewal projects which require wholesale destruction of existing housing and relocation of households.

12.2.3 Indirect Support for Private Sector Housing

The DISP would seek to provide a wide range of indirect support to the private sector. Among the principle focuses of such support include:

- Improving land registration and tenure by the simplification of the existing procedures.

- Modification of existing building regulations and procedures so as to facilitate the construction of new housing at norms and standards which are affordable by lower-income groups, as well as the progressive upgrading of existing housing stock.

- Increasing the activities and effectiveness of BTN and the commercial banks in providing financial assistance and credit for housing upgrading and construction.

- Providing technical assistance to small construction companies, as well as assistance with the supply of inexpensive building materials.

- Developing procedures for providing finance for total housing packages including land for all income groups. One method of achieving this objective is to encourage the development of small urban infill sites.

12.3 PROGRAM TARGETS

The population in Medan is projected to reach 1.35 million persons by 1985 and 1.97 million by 2000. To adequately house that population at the best standard of living attainable for low income groups, DISP

strategy has adopted the following key targets for the housing program. The Kampung Improvement Program will serve approximately 840,000 persons by the year 2000. The 1979 target population (682,000 persons) will be served by the year 1996, and an additional 158,000 persons would be served in new Kampungs or in previously served kampungs which would have progressively improved levels of service. The remainder of the increase in target population (240,000 persons by 1996) will be absorbed in Perumnas' SSCH/LCH long term program which is projected to increase at 3 percent per annum to meet increases in population and replacement needs and/or through increased private sector activities which might be financed in part through the BTN or other commercial banks. Table 12.2 indicates the levels of total demand anticipated in Medan through the year 2000 and the relevant programs by target group.

12.4 THE BASIC HOUSING PROGRAMS PROPOSED FOR REPELITA III

12.4.1 Domestic KIP Program

The Domestic KIP Program established by Cipta Karya for Medan during Repelita III will cover approximately 200 ha. The national government will provide about Rp.620 million or roughly 60 percent of the program, with the remainder being supplied from the Kotamadya's budget. The Domestic KIP Program would make use of national and local funds to initiate, where possible, programs of immediate action in kampungs having the greatest need. It is anticipated that the Domestic Program (including the Kotamatsum pilot program) will cost approximately Rp. 1 billion over Repelita III and would benefit roughly 80,000 or 11 percent of the total kampung target population.

In the event that additional domestic and external financing were available another program alternative has been developed for KIP. The Expanded Domestic/External Program, would supplement the on-going Domestic Program. While the on-going Domestic Program is focused mainly on immediate actions to improve the household's standard of living, the Expanded Domestic/External Program will concentrate on the solution of more costly environmental problems in addition to programs to improve the family's access to educational, health and nutritional facilities and services and improvements in the family's productivity.

Due to the increased availability of additional funds, both domestic and external, the hectare coverage and per capita investment of the program would be increased over Repelita III. The original 200 ha of the Domestic Program would be expanded to cover 350 ha, and would serve an additional population of 60,000 persons (18 percent of the total KIP target group would be served by the combined programs).

12.4.2 Sites and Services/Low Cost Housing

The Repelita III targets for SSCH/LCH would serve a total low income and possible middle income population of 77,000. These targets are composed of completion of Perumnas' existing programs of 5,000 units

TABLE 12.2

DISP HOUSING PROGRAM TARGETS, 1980-2000

	Cumulative Number of Households Lacking Adequate Housing Provisions if no Action is taken [a]		DISP STRATEGY					
			Number of Households Benefiting under KIP Programs		Number of Households Benefiting under Perumnas' SSCH/LCH Programs		Number of Households which must be served by Private Sector or Other Means [f]	
Period	Households	Persons	Households	Persons	Households	Persons	Households	Persons
1979-1985	180,004	1,098,022	13,115	80,000 [b]	12,699	77,463	154,190	940,559
			22,950	140,000 [c]			144,355	880,565
1986-1990	169,201	1,032,123	95,323	581,470	13,131	80,096	60,747	370,557
1991-1995	187,462	1,143,515	124,127	757,172 [d]	13,577	82,820	49,758	303,523
1996-2000	208,966	1,274,701	137,704	840,000 [e]	14,038	85,635	57,224	349,066

Source: a. Based on Current Population and Housing and Housing Trends shown in Table 4.10 of Section 4.
b. Domestic KIP Program only.
c. Expanded Domestic/External Program.
d. KIP 1979 Target Population of 682,000 persons plus additional 79,000 persons served in existing Kampung with increased levels of service.
e. Kampung Improvement Program Target.
f. Group includes upper and upper middle income families who do not qualify for KIP or SSCH/LCH but still require housing as well as low income groups not yet served by KIP SSCH/LCH.

and the development of an additional 8,400 SSCH/LCH units on a 160 ha site on the Brastagi Road.

Due to site's configuration, which lends itself to a mixture of middle and lower income housing, and the estimated effective demand for housing shown in Table 12.1, the site would be designed to serve both low and middle income groups from the public at large. The middle income housing and possibly some of the lower income housing would be financed through the Bank Tabungan Negara (BTN).

Standards for the site, which would act as a prototype for later SSCH/LCH projects, would provide a range of housing options aimed at meeting the affordability of different income groups in Medan without external subsidies. However, where possible, cross subsidies within the site would be developed to lessen the financial burden of the lowest income groups. To achieve these aims, a preliminary range of plot sizes starting from a 60 sq m plot aimed at lower income groups to 300 sq m plots designated for middle income, BTN financed housing would be developed. Since these communities would have minimum populations of 40,000, they would be designed under the "Planned Unit Concept" whereby they would be provided with a full complement of urban services such as educational and health facilities, markets and other public facilities. To accommodate future population growth as well as reduce the pressure experienced in existing kampungs, it is projected that the SSCH/LCH program should achieve an annual growth rate in the number of units constructed of three percent per annum.

Preliminary costs for the 8,400 units to be constructed during Repelita III are estimated to be approximately Rp.13,030.9 million in mid 1979 costs and involve a foreign exchange component of roughly 20 percent.

Additional financial resources should be identified by Perumnas to ensure that its programs can expand to meet projected demand for housing in Medan. Greater private sector financing of projects should be studied such as providing upper and middle income developed land option which would provide cross subsidies for lower income groups.

Actions also need to be taken to improve construction efficiency and reduce costs through improved contract financing. Some of the methods which should be explored are reductions in interest paid during construction, methods of providing supplier credit and bulk purchasing which would reduce construction cost increase during construction.

Finally, Perumans needs to set up a Medan branch office which would have full authority over project planning and development, project administration and post-construction project management. If Perumans is to achieve an annual three percent growth rate in its programs, it will be necessary for it to control its project planning and programming, land acquisition and contract management in Medan.

12.4.3 Private Sector Housing Development

Direct public investment in housing programs can only meet the needs of a portion of Medan's population. Indirect programs aimed at supporting private sector housing are therefore an important part of the DISP Strategy. The following immediate actions are needed to support the private sector as well as public sector housing:

1. The land registration process needs to intensified. Actions need to be taken to increase local level responsibility to increase the rate of processing and to reduce registration costs. Coupled with increased land registration, a thorough study of land rights needs to be undertaken to find ways of simplifying the forms of ownership and to provide secure tenure for households which lack it.

2. Methods of equitably financing land purchases by both the private and public sector need to be studied. Financing for land purchases should become an integral component part of development projects. However adequate control over land speculation such as graduated land price ceilings which are tied to total project costs and the affordability of various income groups should be studied. Such ceilings would allow access to housing finance by all groups, but would at the same time ensure that total housing resources were equitably distributed to all income groups. A vital component of the balanced private sector housing program would be the development of a "Public Land Development Corporation" which is discussed more fully elsewhere.

3. The processes of housing development need to be simplified. The number of agencies which must approve a project prior to project financing, should be reduced to allow greater access by all income groups to private sector housing and to reduce project costs.

4. The City Planning Department through the Kotamadya should establish a realistic set of standards and norms for housing development which is geared to the affordability of different income groups within the city as well as recognizes social and environmental conditions, such as flooding and use of agricultural land. Once drafted and tested, adequate legislation should be drafted to give these development controls legal status.

12.5 CAPITAL REQUIREMENTS OF HOUSING PROGRAMS OVER REPELITA III

The total capital requirements for the Medan Kampung Improvement Program and the proposed Perumnas Medan III SSCH/LCH project are estimated to be approximately Rp.15,540 millions. Roughly 25 percent of the total costs of the KIP and Medan III programs is due to direct and indirect foreign exchange costs. Land acquisition accounts for about eight percent of the combined costs of KIP and Medan III, while civil

works and housing contribute 63 percent of the new program costs. Social facilities and socio-economic programs within KIP and Medan III projects (excluding land purchases for those components) yield an additional six percent of project costs. The remainder of total costs is due to physical contingencies, engineering design and supervision, and contractor profits.

12.6 FINANCING FOR HOUSING PROGRAMS FOR REPELITA III

The actual composition of the financing for the housing program of Repelita III is still being studied. The final conclusions will be presented in the Housing Development Plan report (Volume IV).

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SECTION 13

HEALTH

13.1 OBJECTIVES AND STRATEGIES

The national objectives of the program for Health Services is to provided easy access to minimum Health Services for all segments of the population, to provide an extensive program of free or minimal costs medicare, and to develop an extensive, effective program of preventive medicine.

The basic strategy to accomplish the above objectives would be to stimulate the development of the current system of tiered health facilities being constructed under INPRES and through other governmental programs. Major emphasis and priority would be given to the strengthening of the lower level of Health Services (Puskesmas, Policlinics and Pos Kesehatan) rather than developing of upper level facilities such as hospitals.

In order to maintain easy access to health facilities, efforts should be taken to ensure that the provision of Health Services is made in the areas of the greatest need. Support should be given to the strategy of development of small sized health facilities in the high density areas on plots of less than 100 sq m in order to overcome the problems of shortage of land. Recent government policy prohibiting the rental of buildings for health facilities purposes should be changed.

The data collection and recording systems should be improved and should provide health data on a smaller areas such as Kecamatans or kampungs. In this way, analysis of distribution of services, land facilities and health planning will be more effective.

Particular emphasis would be placed on the development of preventive health programs as the key to the solution of the major problems of Medan with an explicit provision for future curative health requirements.

13.2 HEALTH PROGRAMS: 1985 and 2000

13.2.1 Preventive Health Program

The first objective of the strategy is to develop, reinforce, and maintain an extensive program of preventive medicine. This program would consist of the following parts:

Preventive Health Information and Education - extensive health information and education program would be established through the utilization of the combined resources of the Health Department, the state and private universities in Medan and the Department of Education. These would carry out a comprehensive program of immunization disease control, community and school health education. This program would be directly integrated with the proposed phasing for the water and sanitation action program outlined below and would include:

- The recruitment and training of community health workers to work at the post kesehatan level under the direction of the Health Department in the city-wide kampung improvement areas

- The design and implementation of a work study program for medical and social science students in the fields of curative and preventive health

- The intensification of health education programs in the schools particularly oriented to towards water supply and sanitation and their effects on environmental health

- The development and implementation of a comprehensive health information program through mass media, TV and radio

- Training for the Kepala Lorong in health education, with both LSD and PMD having important roles specific in the implementation of health education and information

Action programs -- two types of immediate action programs are proposed as preventive health measures, both of which would be major focuses of the City-wide Kampung Improvement Program. They are improved solid waste control and improved water supply, and sanitation.

With respect to solid waste collection, the local bodies responsible for the KIP would be responsible for ensuring the regular collection of garbage in their areas. The task of collection would be organized on a private or community cooperative basis depending on the specific characteristics of the kampung to be improved.

The health situation in many areas would also improve if improvements can be made in water supply, drainage, and sewerage. At present most of the people living in low income kampungs consume polluted water from shallow wells. As part of the program for water supply and sanitation, it is proposed that the accessibility to potable water be increased at the lowest income level through a public standpipe system. Sewerage and drainage is also greatly needed. In areas where the dwelling cannot be connected to a sewer initially, it is proposed that the ongoing program of latrine and MCK construction be expanded as the primary low-cost solution to the problem. The investment required in this type of integrated public health program, particularly when focussed by KIP, is preferable to the ad hoc and isolated programs currently underway.

13.3 CURATIVE HEALTH PROGRAM

The objective is to provide access to hospitals, Puskesmas and maternity homes for a maximum number of people. Since the specialized services provided by hospitals are only accessible to a small portion of the population, and are also much more costly to establish and operate than the Puskesmas, it is proposed that the role of Puskesmas in the future be expanded. Expanded provision of numerous health centers is expected to improve accessibility to both preventive as well as curative health care of low income groups and consequently improve their levels of health and well-being.

13.3.1 Health Facilities and Manpower Requirements 1985 and 2000

The proposed sizes and staffing levels of these health facilities are critical. Limited advances have been made in Medan in recent years in the construction of health facilities through the INPRES program. However, levels of health have not increased significantly. Table 13.1 and 13.2 show the estimated health facilities and manpower requirements for the year 1985 and 2000 respectively. These estimates were based on the following Health Department standards:

Standard Facilities Requirement

Hospital	2.25 beds	for 1,000 population
Puskesmas	1	for 30,000 population
Mother and Child Clinics	1	for 10,000 population
Policlinics (BPU)	1	for 10,000 population
Primary Health Post	1	for 3,000 population

Standard Manpower Requirements

Hospital with a total capacity of 50 beds	:	4 Physicians 57 Nurses 3 Midwives 20 Other paramedical staff
Puskesmas	:	2 Physicians 1 Midwive
Policlinics (BPU)	:	3 Nurses 1 Health Officer
Primary Health Post	:	3 Health Officer (voluntary)

13.3.2 Health Manpower

The health manpower programs should be oriented towards producing the greatest number of general practitioners and paramedical personnel. Health training should emphasize the community health aspects of preventive medicine which are relevant to Medan conditions, as well as curative medicine. Provision should be made for the development of shorter applied

TABLE 13.1

TOTAL ESTIMATED HEALTH FACILITIES REQUIREMENTS FOR MEDAN, 1985 AND 2000

Year	1985 Estimated Population: 1,340,000						2000 Estimated Population: 1,950,000					
	No. Facilities	Doctors	Nurses	Midwife	Sanitarian	Health Officer	No. Facilities	Doctors	Nurses	Midwife	Sanitarian	Health Officer
Hospital Beds	4026						5859					
PUSKESMAS	44	88	176	44	44	132	65	130	260	65	65	195
Mother and Child Clinics	134	-	268	134			195		390	134		
Policlinics (BPU)	134		402			134	195		585			195
Primary Health Post (Pos Kesehatan)	447					1341	651					1953

Source: MUDS

TABLE 13.2

ESTIMATED HEALTH FACILITIES NEEDED TO BE CONSTRUCTED IN MEDAN, YEAR 1985 & 2000

Year	1985 Estimated Population: 1,340,000						2000 Estimated Population: 1,950,000					
	No. Facilities	Doctors	Nurses	Midwife	Sanitarian	Health Officer	No. Facilities	Doctors	Nurses	Midwife	Sanitarian	Health Officer
Hospital Beds	1597	105	1875	90	15	525	1833	126	2250	108	18	630
PUSKESMAS	22	44	88	22	22	66	21	42	84	21	21	63
Mother and Child Clinics	85		170	85			61		122	61		
Policlinics (BPU)	58		174			58	61		183			61
Primary Health Post (Pos Kesehatan)	447					1341	204					612

Source: MUDS

medical and social work courses to prepare personnel for community based education and training activities. These are outlined in the education guidelines which form a part of Section 15.

13.3.3 The Geographic Distribution of Health Services

The provision of greater access for the bulk of the population through the decentralization of Health Services is an important part of the DISP. The larger hospitals should eventually no longer the reception centers for all kinds of patients from all over the city, but should specialized in more serious cases which are referred to them by primary level health care facilities.

Access to hospitals could be improved considerably by an expansion of the ambulance services linked with hospitals and heatlh centers through telephone communication. Preventive health information would be broadcast through television sets located in the Kantor Kelurahan and public buildings and parks throughout Medan. The construction of major medical facilities should be limited, health programs should be aimed at improvements in the standards of medical service for all segments of the population.

13.3.4 Cost of New Health Facilities

During Repelita III, 12 health centers (Puskesmas) and 20 policlinics (Puskesmas Pembantu) will be constructed in Medan to meet the population's needs for lower level health services. These facilities will involve a total projected expenditure of 403 million Rupiah the end of FY 1983/84. Of that amount, 44 percent will be financed by the Kotamadya budget. The remainder will be financed by the national government through the INPRES program (see Table 13.3).

TABLE 13.3

CONSTRUCTION OF NEW HEALTH FACILITIES IN MEDAN DURING REPELITA III
(MILLIONS OF RUPIAH)

Project Items	Element of the Project	Scheduling, Financing Agency and Value of Construction																			
		79/80				80/81				81/82				82/83				83/84			
		Number of Facilities	Value			Number of Facilities	Value			Number of Facilities	Value			Number of Facilities	Value			Number of Facilities	Value		
			Municipality	Central Government	Total		Municipality	Central Government	Total		Municipality	Central Government	Total		Municipality	Central Government	Total		Municipality	Central Government	Total
PUSKESMAS (Health Center)		2				2				3				3				4			
	Land aquisition		20.0		20.0		10.0		10.0		15.0		15.0		15.0		15.0		20.0		20.0
	Land preparation etc.		2.0		2.0		2.0		2.0		3.0		3.0		3.0		3.0		4.0		4.0
	Construction			23.0	23.0			23.0	23.0			34.5	34.5			34.5	34.5			46.0	46.0
PUSKESMAS PEMBANTU (Policlinic)		4				4				5				6				9			
	Land aquisition		10.0		10.0		10.0		10.0		12.5		12.5		15.0		15.0		22.5		22.5
	Land Preparation etc.		2.0		2.0		2.0		2.0		2.5		2.5		3.0		3.0		4.5		4.5
	Construction			9.2	9.2			9.2	9.2			11.5	11.5			13.8	13.8			20.7	20.7
	Total	6	34.0	32.2	66.2	6	24.0	32.2	56.2	8	33.0	46.0	79.0	9	36.0	48.3	84.3	13	51.0	66.7	117.7

SECTION 14

EDUCATION

14.1 BASIC OBJECTIVES AND STRATEGY

The Long Term Development Strategy for education emphasises the continuance of development of a widespread literacy, the development of technical skills, free education, and access to minimum levels of educational services for all segments of the population. The current educational policy of the Government of Indonesia stresses increases in coverage and equity through educational opportunity, increases in the quality and relevance of education and increases in the effectiveness and efficiency of education.

The proposed development strategy corresponds with this view and identifies the programs and priorities needed to achieve these broad objectives in Medan. Particular importance is attached to the recognition of the social development functions of education and the need to increase the capacity of informal education as a major component of education, especially for the development of practical knowledge and basic skills.

14.2 EDUCATION PROGRAMS 1985 AND 2000

14.2.1 Literacy

Illiteracy in Medan is quite minimal. Penmas in Medan estimates that the percentage of illiterate people has been reduced from 2.8 percent in 1971 to 1.6 percent in 1978. Despite this fact, "functional" literacy - the basic knowledge required to participate effectively in all aspects of Medan's urban environment has not been achieved by the great majority of the low income population, both adults and children. A significant increase in the current levels of leadership and family education (through programs such as Penmas) are directly connected with the practical skills required to increase both productivity as well as essential levels of consumption of low-income households.

14.2.2 Adult Education

The social development function of education would be realized through an adult education program which would study a wide range of practical problems in the field of nutrition, hygiene, family planning, vaccination and social participation. The use of both mass media and personal influence through community development will be required to make

this program effective. At the city-wide level the use of radio, television and the cinema to present adults education programs as part of general programming should be investigated. In low-income kampungs, adult education programs would be organized by the community and would be provided with technical assistance from outside the community. Particular emphasis would need to be placed on the more effective use of PMD, to stimulate and coordinate efforts with the Kepala Kampung at the Desa level. Medical workers, students of social sciences, teachers and military personnel would be mobilized for this type of community program. It is estimated that this type of program could benefit about 700,000 low-income people.

Students and possibly military personnel could be required to participate in this program for one to two years as part of their training and to assist the nation in the resolution of its most urgent social and environmental educational problems. Currently, the University of North Sumatra has about 1,000 medical students, and about 1,400 in the Social Science College (to name only two of the eight faculties). Within the faculties of engineering, law, pharmacy, dentistry, a total of over 4,500 students would be potentially available in some form to assist in the development of Medan. With respect to the military, a significant portion of the personnel located in the Army and Navy Command could potentially be mobilized as part of the overall effort. Local bodies at the kampung level under the coordination of LSD and LMD would be responsible for the community development organization in their own areas.

Adult education programs such as Penmas would also play a major role in providing functional environmental and employment skills to both the unemployed and underemployed adults as well as school dropouts. However, an expanded Penmas type program would be required to provide satisfactory coverage. Such an expanded program should include a more effective training of trainers (some of whom would be both students and military personnel) and a much more effective identification of the direct linkages between training courses and real opportunities to increase incomes through both formal and informal economic activities.

14.2.3 The Supply of Formal Education Facilities

14.2.3.1 General Education

The objective of general education is to provide access to primary and secondary education for the largest number of people possible. Using the 1979 enrollment data as a base, and considering the future population growth, the enrollment standards for primary, secondary and college education for 1984 and 2000 are as follows:

SD	1985 primary education	- 95 percent
	2000 primary education	- 100 percent
SLTP	1984 junior high school	- 85 percent of elementary school graduates
	2000 junior high school	- 95 percent of elementary school graduates

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SLTA 1984 senior high school - 81 percent of SMP graduates
2000 senior high school - 90 percent of SMP graduates

The following tables show the educational facilities and manpower requirements for Medan in year 1985 and 2000 for each level of education. These requirements are based on:

1. The assumption that the percentage distribution of population by age in Medan in the future will follow a similar pattern as the North Sumatra Province. Using this assumption, it is estimated that school age population for each level of education would be as follows:

Facility		Year 1985	Year 2000
SD	Elementary Schools	218,047	293,536
SLTP	Junior High Schools	171,756	260,530
SLTA	Senior High Schools	138,169	222,153

2. The calculation for the elementary schools are based on: target of attendance rates as set out in Repelita III that 100 percent of school age population (6 to 12 years) will be accepted in elementary schools by the end of 1984/85. The standards are that buildings will consist of 6 classrooms each having 40 pupils per classroom and one teacher for 35 pupils.

3. The calculations for the junior high schools are based on: target of acceptance rates as set out in Repelita III that 85 percent of elementary school graduates will be accepted in junior high schools. The standards are that a building will consist of 12 classrooms with 30 pupils per class and one teacher for 25 pupils.

4. The calculations for the senior high schools are based on: target of acceptance rates are set out in the Repelita III that 81 percent of junior high school graduates will be accepted in senior high schools. The standards are that one building will consist of 12 classrooms with 25 pupils per class and one teacher for 20 pupils.

As can be seen from the Tables 14.1 and 14.2, an estimated 315 elementary schools, and 16 junior and 15 senior high schools should be built with corresponding increases in the number of teachers. These quantities, while desirable, are beyond any realistic budget expectation. If land can be acquired, it is expected that only 140 elementary schools, five junior and five senior high schools can be built during Repelita III. Priority should be given to the construction of secondary level facilities. The double shift program and the identification of other existing facilities where educational services might be offered should also be given priority attention.

TABLE 14.1

ESTIMATED ELEMENTARY SCHOOL REQUIREMENTS FOR MEDAN, 1985 AND 2000

Kecamatan	1985					2000				
	Estimated School Age Population	Requirement of Classrooms	Requirement of Schools	Additional Requirements Classrooms	Additional Requirements Schools	Estimated School Age Population	Requirements of Classrooms	Requirements of Schools	Additional Requirements Classrooms	Additional Requirements Schools
Kota	39,466	986	164	441	73	43,436	1,085	181	99	17
Timur	30,381	759	127	269	44	35,545	889	148	130	22
Baru	22,110	552	92	257	43	31,058	776	129	224	37
Barat	24,076	601	100	156	26	32,329	808	135	207	35
Denai	21,917	548	91	198	33	34,418	860	143	312	52
Labuhan	10,033	257	42	86	14	13,076	327	55	76	13
Johor	9,953	249	42	29	5	17,314	433	72	189	32
Tuntungan	8,887	222	37	127	21	16,710	418	70	196	33
Sunggal	17,355	434	72	169	28	33,231	831	139	397	66
Deli	9,835	246	41	91	15	12,955	324	54	78	13
Belawan	10,191	255	43	80	13	11,272	282	47	27	5
Total	204,204	5,109	851	1,903	315	281,344	7,033	1,173	1,935	325

SOURCE: MUDS

TABLE 14.2

ESTIMATED NEW JUNIOR AND SENIOR HIGH SCHOOL FACILITIES AND MANPOWER NEEDS IN MEDAN, 1985

	Junior High Schools (SLTP)	Senior High Schools (SLTA)
Estimated school age population	171,756	138,169
Estimated number of new students	30,039*	23,187**
Classrooms	1,001	927
Buildings	83	77
Teachers	1,202	1,159

Source: MUDS
* Based on the 85 percent acceptance rate.
** Based on the 81 percent acceptance rate.

14.2.3.2 Specialized Education

An important objective of the proposed strategy would be the expansion of vocational and employment skills training. This training would be connected with factories and specific urban development projects such as water and sanitation and KIP.

There will be a need to develop special professional education curriculum for shorter applied medical courses to prepare medical workers and social workers for the adult education program mentioned earlier.

14.2.4 The Geographic Distribution of Education Services

Primary and secondary schools would be located in the immediate neighborhood of residential areas to maintain easy access to all segments of the population. The University of North Sumatra would also develop and expand an extension type educational service through the institution of programs in various parts of the city, corresponding to the population distribution. Technical training centres would be located in all industrial areas. TV sets placed in large public areas such as parks and in the low-income kampungs should become a part of the implementation of the special adult education program sponsored by TVRI.

14.2.5 The Quality of Educational Services

Special emphasis is placed on the upgrading of the quality of educational services themselves, through improvement in the quality of teaching staff, teaching materials and curricula, and on higher salaries for teachers. This dictates that expenses for the construction of facilities be subordinated to provide greater access to necessary educational services either with or without official facilities. Multi-uses

for existing public facilities, double shift programming and expanded subsidization of schools which do not meet the physical standards established by the Ministry of Education will be necessary whereever feasible to increase the coverage of educational services.

This is especially relevant to elementary education in Medan. Approximately 160 new basic unit elementary schools were built, almost doubling facilities during Repelita II. However, an estimated 124 elementary schools are expected to be needed during Repelita III. While the record of INPRES is certainly impressive, and concern about the quality of teachers and curriculum is bound to arise during periods of rapid expansion, the ability of certain sections of Medan's population to benefit from the new facilities is still an issue. Increasingly difficult land acquisition problems in the more densely populated areas of Medan have precluded the construction of INPRES schools and frequently the subsidization of local schools which do not meet the building or land requirements established by the government. While certain basic requirements must be maintained with respect to the physical structure and play areas for children, the standards established for these should be minimal in high density neighborhoods where there is a lack of land. The primary emphasis should be placed on immediate subsidization of teachers and materials to provide basic educational services as quickly as possible in the most convenient and feasible locations.

This is especially true at the elementary level of education in Medan where a more effective utilization of already existing facilities could meet most of the enticipated total demand. Some portion of INPRES funds could be reallocated to upgrade the quality of services offered.

Limited local resources for the acquisition of land and the construction of physical facilities could then be focussed on the junior and senior high school levels where there is a much greater need for additional physical facilities.

14.2.6 The Costs of Education to Population Groups

In the past, the high costs of education have made it difficult for lower income groups to send their children to school and to provide vocational education. Some of these problems have been alleviated by the 1977/78 decision to eliminate shcool fees for the first six grades of primary school. While this action places an additional burden on the government to achieve its Repelita III goal of universal primary education, it supports the strategy proposed for Medan's development.

Free education up to university level, including the free provision of books and materials, and free vocational and commercial education are key elements in this plan. The costs of education services would be borne by the Indonesia society as a whole through a progressive tax system.

During Repelita III, a total of 3,252 million Rupiah is projected to be spent on the construction of 140 elementary schools, 4 SMP (Junior High Schools) and 40 SMA (Senior High Schools). The Kotamadya will be required to finance roughly 53 percent of the total costs, while the remainder will be financed by the National Government. (See Table 14.3).

TABLE 14.3

PROPOSED EDUCATION FACILITIES TO BE CONSTRUCTED DURING REPELITA III
(MILLIONS OF RUPIAH)

Project Items	Element of the Project	Scheduling and Financing Agency																			
		79/80				80/81				81/82				82/83				83/84			
		Number of Facilities	Value			Number of Facilities	Value			Number of Facilities	Value			Number of Facilities	Value			Number of Facilities	Value		
			Municipality	Central Government	Total		Municipality	Central Government	Total		Municipality	Central Government	Total		Municipality	Central Government	Total		Municipality	Central Government	Total
SD (Elementary School)		20				23				27				32				38			
	Land acquisition		15.0	*	15.0		172.5		172.5		202.5		202.5		240.0		240.0		285.0		285.0
	Land preparation etc.		6.0		6.0		34.5		34.5		40.5		40.5		48.0		48.0		57.0		57.0
	Construction			120.0	120.0			138.0	138.0			162.0	162.0			192.0	192.0			228.0	228.0
SMP (Junior High School)						1				1				1				1			
	Land acquisition						75.0		75.0		75.0		75.0		75.0		75.0		75.0		75.0
	Land preparation etc.						3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0
	Construction							92.7	92.7			92.7	92.7			92.7	92.7			92.7	92.7
SMA (Senior High School)						1				1				1				1			
	Land acquisition						75.0		75.0		75.0		75.0		75.0		75.0		75.0		75.0
	Land preparation etc.						3.0		3.0		3.0		3.0		3.0		3.0		3.0		3.0
	Construction							74.5	74.5			74.5	74.5			74.5	74.5			74.5	74.5
	Total	20	21.0	120.0	141.0	25	363.0	305.2	668.2	29	399.0	329.2	728.2	34	444.0	359.2	803.2	40	498.0	395.2	893.2

* Only for 4 schools, the other of 16 schools has location of Perumnas I & II iste.

SECTION 15

LAND USE

15.1 BASIC STRATEGY

The national policy of Repelita III for land use is "to make land use really helpful in improving the welfare of the people in the context of realizing social justice, in addition to preserving its everlasting aspect, it is also necessary to realize the use, the control and ownership of land"*. Based upon this national policy guideline, the objectives of land use for Medan during the current Repelita period are to improve the living environment and accessibility to employment and services for the population with particular emphasis for low groups and the growth and the improvement of both city and region related service and manufacturing activities. The land use pattern will depend on the government's ability to influence the growth and improvement of both city and region related service and manufacturing activities.

Strategies to achieve that objective are: (1) to supply sufficient amounts of serviced land for new housing development in order to curb the steady upward spiral of land prices caused by speculation. The integration of various income groups within such housing is a primary component of the DISP. Without it, development costs would be higher and service levels lower for low income groups. Furthermore, at least a part of the increases in land values which result from public investment should be returned to the public; (2) to encourage and stimulate the development of medium-and small-scale industries in residential areas consistent with environmental and transportation consideration; and (3) to relocate those obsolete land uses, (e.g. railway switchyard and warehouses) in the central area to provide opportunities for the growth and re-vitalization of the city center's regional activities. These guidelines for land use in the city are based on the overall objectives and strategies and are set forth in the following sections.

15.2 LAND USE STANDARDS AND FACTORS AFFECTING LAND USE PATTERN

The existing standards for controlling land use in the city consist largely of specifications with respect to use designations, set-back requirements, density restrictions and other design requirements. This

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* Article 20, Chapter IV, "The Guidelines of State Policy of the Republic of Indonesia, 1978" p.29.

approach is based solely upon 'use' of land development. The DISP, however, calls for standards for land use control based upon 'effect' of development. As long as the development is not detrimental to the resource, the potential for development can be maximized. Development is therefore permitted to the extent that land is capable of sustaining the 'use'. Physical factors related to land capacity include land erosion potential, soil limitations in regard to subsurface sewage disposal and bearing capacity, protection of ground water supply and flood hazards. Those factors relevant to the city are described in some detail in Technical Memorandum No.14 - Physical Constraints to Urbanization. Therefore, development should occur to the east of Denai district and in Tuntungan and Johor districts, while development at the north of Deli district and in Labuhan district should be limited.

The existing standards in Medan Master Plan for residential development are grossly beyond the affordability of a majority of Medan households. Standards for the provision of public facilities are also far beyond realistic public resource levels. Analysis of those standards indicates that some 23 billion rupiahs, representing 532 percent of total municipal expenditure in FY 1979/80, would be required to purchase additional land for the public facilities needed in the six major built-up districts of Medan (70 percent of the total population). Such standards, if strictly applied, will be a prime deterrant to housing and land development in Medan future years. The DISP therefore calls for the development of land use standards for the city which are based on affordability for both the municipality and household. Over the short term, however, new housing should be develop using the 'Planned Unit Development' concept by both the public and private sector. This will require the more aggressive involvement of the public sector in encouraging and stimulating urban development.

The key factors which influence the land use pattern include employment and residential location, transportation, public investment and interest, and land resource and supply. Guidelines for location, investment distribution, public interest protection and resource development are described below.

15.2.1 Residential Location

New residential locations should be excluded from those areas which are physically unsuitable for residential use or where new development would yield adverse effect to the neighboring environment, (e.g. swamp and low-lying land). However, new residential development should be stimulated in the south of Medan Johor and in the east of Medan Denai district. Development in Medan Tuntungan district should be coordinated with the construction of Outer-ring Road and improvements along the downstream of Deli River. During the current Repelita period, in-fill development in Medan Denai and Medan Sunggal districts should take advantage of growth trends and public investments made in Repelita II period. During the Repelita III, the most significant residential development project in terms of impact on the land use pattern will be the Medan III housing estate to be located at the south of Medan Johor district immediately adjacent to the city's boundary.

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15.2.2 Employment Location

Reinforcement of industrial development should take place in Medan Sunggal district along Binjei corridor, in Medan Johor along Tebing Tinggi corridor, and in Medan Deli along the Belawan corridor, and finally in Belawan through the expansion of Belawan port itself. While both the industrial estate and the expansion of the port will start during Repelita III, their impact will be much greater toward the end of the period and beyond. Upon completion of Toll Road/By-pass, industrial development is expected to occur around the interchanges along the By-pass. These areas are in close proximity to major low-income residential areas in the eastern sector of Medan. Meanwhile, if consistent with private sector interests, the DISP would encourage the dispersion of small scale industry within or close to residential areas, particularly new medium- and low-income mix residential areas.

Medan has been behind other major cities in this country in industrial investment. Growth of industrial development in North Sumatra, i.e. Asahan Area Projects and Plantation Projects, will further stimulate Medan in regional service industries, e.g. banking, insurance, international trading, shipping etc. Locations of growth of those regional servicing activities will predicably be within the existing central area of the city. Therefore, land for those activities can be made available through the relocation of obsolete activities (e.g. warehousing, railway switchyard and wholesale market). These warehousing activities would be located on the perifery of the city at a juncture of rail and road transport.

15.2.3 Transportation System

The existing road network in the city inevitably funnels most of the regional traffic through the central area and greatly hinders development in peripheral area. The development of the proposed outer-ring road with the road width widened progressively according to the growth of traffic volume will facilitate traffic flow in and around the city and open up new land for development. Improvement and development of a secondary road network is also urged to stimulate proper housing in-fill. Public transport is essential in order to increase the accessibility of low income population to jobs and services and to stimulate the development of new areas.

Public transport is regarded as "public service" for the social equity objective rather than "public goods" to be operated on a commercial basis. Service routes should also be consistent with the needs of urban development. The proposed urban train program will exert a significant impact on the land use pattern in a regional metropolitan context after 1985. Cautious selection in the location of stations en-route and coordination with public land acquisition is required to take maximum advantage of land development opportunities which will be created. Locational strategy must incorporate future development potentials, while considering proximity to the existing settlement concentrations.

15.2.4 Public Investment

Public investment over the last Repelita period was primarily focussed on new housing, markets, health and school facilities and roads. Under the DISP, it will also include Kampung Improvement, water supply and sanitation. The increased scope will place additional burdens on limited public resources. The public share of the total investment burden would be minimized through economical and flexible staging of land development which would reduce the risks and costs of premature development, minimize infrastructure outlays during development period, and maximize accessibility in terms of time and cost for all target groups during the initial stages of development. Meanwhile, legislation and procedures designed to recapture the increments in land value resulting from public investment in infrastructure should be investigated and pursued. Information on land transactions conducted by Medan real estate agents have indicated that values surrounding Toll Road and Helvetia (Perumnas Medan I) had been increased 1233 percent and 400 percent, respectively, between 1977 and 1979. As to the kampung improvement program, it is also necessary to ensure that public investment will not result in massive encroachment by upper income groups in improved areas by providing secure land tenure to existing residents as part of the upgrading process as well as alternative upper income development options.

15.2.5 Land Resource

Table 15.1 provides a brief description of land resources in the city and immediate vicinity. A rough estimate of the land resource indicates that 3,800 hectares could be developed for urban uses. This exceeds the projected land needs for the Medan city of 3,000 hectares through the year 2000. Development of land resources should be pursued in a manner which prevents adverse effects to other areas or uses, (i.e. flooding and agricultural use), and is consistent with real growth trends.

Medan has ample land available for development. Nonetheless, the grave inadequacy of infrastructure provisions has resulted in a significant shortage of land supply for development. This is further exacerbated by cumbersome administrative procedures for land acquisition, and the lack of effective action to control speculation. Thus land provisions for social facilities, infrastructure and low income housing in particular have been inadequate.

Timely completion of infrastructure in those area suitable for immediate development is required, as is the delegation of administrative power to the local agrarian authority, and more efficient policies and procedures for land registration, acquisition and change of use designation. The definition 'public benefit' should be broadened to allow a public authority to exercise the right of 'eminent domain' and to purchase land needed for social facilities, infrastructure and low income housing. Legislation should be introduced to control land speculation, (e.g. taxation on vacant land, to encourage land supply). Land supply for urban use in Medan should not be limited to administrative boundaries, as long as development sites are consistent with available infrastructure, physical suitability and socio-economical desirability.

TABLE 15.1

SUMMARY MATRIX OF LAND RESOURCES IN MEDAN

Site No.	Location *	Land Area (ha)	Existing Use	Topography/ Natural Drainage	Distance to Service Connection		Remarks
					Road (km)	Water (km)	
I	Medan Industrial Estate East	300	Non-specified use Less than 50 rural houses in the site	El. 5 - 10 m, Slope 0.3% Deli river High flood risk	Next to toll rd. inter-change	2.8	Development pressure would be exerted if industrial development is successful in the industrial estate. Location is suitable for warehousing. Flood control required for development.
II	M. Denai North (outside city boundary)	450	10% Rice paddy field (dry land) Remaining 90% abandoned tobacco plantation estate	El. 12.5-17.5m, Slope 0.1% Kera river Moderate flood risk	2.5 Poor	4.0	Development depends on the completion of Outer-ring Road. Good potential for warehousing and low income housing if Outer-ring road constructed.
III	Toll Road East (outside city boundary)	300	10% Rice paddy field (dry land) 90% abandoned tobacco plantation estate Very few rural houses along Percut river	El. 22.5-17.5m, Slope 0.1-0.2% Percut River, good drainage capacity	1.0	N.A.	Minimal cost for development, ideally suitable for industry, warehousing and low and medium income housing. Land price drastically increased as the result of Medan II development.

* Site locations are indicated on Figure 15.1.

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TABLE 15.1--Continued

Site No	Location	Land Area (ha)	Existing Use	Topography/ Natural Drainage	Distance to Service Connection		Remarks
					Road (km)	Water (km)	
IV	By-pass West	350	Mostly vacant a few rural houses along the path at the east of Percut river	El. 25 m+ Slope 0.3% Percut river, good drainage capacity	3.0	1.5	Development depends greatly upon the completion of Outer-ring Road. Southern part is ideally suitable for industrial use, while northern area for residential.
V	Johor South (outside city boundary)	450	Non-specified (abandoned tobacco estate)	El. 45 m+ Slope 0.5% Percut river no flooding risk, good soil condition	1.5	3.0	2.5 km of road needs betterment. Good landscape value in the southern area, suitable for high income residential development. Most ideally suitable for residential with minimal cost in infrastructure. Close to employment center along T. Morawa road.

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TABLE 15.1--Continued

Site No.	Location	Land Area (ha)	Existing Use	Topography/ Natural Drainage	Distance to Service Connection		Remarks
					Road (km)	Water (km)	
VI	Johor Central (a half outside city)	500	Semi-permanent houses along Jl. Kampung Baru and Jl. Titi Kuning, the remaining vacant. A 15 hectare seedling farm at the south of Polonia airport	El. 50 m+ Slope 1% Deli river, no flooding risk	1.0	1.0-5.0	Development of this area would have limited effects on the flooding in the down-stream areas of Deli river. West of Jl. Titikuning suitable for high income housing, adjacent to designated regional park Urban train traverses the center of Deli river's east area, suitable for mixed income development.
VII	Polonia	1500	Airport 900 hectare at north of railway, the remainder are vacant land	El. 27.5 m+ Slop 0.1-1.0% Deli, Babura rivers, no flooding risk	-	-	The whole area designated for regional park. However, locational proximity to the city center, this area is suitable for commercial (office), residential and sports facilities development.

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TABLE 15.1--Continued

Site No.	Location	Land Area (ha)	Existing Use	Topography/ Natural Drainage	Distance to Service Connection		Remarks
					Road (km)	Water (km)	
VIII	Brastagi Road	400	Corridor development along Jl. Brastagi off the road basically non-specified agricultural use	El. 40-50 m Slope 0.1% Babura river, local flood plain along the river.	2.5	2.0	Medan III (Perumnas) will be in this area. Development should be restricted from the local flood plain. Suitable for residential development and food processing industry or other non polluting industries.
IX	Sunggal River upstream		Vacant Sunggal Water Treatment Plan included in this area	El. 27.5 m+ Slope 0.3 % Sunggal river, no flooding risk.	-	-	This area must be preserved for protecting water resource quality.
X	Outer-ring Road	1200	150 hectare rice paddy field (wet land) at the west of USU. 500 rural and villa type houses The remaining vacant land. 700 BTN housing units.	El. 22.5-27.5m Slope 0.06% Sikambing river for 80% land, Babura for the rest, moderate flooding risk.	0-3.0	1-2.5	Development of this area greatly depends upon the south-western section of Outer-ring road and improvement of Sikambing river and construction of drainage mains. Development in this area should be limited before 1985.

TABLE 15.1-- Continued

Site No.	Location	Land Area (ha)	Existing Use	Topography/ Natural Drainage	Distance to Service Connection		Remarks
					Road (km)	Water (km)	
XI	Sunggal North	400	80% vacant land 20% abandoned tobacco estate	El. 15-17.5 m Slope 0.15% Sikambing river for the eastern area, Badra river for the central area Belawan river for the west, moderate flooding risk for the central area.	0-1.5	2.0	A flooding risk in the central area results from low drainage capacity of Badra river and low-lying ground. High development potential resulted from the construction of Outer-ring Road. Drastic increase in land price at the east area resulted from Helvetia estate development.

SOURCE: MUDS

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To ensure adequate land supply when needed as well as to ensure that the benefits of land value increases due to public investment are returned to the public, the DISP also calls for increased public participation in the development of land, most favourably through the creation of a public land development corporation with statutory power to purchase, develop and resell land.

15.3 RESIDENTIAL DENSITIES AND INCOME MIX DEVELOPMENT

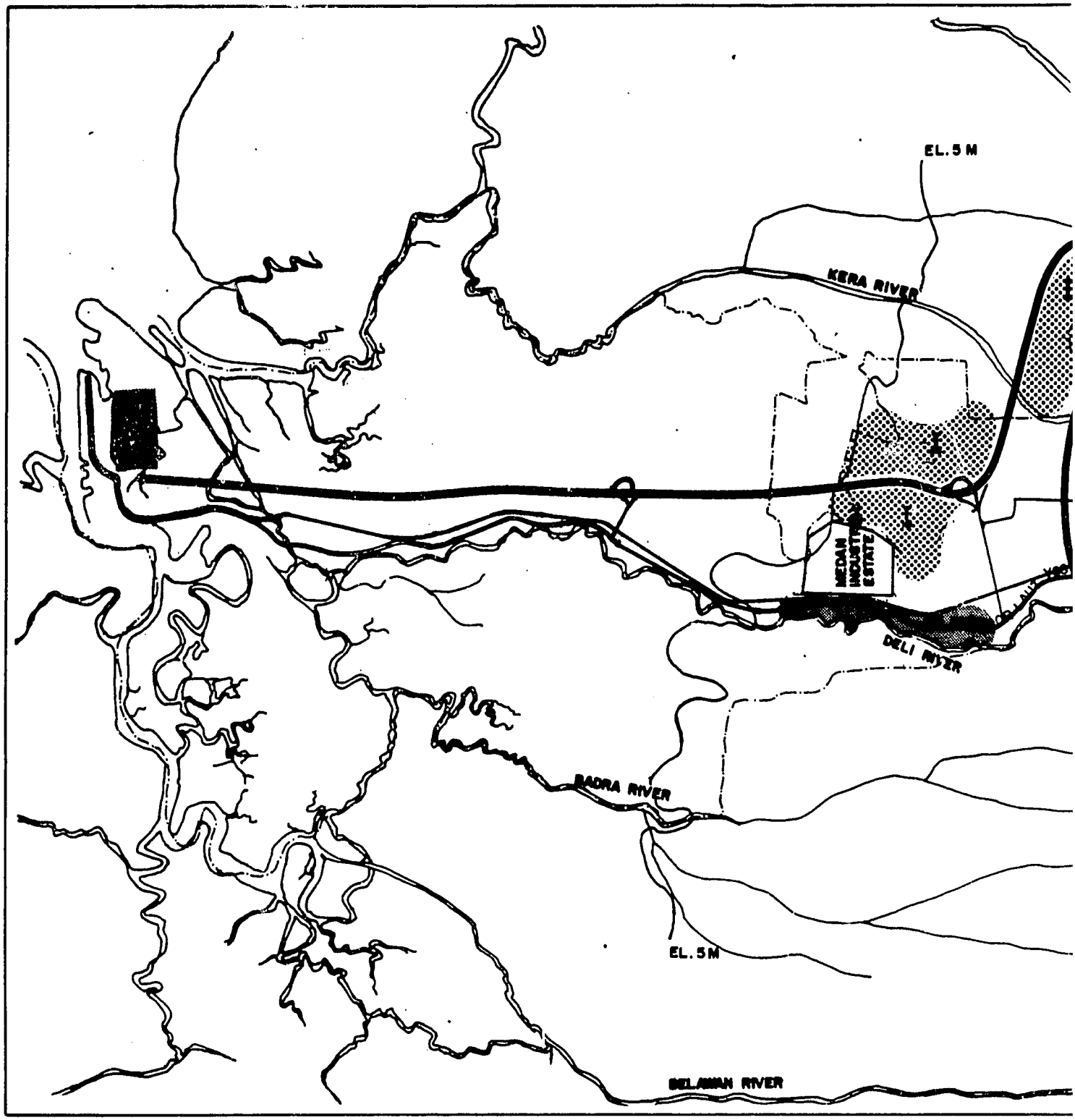
The average gross residential density in the built-up area of the city as a whole was 118.7 persons/hectare in 1976, of which the Belawan district with 515.2 persons/hectare was the most densely populated area. Residential areas in 1978 in these four central districts (Kota, Timur, Barat and Baru), exhibit widely differing densities by kampung/desa. These range from Kampung Tegal Sari I with 646 persons/hectare of Kampung Madras Hulu with 91 persons/hectare. The difference in residential areas also reflects differing incomes. Estimated average residential densities in 1978 in different income and residential types are shown in the following table.

TABLE 15.2

RESIDENTIAL DENSITIES BY INCOME AND RESIDENTIAL TYPES, 1978

Predominant Income Group		Estimated Total Population	Gross Residential Density (person/ha)	Percent of Total Population
High Income	Colonial Compound	23,300	98	2.1
Medium Income	Residential Commercial Use	102,500	246	9.2
	Residential Use (single storey bungalow)	112,800	192	10.1
Low Income	Old Kampung	344,600	276	30.9
	Peripheral	279,500	156	25.0
	Institutional	34,800	348	3.1
	Temporary/Illegal	58,300	568	5.2
	Semi-Rural	160,400	50	14.4

Source: MUDS



PADCO-DACREA

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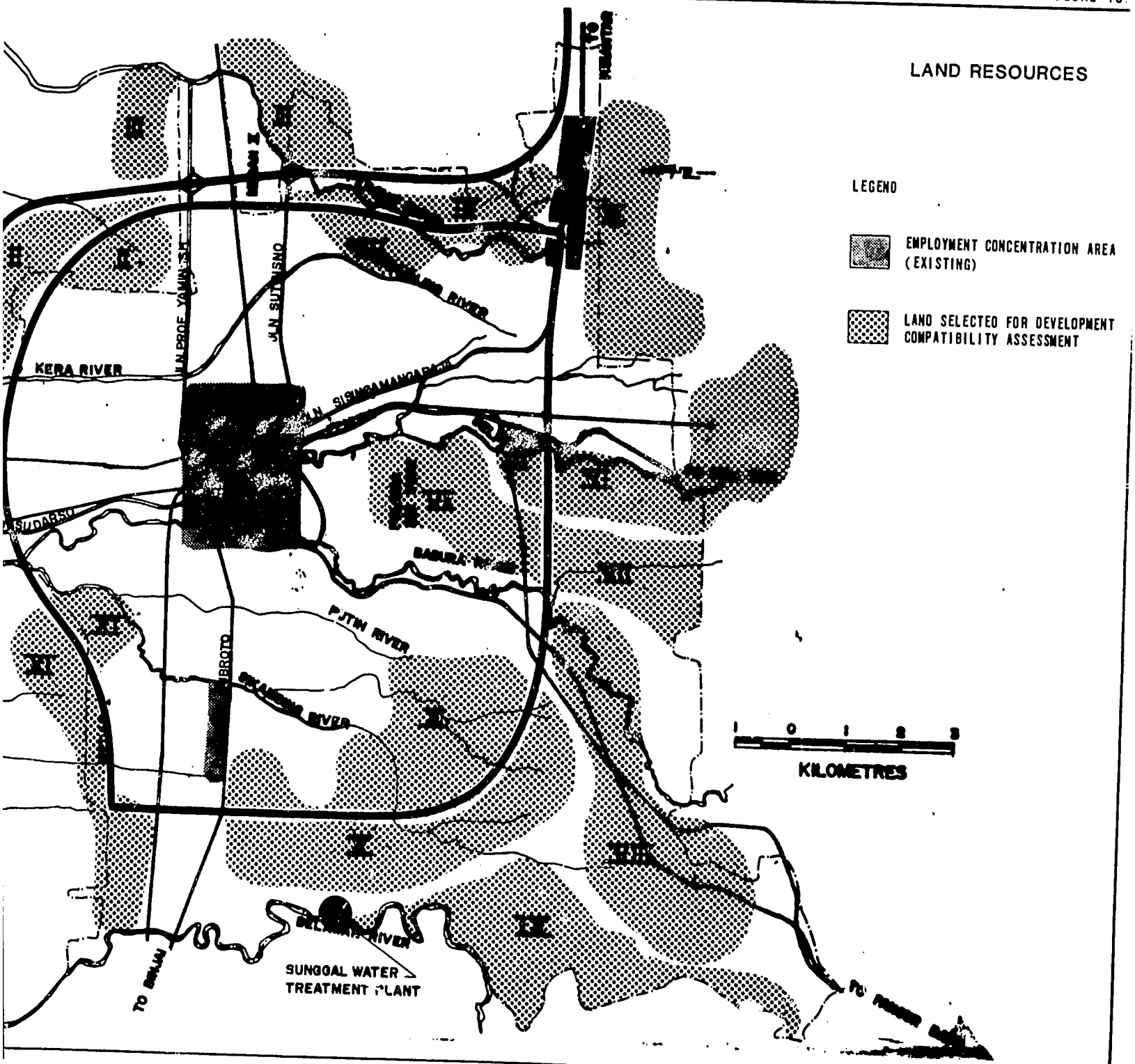
FIGURE 15.



ENGINEERING-SCIENCE - SINOTECH

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The colonial compound type of residences are situated adjacent to Polonia Airport in Medan Baru district. The residential-commercial use in medium income areas is only apparent in the central area and consists mostly of two to four storey walk-up flats. Most single storey medium income bungalows are scattered around the city, in areas having good access roads, and mixed with old, peripheral and semi-rural kampung housing of low income. The above table also indicates that some 21.4 percent of the residential areas is what may be called 'formal', whereas the remaining 78.6 percent is 'informal' kampung housing characterised with dense, unplanned development and low levels of public services.

Proposals for residential densities in new urban areas are based upon: (1) the affordability of household income; (2) the least cost for infrastructure provision; and (3) the practicability of income mix development. Based on existing levels of affordability, neighbourhood residential densities should range from 150 persons per hectare for the upper medium income to 545 persons/hectare for lower income groups. Variations in densities are intended to permit income mix development. The integration of the lowest income groups not only will relieve existing grave housing shortages in the central area but will facilitate parallel actions taken under KIP to prevent further environmental deterioration.

15.4 FORECASTING FUTURE LAND NEED

Residential land needs for the next twenty years reflect the land resources needed to house projected population increases. These needs are shown in Table 15.3. Seventy-four percent or 10,000 hectares of the built-up land is presently in residential use. In order to accomodate the anticipated population demands for new residential uses approximately 110 hectares per year will be needed or approximately 650 hectares over Repelita III.

A small portion of this demand can be met in the first two five year periods, through use of infill sites (vacant land parcels in existing built up areas). In the older sections of Medan, infill land is very limited as most of these areas are up to a 100 percent built-up.

Large housing developments such as Medan II with 7,800 units capable of housing 46,800 people or more (outside Medan boundaries and scheduled for completion in mid 1980) will absorb a portion of the housing demand for the first 5 year period.

The proposed Medan III site will house roughly 47,000 persons, and when combined with Medan II, will accomodate a large share of the lower income housing demands for the first five and ten year periods. After 1990 there will be a steady demand for residential land outside the urban boundary.

A portion of this will likely occur in areas adjacent to existing residential areas but outside the municipal boundaries. Over the 20 year period a total of approximately 2,300 hectares of new residential land will be required.

TABLE 15.3

FUTURE LAND NEEDS IN MEDAN, 1976 to 2000
(HECTARES)

	1976	1980	1985	1990	1995	2000	Total	Additional Need as a Percentage of Total Needs
Residential								
Amount	9,090.4	9,394.4	9,718.4	10,162.4	10,702.4	11,337.4		
Additional Need		304.0	324.0	444.0	540.0	635.0	2,247.0	64.9
Industrial								
Amount	288.5	346.5	407.5	477.5	553.5	633.5		
Additional Need		58.0	61.0	70.0	76.0	80.0	345.0	10.0
Commercial								
Amount	340.5	382.5	426.5	483.5	548.5	619.5		
Additional Need		42.0	44.0	57.0	65.0	71.0	279.0	8.0
Institutional								
Amount	429.8	472.8	540.8	597.8	663.8	737.8		
Additional Need		43.0	68.0	57.0	66.0	74.0	308.0	8.9
Open Space/Park								
Amount	-	43.0	87.0	144.0	210.0	283.0		
Additional Need		43.0	44.0	57.0	66.0	73.0	283.0	8.2
Total Additional Need		490.0	541.0	685.0	813.0	933.0	3,462.0	100

SOURCE: MUDS

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Commercial land needs represent about eight percent of the total urban land requirements. The need for commercial land will occur at a rate about equal to the need for new residential land. Much of the new commercial land will serve new housing areas and should be planned as subcenters to reduce congestion in the city centre.

Already allocated industrial land amounts to 350 hectares of land primarily in the Medan Industrial Estate, the Belawan Industrial Area, and other existing industrial areas. Only a small additional amount of industrial land will be needed by the year 2000, and this should be allocated in small scattered locations to provide for employment to adjacent low income residential areas.

Institutional land presently accounts for nine percent of the urbanized land. New institutional land requirements are needed to serve social and governmental functions (education, health facilities, recreation and other institutional uses). Currently, approximately 325 hectares of land are used for institutional purposes in Medan. For each five year period after 1980 approximately 60 to 75 hectares of land will be needed for institutional use.

The total land requirement over the 20 year period will be approximately 3,500 hectares of land excluding infill land, and including land adjacent to the boundaries of Medan. This amount is less than one fourth of the existing undeveloped land in Medan today.

15.5 FUTURE LAND USE PATTERN

Based on existing land use patterns, expected impact of committed projects, and the guidelines developed for those factors affecting land use and estimated future land need, a future land use pattern has been proposed for Medan through the year 2000. The future land use pattern is shown in Figure 15.2. Future development will be encouraged to develop around Medan Lama and structured into a compact urban form by the network of major roads. These include the outer-ring road and radial roads which presently exist, and the proposed outer-ring road segments.

The development priority of urban areas is indicated on Figure 15.3. The proposed priority rankings are justified through consideration of the existing employment centers, improvement in water supply and sanitation, the implementation schedule of the committed projects (especially the Medan Industrial Estate, Belawan Port Development and Toll Road), the estimated urban land need and the effectiveness of public investment in those areas. The first priority is given to the southern areas of Medan and development of southern section of Outer-ring Road. The major cost for this road section will be the construction of 2.5 kilometers of new road linking Jalan Singamangaraja and Jalan Titi Kuning and two bridges crossing Deli and Babura. The remaining part of the southern section leading to Jalan Brastagi is already constructed and its condition is good and only needs progressive widening. The development of this road will also serve regional traffic between Brastagi (a regional recreation center) and Tanjung Morawa.

The second priority area is around the Toll Road and Industrial Estate. Those two committed projects are scheduled for completion during Repelita III. However, the development pressure for housing, warehousing and industry will not be exerted until the end of 1984. The last priority to the year 2000 is the development of the western Outer-ring Road area. Development of this area will significantly add to the flooding problems in Sikambing River basin and along Deli River, unless major improvement for the rivers is made in the channels of those rivers.

The DISP's proposal differs from the Medan Master Plan's proposal in two respects. The development on low-lying areas is restricted by DISP due to the overriding public interests in environmental health and excessive amount of public investment required for providing satisfactory drainage. Secondly, in the DISP's proposal, development is encouraged in the urban fringe areas where public investment will be minimal and growth trends will not be at the expense of agricultural production, nor necessarily confined by political/administrative boundaries. Meanwhile, the DISP also seeks a more balanced distribution of major employment locations in Medan in the future. Major employment centres are proposed along radial roads and adjacent to the Outer-ring road. The major proposed regional transportation projects also contribute significantly to the DISP's proposal by reinforcing the development of radial arms of the city.

The urban train will be the backbone of the commuting corridors for the emerging Medan metropolitan region over a longer period of time. However, it will also intensify traffic conflicts at grade crossings especially in the central area. One of the options for improvement of traffic conflicts in the short term is to restrict freight trains schedules to non peak hours and the night time. As a long term solution, particularly when passenger service increases, the Medan railroad station will have to be relocated. Three potential station locations for three passenger service directions have been indicated in Figure 15.2. It is recommended that the solution for resolution of railway/road conflict points should be incorporated in the Medan Area Transportation Study, which is presently under study by the Japan International Cooperation Agency.

It is also important that the future of the Polonia Airport's present location be studied. The airport currently is undergoing an expansion of its runway and construction of a new international terminal. The expansion, while desirable for the short term, will also hasten the need for relocation because any rapid increase in air traffic will add to the environmental nuisance and even danger to the city center. The airport site is designated as a part of a regional park stretching to the Brastagi mountainous area by the Master Plan. Nevertheless, since it has 900 hectares of useable land and is in close proximity to Medan's centre, the site or at least a part of it, could be released to provide a potential land bank for the future growth of the city. Thus, a part of the cost for relocating and building the airport could probably be met by selling off the present site. This option needs further study and should be considered in longer range planning strategies. Clearly, the relocation of the Polonia Airport should be based on realistic estimates of passenger and cargo demand over the long term and not on the potential suitability of the present site for other uses.

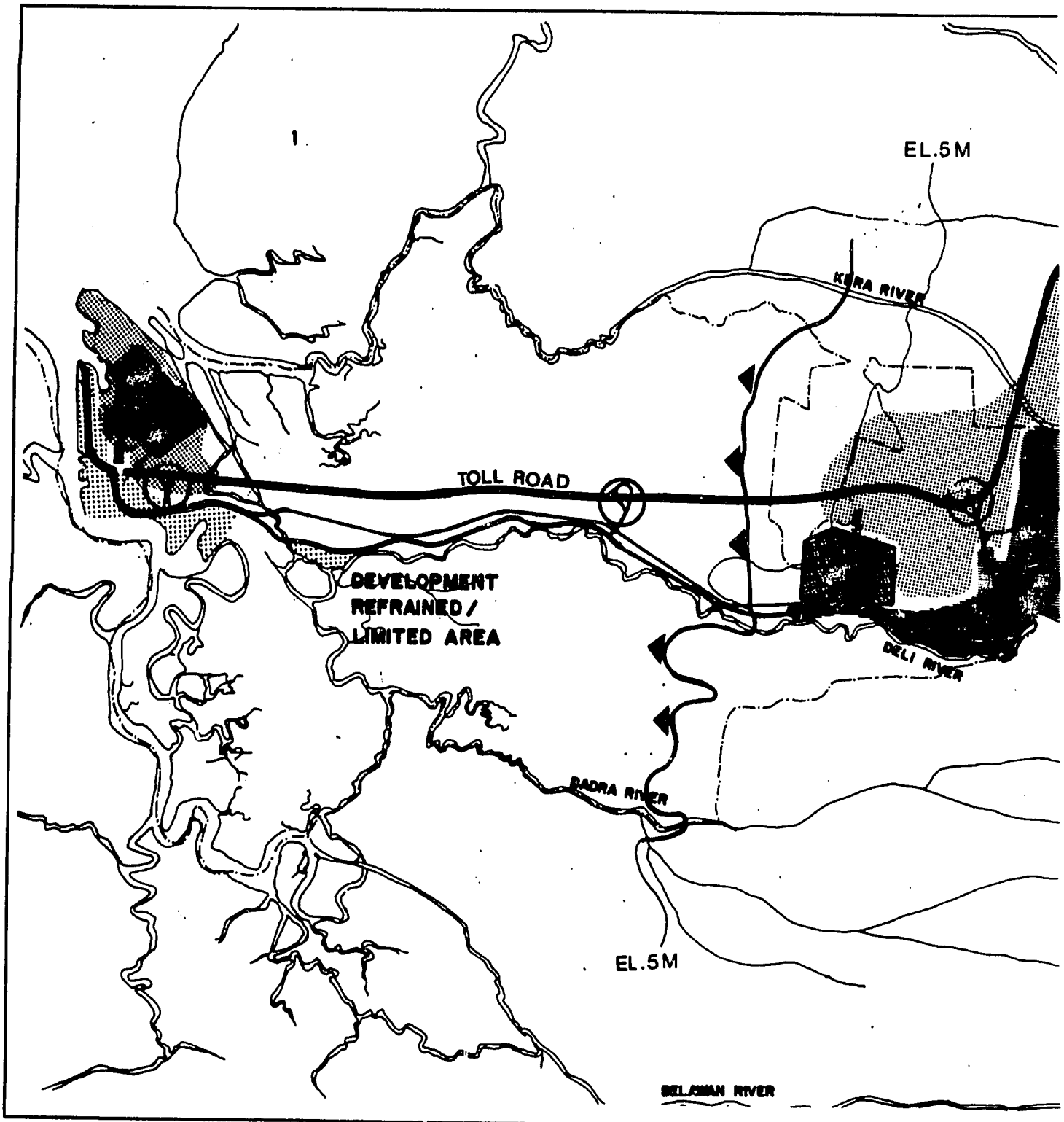

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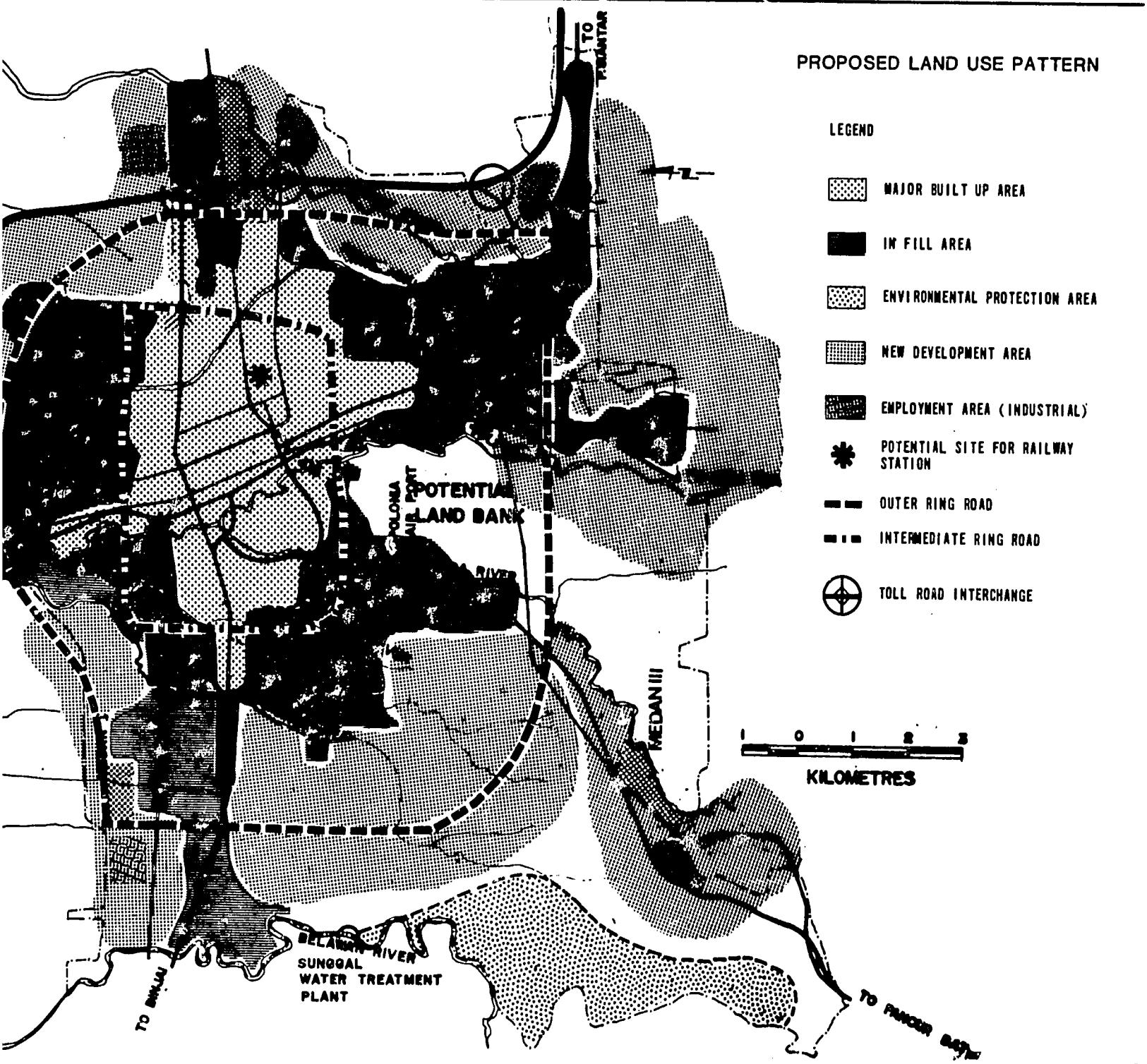
FIGURE 15.



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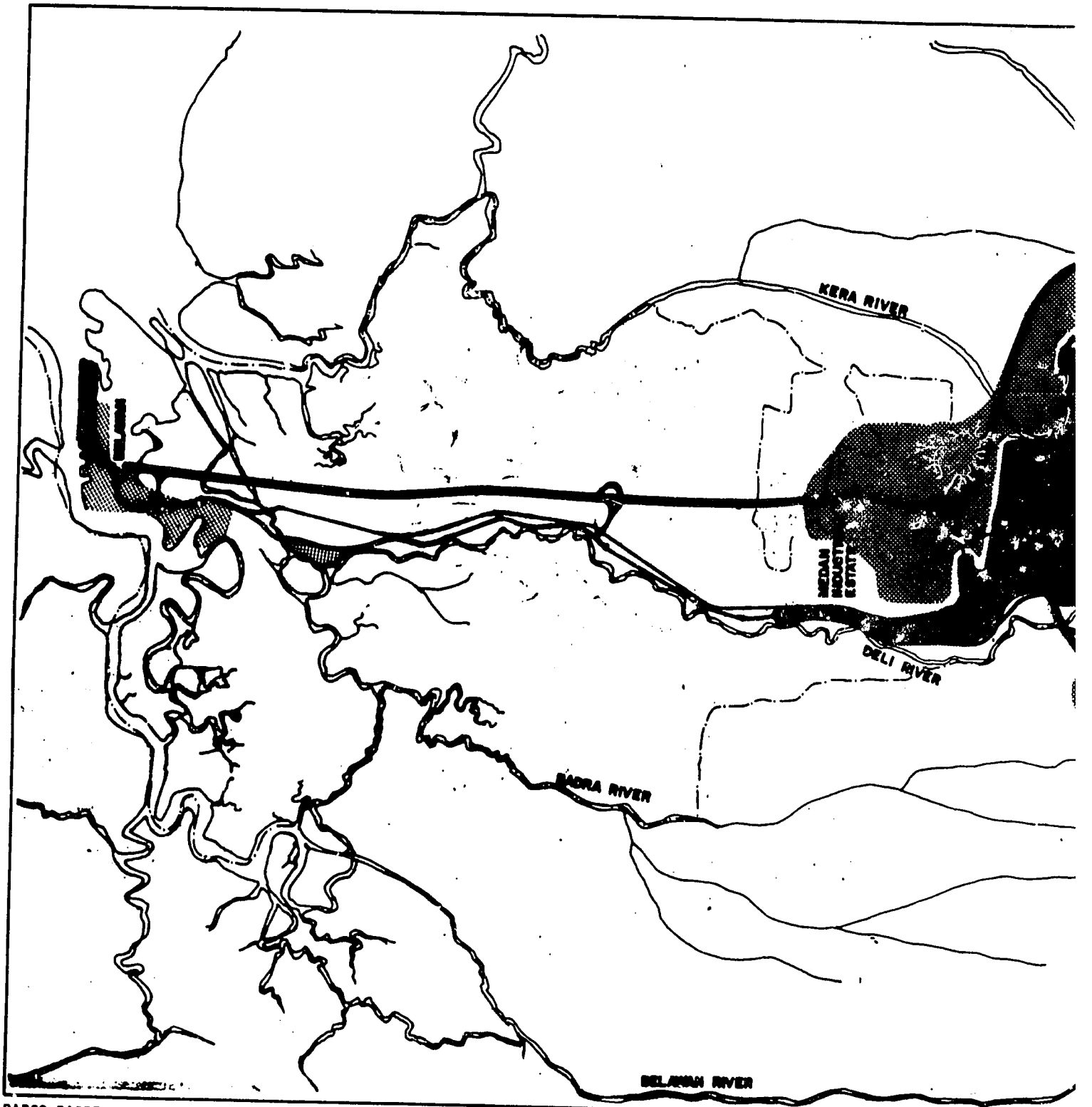

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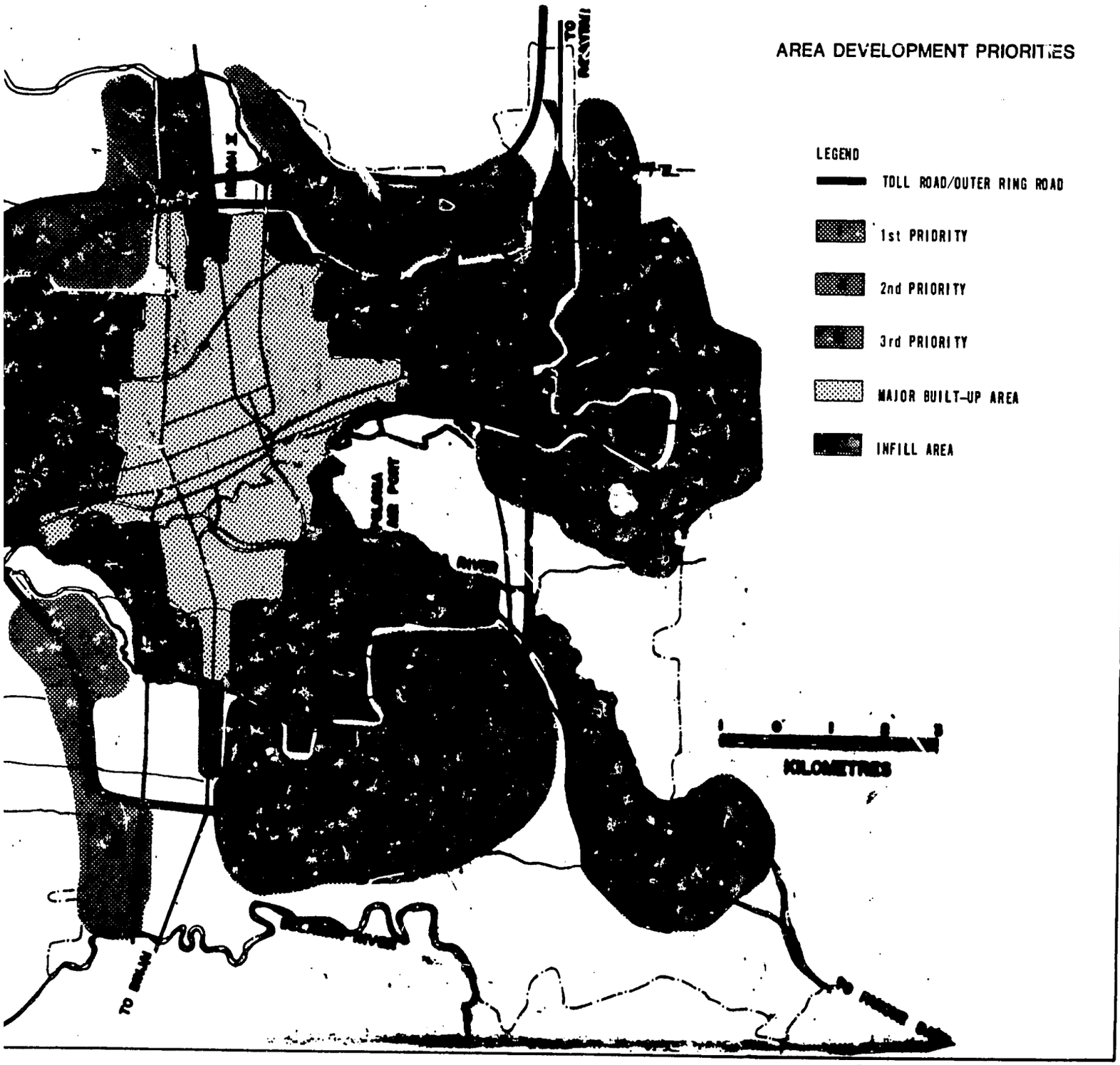

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SECTION 16

TRANSPORTATION

The major objective of the strategy for transportation in the DISP would be to develop, encourage and protect an effective system of integrated transportation serving all parts of the urban area and all segments of the population. It would give highest priority to the free movement of public transportation and good vehicles.

Many types of transportation have direct and indirect effects on the achievement of social equity because of the contribution of transportation to other economic sectors through which the poor are provided with employment and essential goods and services. The national and regional projects planned for North Sumatra (serving the urban area directly or serving rural areas which in turn are linked with Medan), may have such impacts. A wide variety of urban transport facilities and services which are oriented to all segments of the Medan community would maximize that impact.

In the DISP, particular attention should be paid to the role of the transportation programs and projects to:

- provide jobs
- provide access to jobs
- facilitate the distribution of essential goods particularly to low-income households.
- increase the assets of low-income groups in the transportation sector itself
- increase the assets of the poor through the impact of transportation on property values and on the productivity of equipment utilized by low-income entrepreneurs.
- increase the supply of land suitable for settlement by the poor.

The development of an integrated transportation system in Medan to serve all areas and segments of the population will require:

- Developing public transportation facilities which will keep pace with transportation demands, even if their operation must be subsidized in order to achieve acceptable standards.

- Actively discouraging the use of private vehicles in order to prevent the imposition of heavy and disproportional transport costs on the less affluent majority of non-private transport users.

If Medan permits the dominance of private transportation modes, the costs of developing infrastructure for those modes will absorb huge proportions of public finance without ever adequately meeting the travel demands of the lower income groups.

In addition to the above, the DISP transportation strategy would seek to minimize transportation costs within the functional constraints of the urban system, provide for essential improvement in the movement of goods serving both regional and urban needs, and place emphasis on using the existing capacity as fully as possible. If necessary, the efficiency of goods movement would be given second priority to extending improved services to all segments of the population.

16.1 THE ROLE OF PERSONAL TRANSPORT

16.1.1 The Discouragement of Personal Transport

Since 1976, the annual growth rate of vehicles in Medan has averaged about 13 percent for passenger vehicles and 15 percent for motorcycles. In order to minimize total demands for road space for a given volume of person movement, it is essential that mass transportation be encouraged and personal transport be discouraged. This is especially important for peak-hour travel to and from the central area of Medan and other concentrations of employment such as Belawan, the Binjei corridor, etc.

The relative road space requirements of different types of vehicles are calculated in terms of passenger car equivalents (pcu). Dividing these values by the average occupancy of each vehicle type, as observed during the peak hours of traffic in Medan, results in the value of road occupancy per passenger shown in Table 16.1.

It can be seen that the road space requirements of a bus passenger is only about 10 percent of that of a car. That of a Bemo (mini-bus) passenger, assuming 10 passengers per Bemo, is twice that of a bus, but only 25 percent of that of a passenger car.

The far more efficient use of road space, on a per capita basis, which is afforded by mass transportation compared with personal transport can be illustrated by the data for Jalan Gatot Subroto (Medan-Binjei gateway, Table 16.2). During an average day in 1978, passenger vehicles other than buses and Bemos (cars, becas, motorcycles, bicycles) constituted 97 percent of the total vehicles and required 94.7 percent of the road capacity, but carried only 58.6 percent of the passengers. This degree of unbalance could be much worse in the future if passenger vehicles continue to proliferate at the current or increased rate.

TABLE 16.1

AVERAGE ROAD OCCUPANCY,PEAK HOUR TRAFFIC IN MEDAN

	Average Occupancy	PCU Value	Relative Road Occupancy (PCU Per Passenger)
Bicycle	1	0.5	0.50
Motorcycle	1.2	0.33	0.28
Becak	1.7	1.5	0.88
Bemo	10.0	1	0.10
Car	2.5	1	0.40
Taxi	4.0	1	0.25
Bus	50.0	2	0.40
Train		3	0.03

TABLE 16.2

TRANSPORT USERS ON JALAN GATOT SUBROTO - 1978

	Bus	Bemo	Passenger Cars	Other Vehicles	Total
Vehicles (Percent)	300 (1.5)	172 (0.9)	6,246 (31.5)	13,133 (66.1)	19,851
PCU (Percent)	600 (4.1)	172 (1.3)	6,246 (42.9)	7,527 (51.7)	14,545
Passengers (Percent)	15,000 (37.0)	1,720 (4.3)	12,492 (30.8)	11,290 (27.9)	40,502

Source: Medan Traffic Survey, Bandung University, 1978.

The reasons for placing the main emphasis on developing mass transportation and discouraging the use of personal transport is clear. It is extremely urgent that a policy on the promotion of mass transportation be developed in the immediate future, before the current tendencies toward the use of personal transport and the non-use of local buses, bemos and trains become ingrained facets of life in Medan.

16.1.2 Traffic Restraint

In Medan, it will not be enough to improve public transport and hope that car owners will then leave their cars at home and ride buses, bemos or trains. The use of private transportation must be discouraged in a positive manner, particularly for work trips into congested areas. Some form of traffic restraint should be inaugurated as early as possible.

In the downtown area, this might be accomplished by making it more inconvenient to enter the area either throughout the day or at certain peak load times by:

- Limiting the number of parking spaces available in the area on the premise that if a driver has nowhere to park, he will avoid driving there in the first place. At a minimum, curb parking should be eliminated on arterial roads to increase capacity and safety. In the short term, adjacent roads can be planned to provide limited space for parking. During off-peak periods when the traffic volume can be accommodated, it may be acceptable to permit short time parking on the main roads for the convenience of business or shopping access. Development of off-street parking facilities should also be encouraged to supplement the insufficient curb parking, but it should be well coordinated with the detailed planning of land use, and be based on the requirement that the full economic cost of parking is paid by those who use it.

Other national and provincial measures to restrain traffic would include making cars even more costly to own and operate through limited production, higher duties on imports, and heavy taxation on gasoline and vehicle registration and licensing, and the restriction of vehicle privileges for many public employees. Needless to say, these policies and measures would be strongly opposed by the persons directly affected by them. Strong political support must exist at the highest levels of government to inaugurate and maintain such policies.

With respect to traffic restraint, it can only be adopted once some order and discipline has been created in the use of both on and off street parking. This of course would in and of itself improve traffic flow and would be a basic prerequisite for the implementation of special lanes for buses, etc.

16.1.3 Becaks and Taxis

An estimated 15,000 becak, licensed and unlicensed, are currently operating in Medan. An additional 3,800 are utilized for the transport of goods. They operate without fixed routes and provide a mechanical passenger mode that is capable of penetrating narrow, high density low-income areas and kampungs thus providing a sizeable number of people with very convenient service. They are nonetheless expensive for low income households when compared to an adequate bus system. The services Becaks provide and the employment which they generate benefits the full spectrum of low-income groups. Eventually, travel by Becak will decrease as more effective and less expensive forms of mass transport become available. Registration of new Becaks should be gradually limited.

The taxi service in Medan is almost negligible in the total transport picture. Only about 300 units have actually been in service over the last six years. They are not metered and may only be hired on an hourly basis, a fact which greatly increases consumer costs while restricting efficient service. An improved transportation system should include metered taxis for the greater convenience of visiting businessmen, tourists and residents alike.

16.2 MASS TRANSPORTATION

The overall objective in Medan under DISP would be to develop a well integrated system of mass transportation services, road and rail, which would be subsidized directly or indirectly to the degree necessary in order to provide acceptable standards for all segments of the population. The system need not be entirely publicly owned, though adequate public regulation would be required.

16.2.1 Bus and Bemo

Approximately 2,300 Bemos (three or four wheeled mini-buses) covering 19 routes in Medan are operated by private enterprises and cooperatives. Both their routes and fares are set by the government, although they may pick up and drop off passengers anywhere upon request*. They provide useful services for part of the low-income population especially in the upper levels of the income range. Given the limited rights of way in almost every area of the city, and the current inadequacy of the bus system, the Bemo could have a reasonably sustained role within the public transport system, over the short and medium range.

Better registration and regulation of the Bemos is required if their positive impacts are to be maximized while their negative impacts on traffic congestion is minimized. This should include a careful revision of routes, the establishment of fixed Bemo stops along those routes, and a more careful linkage of the Bemo and Bus routes. While many different companies are involved, specific consideration should be given to the development of a "transfer" system to allow the consumer to transfer from one mode to another at minimum additional cost.

With respect to Buses, thus far, the city bus system does not play an important role in the public transportation network as it serves only 142,300 persons per day with 349 operating units. The operating routes number 11 and are restricted to the main roads in Medan. All depart from the Central Market area which already suffers from traffic congestion. Despite this fact, priority must be given to substantially increasing the number of buses actually on the road each day. The present number would be increased during Repelita III by about eight percent per year (which,

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* The concerns for pollution, safety and traffic congestion which effects other mass modes of transportation are especially valid in the case of both Becaks and Bemos. However, these problems can be solved through adequate traffic management and integrated transport planning, proper motor vehicle inspection and police enforcement of existing standards.

allowing for replacements, would mean the acquisition of about 160 * new buses, or about 32 per year). By 2000 the number required would rise to about 850. This would permit service levels to increase to about 459,000 persons per day in 1985 (34 percent of the total population) and to 765,000 persons per day by 2000 (40 percent of the total population)**.

16.2.2 Urban Rail

During Repelita III, the railroad gauge in Aceh will be widened to the same width as in North Sumatra. This will substantially reduce costs and add to the improved flow of goods movement between the two points.

Also under active consideration is a general upgrading of the passenger rail service within the metropolitan area. The rail rapid transit project would connect the Medan station with the Belawan, Pancur Batu, Tebing Tinggi and Binjei, with the first stage being the Belawan link.

When fully operational, this rail system will have an enormous impact on the metropolitan urban form. Access to Medan's centre and to industrial jobs along the corridors will be greatly enhanced.

A potential negative aspect of the urban rail system would be the potential interference with other road traffic causing increased congestion at the rail crossing of the city streets of Medan. This problem, while certainly not off-setting the many advantages, must be carefully addressed to minimize its negative impacts.

Furthermore, while the utilization and upgrading of the existing system will offset the major outlays in capital which would normally be needed to establish a new rapid rail system, care should be taken in the financing of both capital and operating costs to assure that the resultant fare structure permits full usage by the urban and rural poor.

16.3 TRAFFIC MANAGEMENT AND CONTROL

16.3.1 Improvement of Traffic Control System

Traffic control devices (consisting of markings, signs, and signals to regulate, warn or guide traffic) do not play important roles in Medan's transportation system. However, these markings are particularly important in controlling traffic in urban areas. There are only a few centerlines, stop lines and pedestrian crossings visible in the existing roads, and these are largely ignored by drivers. Provision of pavement markings for defining the traffic lanes, for channelization at intersections, for regulating traffic movements, for pedestrian crossings and for curb parkings are badly needed in most major streets.

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* Repelita III projection for Medan, USU.

** Assumes an average annual growth rate of only 3 percent between 1985 and 2000.

Traffic signs identifying traffic control objectives, i.e. stops, changes in direction, turning lanes and other warnings, need to be legible, easily recognizable and located in places of high visibility. Furthermore, they must be designed primarily for drivers who are not familiar with the routes so that they will be able to react promptly, naturally and safely to the traffic and design conditions encountered.

An integrated traffic signal control system should be carefully designed with optimum phasing and cycle time in order to get the maximum capacity for each intersection. In view of maintenance, it is preferable to standardize the signal devices to facilitate the continuous supply of spareparts.

16.3.2 Improvement of Intersections

Special efforts should be made to improve key intersections with well designed channelization and appropriate controls in order to control the access to traffic streams so both capacity bottlenecks and conflict points are minimized. Most of the intersections in the city fail to afford acceptable levels of service and consequently traffic problems often are generated.

16.3.3 Separation of Mixed Traffic Components

The slow moving vehicles such as Becaks, motorcycles and bicycles should be restricted to slower speed lanes or the outer traffic lanes. Then the faster moving traffic can flow without the friction of slow moving vehicles, and road capacities can be increased. Commercial vehicles, including buses and trucks should also use the outer traffic lanes, except when turning, then they may shift to the inner traffic lane designated for turning..

16.3.4 Truck Routes

There is only one truck route for the transportation of goods from Tanjung Morawa and Deli Tua towards Belawan. Trucks bound for other destinations are not provided with any defined routes. As a result, most trucks bound for external destinations pass through the downtown area where they disturb the local traffic flow and create unnecessary congestion. For the short term range, additional truck routes are desirable to be assigned as shown in Figure 16.1 and described as follows:

- Movement from Belawan to Tanjung Morawa
- Movement between Belawan and Binjei
- Movement from Belawan to Pancur Batu
- Movement from Belawan to Deli Tua
- Movement from Pancur Batu to Belawan

Upon completion of the construction of Toll Road, the truck routes connecting Belawan and Tanjung Morawa can be replaced by the Toll Road.

As warehouses and industrial areas still exist in the downtown area, trucks servicing those areas cannot be kept from entering downtown area. For the short term range, the entrance of trucks for loading and unloading in the downtown area should be restricted to certain non peak hour times and be regulated every year according to the actual situation.

16.4 ROADS

In Medan, investment funds are scarce and needed urgently to improve housing, water supply, and other services. It seems clear that the investment in infrastructure designed mainly to cater to personal transport needs (roads and parking facilities) should be minimized. While a substantial deficit exists with respect to existing demands and current roadway capcity, new road investment should be limited to those needed to develop new land areas and to meet the economic development needs of Medan and its region with respect to the movement of goods and services as well as passengers rather than those corresponding to an over-increasing number of private vehicles.

16.4.1 Priority Road Development

Development costs for the major priority road projects for Repelita III should be budgeted by the Kotamadya, the Province and the National Government. A working committee representing those levels of government should be organized to plan and implement priority projects which include:

- Southern Intermediate Ring Road Construction
- Glugur Intermediate Ring Road Extension
- Southern Outer Ring Road Development
- Rehabilitation of Eastern Access Roads
- Northwest Outer Ring Road
- Connector Roads to Toll Road
- Kampung Baru Access Road Development

It is particularly desirable that the southern portion of the ring road be completed by Bina Marga at the earliest possible opportunity. Complementary actions should be taken immediately to assure completion of the eastern portion of the ring road where it is combined with the proposed Toll Road. The latter would be converted to a limited but free access highway where it passes the eastern side of Medan.

16.4.2 Road Upgrading and Maintenance

In addition to the limited amount of new road investment planned over Repelita III, major efforts should be directed to upgrading and

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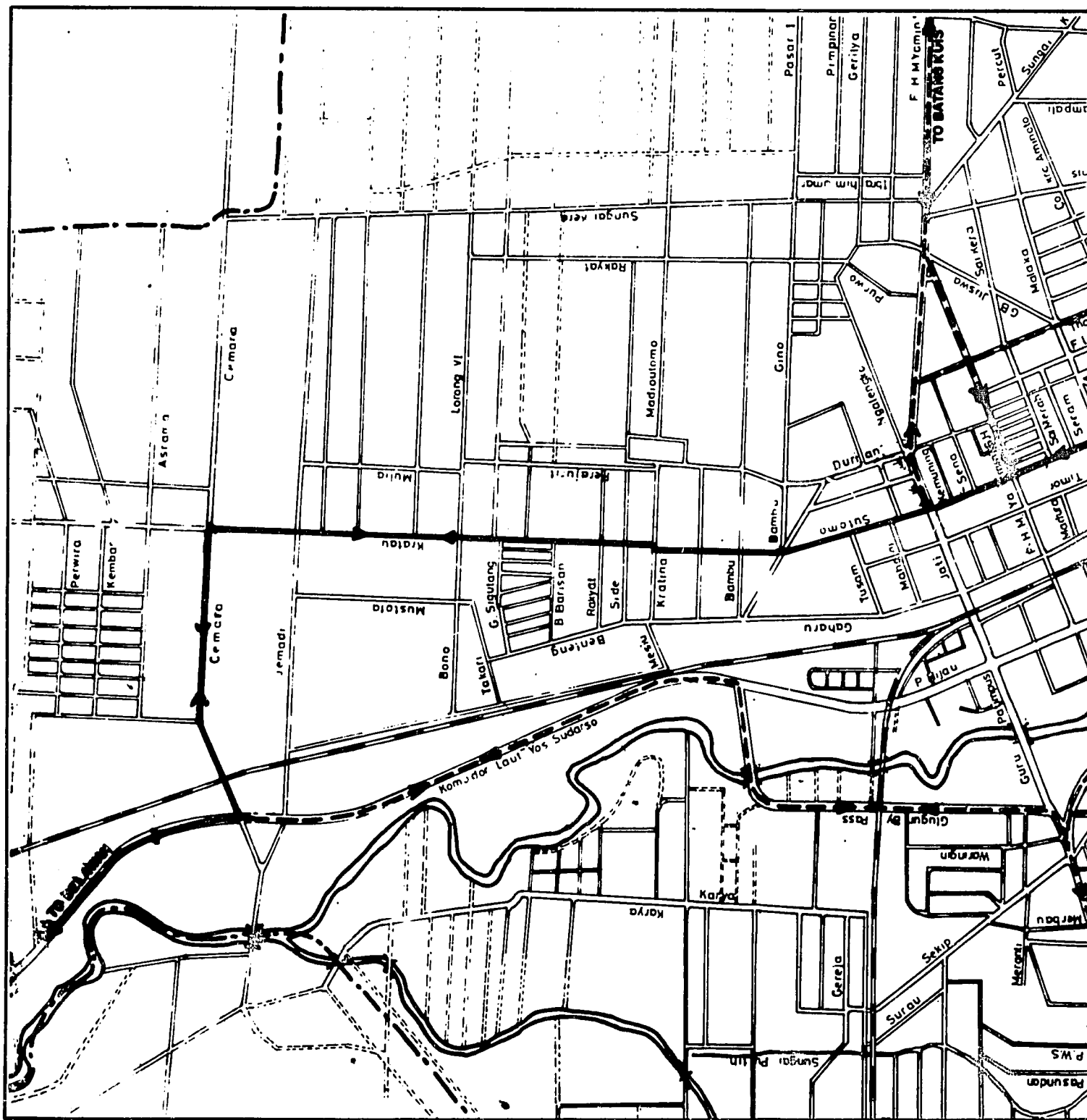

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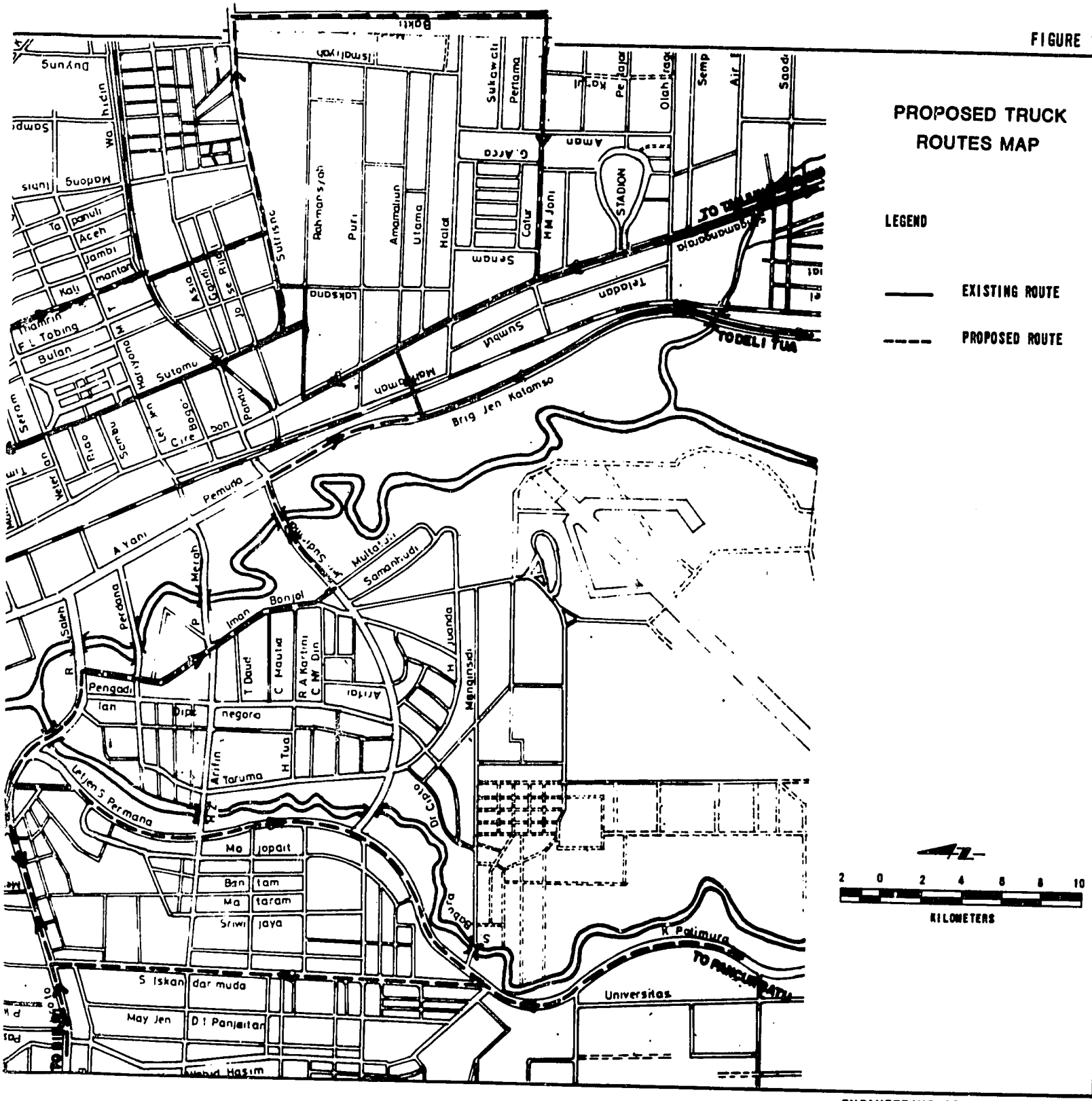
FIGURE 1



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maintaining the existing road network. In doing this, particular attention should be paid to paving and drainage improvements and small changes in street geometry and access lanes which improve access and traffic movement to and from poor kampung areas and serve to facilitate the city-wide movement of goods and services by improving the capacity of existing main roads and thoroughfares. The priority roads for upgrading and maintenance are indicated in Section 18.

Most of roads in Medan cannot be fully used for traffic because of incomplete road structure and of other activities encroaching on the road space. Some four lane roadways have only partial pavement in the centre portion, which results in higher vehicle densities and lower capacities than the road was designed to carry. These should be completely paved from curb to curb and coordinated with lane markings in order to increase their capacities. The unpaved sidewalks should also be completed with suitable pavement for pedestrians to avoid their walking in roadways and increasing traffic conflicts. The road space should be cleared of parking and trade activities on main roads, especially during peak hours.

16.5 BELAWAN PORT

Belawan, located 25 km north of Medan city core, is the largest port for international and domestic trade in North Sumatra. The port serves almost exlusively imports and exports while the passenger service plays only a minor role. Imports and exports via Belawan Port in 1976 were 1,116,461 tons and 877,633 tons respectively. The growth rate of tonnage through the port is about 10 percent per year. Ninety percent of the total goods entering the port were carried by road and the rest by rail.

The port facilities will be improved and enlarged in order to have the capability of rendering an efficient service to bigger ships for laoding and unloading. The Toll Road, connecting Belawan with Tanjung Morawa and bypassing Medan city core, is scheduled to begin construction in 1979 and be completed in 1981. Completion of the Toll Road will greatly facilitate traffic movement between the port and the hinterland either terminating at or passing through Medan city core.

Since the railway between Belawan and Medan also plays a considerable role in goods transportation, a railway yard should be built somewhere between the port and the new industrial district to regulate port railway operations and service the new industrial area as well as reduce congestion at the Medan Railway Station.

16.6 POLONIA AIRPORT

Polonia Airport, located near the downtown area in the southern part of Medan, is the only airport in North Sumatra which can handle domestic and international flights. The number of passengers served by this airport, was 216,167 and 219,575 for arrival and departure respectively. However only 10,784 tons on freight was handled by the airport in 1976 which is small when compared to the 1,994,094 tons handled by Belawan Port in the same year.

Since the air traffic has been fast growing, the present landing strip condition and the terminal facilities are incapable of serving the increasing number of air flights runways of the existing Polonia Airport need to be improved to be able to land larger airplanes such as a DC-10. A new terminal for better passenger service is now under construction. A new access road connecting to downtown area should be developed for the anticipated traffic. Eventually, due to its location and restricted land area, the development of alternative airport facilities might be necessary. Determination of the feasibility of airport relocation should be made only after corresponding traffic demand studies are carried out.

16.7 PASSENGER TERMINALS

The present principal city bus terminal is located at Jalan Sambu in the vicinity of Mercu Buana - Pusat Pasar. It is not actually a terminal but a public road, attracting all vehicles coming downtown and hence often causing traffic congestion.

The three bus terminals, Teladan at Jalan Singamangaraja, Sei Wampu at Jalan K.H.W. Hasyim and Glugur at Jalan Yos Sudarso, originally serving for intercity buses are no longer suitable since the expansion of Medan. The original intercity transportation between Medan and Belawan has become local city transportation, so that Glugur terminal has already lost its function. These terminals should be relocated and linked effectively to the city bus transportation system. Terminal distribution itself should be made according to transportation routes and relationship to traffic demand. Terminals should be in easily accessible places which do not create traffic conflicts in surrounding traffic flows.

16.8 CAPITAL INVESTMENT IN TRANSPORTATION

The capital investment required in transportation during Repelita III under DISP will be large even to achieve the relatively modest goals proposed. A summary of the projected requirements to 1985 is as follows:

	Program Type	Cost 1980-85 (Millions of Rupiah)
1.	Improvement of Existing Roads	3,120
2.	Improvement of Traffic Control Facilities	1,593
3.	Development of Public Transportation Facilities	4,387
4.	Development of New Roads	3,694
5.	Metered Taxi Study and Development	3,000
		Rp.15,794

The details of each of these investment programs are presented in Appendix A-6 of this Report.

SECTION 17

DEVELOPMENT ORGANIZATION: PLANNING, PROGRAMMING, ADMINISTRATION AND FINANCE

17.1 COMMUNITY PARTICIPATION

Access to the decision making processes by which development in Medan and its region has been shaped has been quite limited in the past. The achievement of greater equity in the distribution of the benefits of national and regional development requires that increased opportunities be provided for community and public participation at every level of the planning and programming process. Those aspects which seem particularly relevant and should be investigated are:

1. Public Participation: Possibilities for increasing participation in the planning process and participation in the role of operating institutions and agencies should be investigated. This is particularly relevant as the government seeks to decentralize previously centralized functions and achieve greater regional equity, by bringing the government closer to the people. In DISP there would be a concern with widespread public participation such as citizen participation in the governing bodies of public agencies and specific links between the public and private sector to resolve urgent problems. These, as well as changes in legislation required to support such increased participation should be explored.

2. Multi-Purpose Community Development Organization: A variety of types of support will be required for low-income households if they are to significantly improve their current conditions and life styles. Given the extremely limited public resource levels projected over both the short and medium term, it will be necessary to strengthen, mobilize and organize multi-purpose community organizations such as LSD and LMD to assist in providing the necessary combinations of services. The DISP places special interest in small scale organizations developed to improve the economic well being of low-income communities as well as for general purposes because of its special interest in providing increased access to decision-making for all segments of the populations.

3. Under-Utilized Manpower: Several possibilities seem to exist for using presently under utilized manpower, while at the same time broadening the organizational base which is necessary for

both the planning and implementation of DISP. There appear to be a great number of opportunities to engage students or new graduates more actively in public services while simultaneously broadening their skills and experiences. The wealth of potential resources at the University of North Sumatra as well as the Institute of Teachers Training and Educational Sciences (I.K.I.P) has gone largely untapped by both planners and operating agencies. Both voluntary and compulsory alternatives for community service might form an integral part of curriculum development. Students and recent graduates in the fields of social services, medicine, engineering and teaching could be incorporated into the planning and implementation phases of DISP.

17.2 THE ESTABLISHMENT OF A PLANNING AND PROGRAMMING PROCESS FOR URBAN AND REGIONAL DEVELOPMENT

Thus far, urban and regional planning in North Sumatra in general, and Medan in particular, seems to have been regarded as somewhat ancillary to the central thrust of development activities. The constraints have been many: inadequate absorption of previous planning efforts (especially overly sophisticated recommendations), the weak mechanisms for transfering planning results into implementable policies, the complicated procedures for cooperation between central and local government, inadequate interdepartmental coordination, and a lack of planning capacity at the local level and an inadequate data base.

To remedy this critical situation during Repelita II CIPTA KARYA, BAPPENAS and Dalam Negeri joined in common effort to organize and strengthen Provincial Planning agencies (BAPPEDA). In Medan, a local BAPPEDA already exists. Thus far however, neither the provincial nor local BAPPEDA have sufficient technical resources to carry out their assigned functions or adequate functional inter-institutional relationships. For Repelita III, the DTKTD has been charged with providing the basis for the policies of all spending departments on a broad field of development. A major effort is underway in the field of regional planning in North Sumatra and Medan has been designated as the growth centre for the newer regional classification (SWP). Thus far however, no clear functional relationships exist between national, regional, and local development planning. Under the Repelita,inter-departmental coordination is done by control of development operations in sector forms. It is expected that DTKTD will gradually transfer former tasks of town planning and area planning to the provincial and local planning agencies to be supported by DTKTD's provincial planning units as well as by local consultants.

The strategy for Medan's long-term development will be followed up over the period of Repelita III by urban implementation programs especially aimed at housing and basic urban services. During this period it is recommended that both planning processes and legal regulations be reviewed and mechanisms identified to strengthen inter-agency coordination in planning and programming the DISP in Medan. This cannot be successfully accomplished, nor will the full potentially positive impact of

the immediate action projects be realized without specific integral action to reinforce the development planning, programming and finance mechanisms during the proposed urban implementation process. It seems desirable to utilize the implementation process, as well as any changes in procedures, regulations and legislation to facilitate and stimulate:

- the establishment of an institutional framework for permanent urban and regional planning for North Sumatra and Metropolitan Medan through explicit provisions for the formulation of integrated urban and regional development policies and programs. This should be based on Sub-Region III of North Sumatra.

- the identification of a continuous planning process rather than static plans presented in the Medan Master Plan Document and traditional regional plans.

- the eventual assignment of regulatory powers to planning agencies with a clear differentiation between plans and regulations.

- recognition of the multi-purpose of plans, distinct from the relatively limited control purposes of regulations.

- the DISP itself need not be legally binding and it may well be easier to keep it up to date if it is seen only as guidelines for action. As guidelines it should, however, be linked with specific legally binding regulations through which the DISP is interpreted.

- integration of urban and regional planning with the basic planning, budgeting and implementation activities of the government.

- provision for vertical integration among the levels of government and horizontal integration among the various relevant sectors within each level of government.

- provision of substantial public participation in urban and regional planning and implementation.

- provision for regular review and evaluation of both the planning and implementation processes.

With respect to existing development legislation and regulations, some of the existing uncertainties concerning the powers and responsibilities conferred on agencies have already been identified. Some of the existing legislation already available is not used fully to guide urban and regional development. It is considered desirable to conduct further analysis of the effectiveness of such legislation. In addition, it may be desirable to examine other types of legislation frequently overlooked as relevant to urban development. Industrial licensing, legislation governing the use of agricultural land, legislation on employment and labor laws, health and sanitary codes and banking regulations affecting the availability of credit are examples of the range of types of legislation that could be covered. Some of these may have a far greater influence on urban and regional growth than the specific traditional urban

planning instruments. In the case of the DISP, such a review should be conducted over the period of Repelita III and would be concerned with those types of legislation which have a clear affect on the achievement of social equity -- for example, legislation governing credit and banking, employment legislation, rate and tariff structures for services and taxes.

During Repelita III, DTKTD will be supporting its major activities by the preparation of enabling legislation for town and area planning. Normally, there is a need to frame subsidiary legislation to strengthen planning frameworks -- for example, legislation defining the content and status of detailed area plans, legislation defining relationships and status of agencies in the planning process, regulations concerning governing citizen participation in the planning process, land spatial development regulations, norms and standards, systems to assure effective compliance, including penalties for violations, and legislation establishing procedures for appeals against planning decisions.

Work on specific pieces of draft legislation appropriate to Metropolitan Medan and its region cannot be developed in a vacuum. Nor should it be necessary to wait until DTKTD has finished its work. Rather, the urban regional development objectives of Repelita III suggest that the Medan Urban Implementation Program recommendations together with the ongoing Regional Development Study underway in North Sumatra should provide the basis for an integration of efforts of the local and provincial BAPPEDA's. A pilot effort to develop realistic, implementable procedures, systems and regulations for effectively integrating urban and regional planning and development and the required inter-sectoral coordination could be developed as part of the DISP Implementation Program.

Such efforts would provide the essential inputs necessary in order to assure: (1) realistic legislation necessary for the effective implementation and integration of the DISP in both an urban and regional context be given the highest priority, (2) the continuance of the DISP planning process and (3) that national efforts in the field of development legislation clearly reflect local and regional needs, priorities and implementation capacities.

17.3 DEVELOPMENT ADMINISTRATION AND FINANCE

Institutional changes are frequently difficult to achieve and require a significant period of time to implement even after approval at policy level. Political support for such changes is often limited unless their short term benefits are clear and precisely defined. The benefits of physical investments, however, are immediately obvious and their implementation normally presents little institutional conflict.

The planning and programming of municipal finance in Medan should be carefully monitored but also it should be integrated with financing available for housing and basic urban infrastructure and services. The financing system (formal and informal) can have a more substantial impact on the well being of the residents of Medan than many of the plans which now exist at the municipal level if a comprehensive view of total planning and programming of finance is taken.

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Improvements in municipal local administration and finance must also be complemented by supportive changes and adjustments as required at the national level.

The following criteria are recommended to guide continuing activities aimed at strengthening local urban development administration and finance:

1. Existing entities should be utilized as fully as possible, rather than creating new special purpose entities. Modest changes in procedures should be emphasized.

2. The overall system of financing should place maximum emphasis on internal and not external resources.

3. The levels and classes of financing to be mobilized should reflect the administrative capacity of the organizations responsible for the management of such funds, and the capacity of the beneficiaries to utilize the funds for the intended purposes.

4. The mechanisms recommended for the financing of housing and basic essential infrastructure and urban services should be coordinated with the development of mechanisms designed to facilitate their effective utilization (e.g. INPRES, IPEDA, betterment taxes with land use controls, property registration, technical or legal assistance for low-income groups).

5. Legal, administrative and institutional measures should be oriented to facilitate the full participation of community groups and organizations in fulfilling their basic essential needs.

In general the mechanisms proposed for the development of local urban administration and finance should be accompanied by a strategy and program for their implementation and should be subject to a gradual assimilation which will permit the opportunity for required changes. Technical and non-technical personnel training and development will be necessary for effective implementation.

17.4 THE DATA AND INFORMATION BASE

A problem that pervades all aspects of planning and development in Medan and the North Sumatra Region is the paucity of statistical data and other information needed for sound decision making. Data on the Medan Metropolitan Area and the Region and data on other areas which effect them are a problem at all levels of government. The organization of information is also a problem. Data are scattered throughout a large number of collection agencies, many of which do not use consistent systems of classification, coding or updating. Potentially useful information often is ineffective because of lags between its collection and its availability. Decisions necessarily are, in many instances, made without it.

While urban growth is outpacing investments in urban infrastructure, the investment levels are clearly outpacing the growth of planning and administrative skills. Public policies cannot be constructed soundly without better information and better processing for its maintenance. The opportunity costs of mistakes are high and information bottlenecks may therefore be expensive.

The creation of a responsive information system that can provide up-to-date data to support day to day decisions by both the public and private sectors is at least as important in many respects as having a long-term plan.

SECTION 18

GUIDELINES FOR PHYSICAL DEVELOPMENT

The following physical development guidelines define the most probable direction and extent of Medan's growth, given the physical constraints to urbanization, the expected impacts of committed projects, the level of existing urban basic services available, and financial limitations. It is clear that the emphasis of physical development strategy should be on short term, immediately implementable schemes which will significantly improve Medan and benefit its residents within the existing and expected levels of Medan's financial resources (especially the low income segments of the population), under the global objectives of social equity and economic growth.

The city of Medan has the prospect for a steady population, growth in the next twenty years at a growth rate of around 2.6 percent annually. This gives the city an opportunity to consolidate and improve the existing conditions of basic urban services and to carefully direct its growth into those areas which will most effectively and economically provide for new residential, commercial and institutional land. In the next two decades, the bulk of industrial land needed will be satisfied by the provision of industrial sites in Medan Industrial Estate and the Belawan area.

The guidelines presented here limit themselves to the physical location and brief description of those short term action projects which will be implemented over the period of Repelita III and general indications of the directions of the long term growth potentials.

18.1 THE SHORT TERM STRATEGY

The short term strategy is based on the five years of the Repelita III starting in 1979/80. Major stress is on the immediate action projects in kampung improvement, health and educational facilities, transportation, water supply and sanitation, and major expected and proposed changes in land use.

18.1.1 Land Use

The growth of new population over Repelita III is estimated to be 135,600 persons, who will require some 330 hectares for residential use. The combination of the new Medan III site to be developed by Perumnas

during Repelita III, Medan II (also a Perumnas project), with about 120 hectares, earmarked for development during Repelita II and those institutional housing projects already committed will together total 300 hectares. As a result, about 80 percent of the new households resulting from population growth will be sufficiently provided with housing, while the remainder will be accommodated in existing urbanized areas, mostly in peripheral districts. However, some 50 hectares of new land is needed annually to accomodate the over-spill population from already overcrowded central areas. Therefore the land use strategy recommended is as follows:

1. Immediate residential development should be encouraged in the southern districts of Medan Johor immediately outside the city boundary.

2. Residential development should consist of a wide range of densities to permit mixed income development and the opportunity for internal cross subsidies.

3. Additional land surrounding the Medan III and other housing sites should either be purchased or its development restricted for later urban development. By doing so, the government could capture some of the benefits which accrue to surrounding property from government investment.

4. Medan III housing estate should also acquire some 20 hectares for a "small manufacturing zone" and industrial training center. The industrial land should also be purchased by Perumnas together with residential land in anticipation of selling it either to the public land development corporation or directly to industrial investors.

5. Housing in-fill sites should be stimulated to develop an orderly pattern in the existing urbanized areas through early planning and construction of infrastructure by the Kotamadya. It is expected that predominantly permanent housing would be developed in Medan Sunggal, while semi-permanent and some temporary housing may be constructed in the peripheral areas of Medan Timur, Medan Denai and Medan Johor.

6. The railway switchyard and warehousing around Medan railway station should be removed and the site redeveloped for business use. Sites potentially suitable for warehousing relocation are around the interchanges of the Toll Road by-pass.

7. It is also recommended that measures be investigated for flood control for residential development on sites adjacent to Medan Industrial Estate.

8. If Polonia Airport needs to be relocated, the Kotamadya and the Directorate General of Air Communications should jointly investigate the feasibility of providing the existing site of Polonia Airport (900 hectares usable land) as a land bank

for the future use of the city as well as for financing a portion of the airport's relocation cost.

Those committed housing projects, new land for residential use and warehousing areas, and housing in-fill sites are shown in Figure 18.1.

18.1.2 Kampung Improvement

The major short term strategy recommendation is the immediate implementation of physical improvement for the Kampungs of Kotamatsum I, II, and III, and those recommended in the DISP. They are: Kampung Sidorame Barat, Kampung Sidorame Timur, Kampung Sei Kera Hilir and Kampung Sei Kera Hulu in Medan Timur, Kampung Tegalsari I and Kampung Tegalsari II in Medan Kota and part of the Kampungs of Hamdan and Aur in Medan Baru. Locations of these Kampungs are shown in Figure 18.2.

The following recommendations also form a part of the short term physical strategy:

1. Maintenance of the improved infrastructure should be immediately undertaken by the Kotamadya on a routine basis.

2. Measures for structuring the future growth of predominantly low income Kampungs, especially in the peripheral areas of Medan Timur, Medan Denai, and Medan Johor, should be undertaken by the Kotamadya through early planning and construction of footpath and water supply networks.

18.1.3 Community Facilities

Overall development strategy for community facilities in health and education are presented in the Sections 12 and 13 and in Technical Memorandum No.15 and No.17. The following recommendations are directly related to physical development.

Education

1. At least 50 percent of the INPRES SD fund should be allocated for the rehabilitation of the existing facilities.

2. All schools, especially elementary, should utilize the double shift system to provide maximum coverage at minimal cost.

3. The development of physical facilities for secondary schools should be intensified. It has been identified that there are at least four secondary schools required in the Repelita III. Locations of the schools are shown in the following Table.

4. Maximum land utilization of central areas should be achieved through the construction of two and three storey educational facilities.

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TABLE 18.1

RECOMMENDATION ON SCHOOLS DEVELOPMENT IN THE REPELITA III

Kecamatan	Elementary School	Jr.High School	Sr.High School
Medan Kota	X	X	
Medan Timur			X
Medan Baru	X		
Medan Barat			X
Medan Denai	X	X	X
Medan Labuhan		X	X
Medan Johor		X	X
Medan Tuntungan	X		X
Medan Sunggal	X	X	
Medan Deli		X	
Belawan		X	X

SOURCE: MUDS

Health

In the short term physical strategy, priority is given to the development of primary health facilities at Kecamatan level, e.g. Puskesmas and Clinics, especially in the low income residential areas. Type and location of the health facilities recommended are as follows:

1. Puskesmas: Timur, Denai, Sunggal, and Belawan
2. Mother and Child Clinic: Labuhan, Kota, Barat, Belawan, and Baru
3. Polyclinic: Timur, Kota, and Baru
4. Maternity Clinic: All Kecamatan

Development of these health facilities should be related to implementation of the Kampung Improvement Program. The location of the facilities should be in areas accessible to the residents in the Kecamatan being served by the facility.

Transportation

The physical development strategy for transportation in the short term is to develop an effective road network serving all parts of the city and to relieve traffic congestion in the central area. Recommendations are presented as follows:

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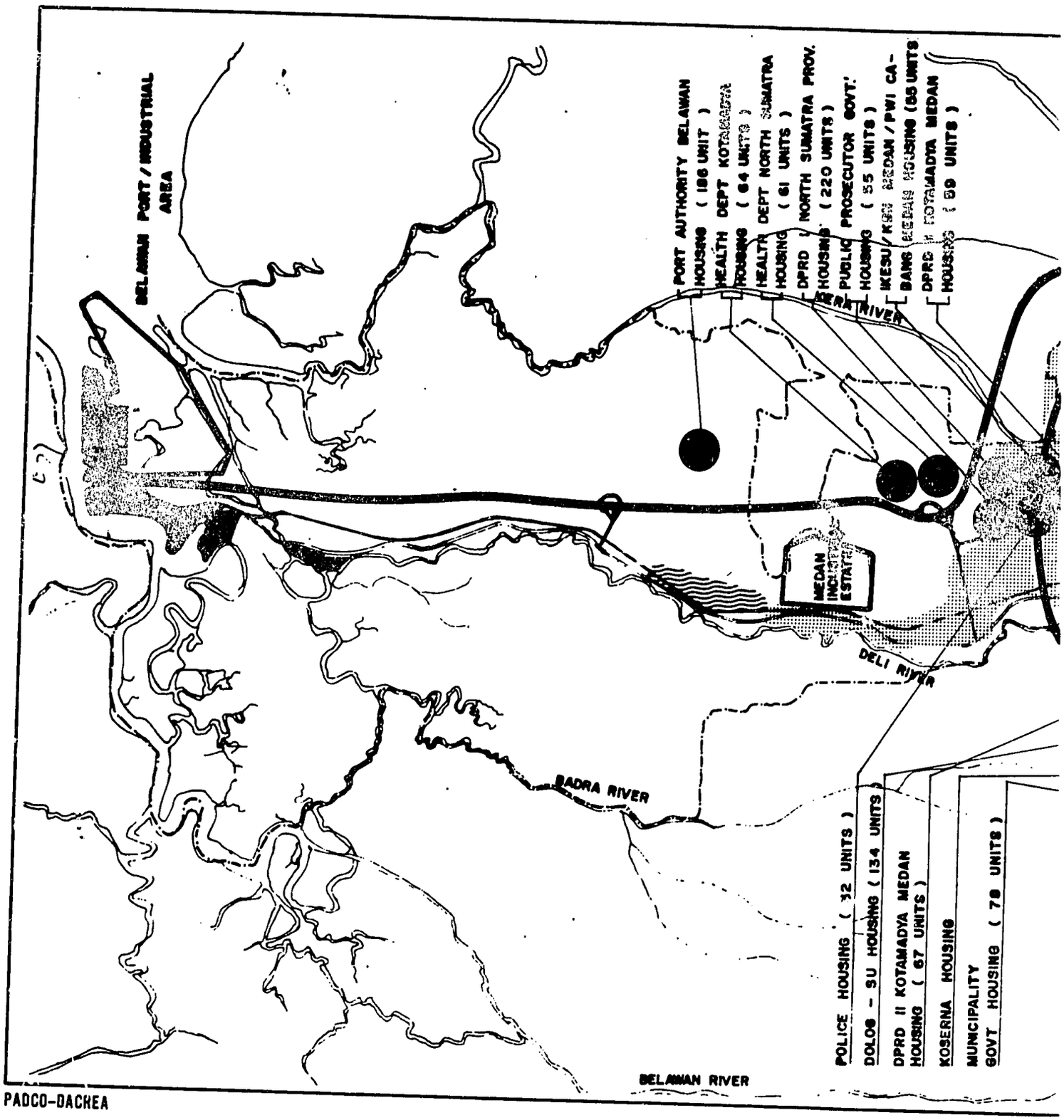

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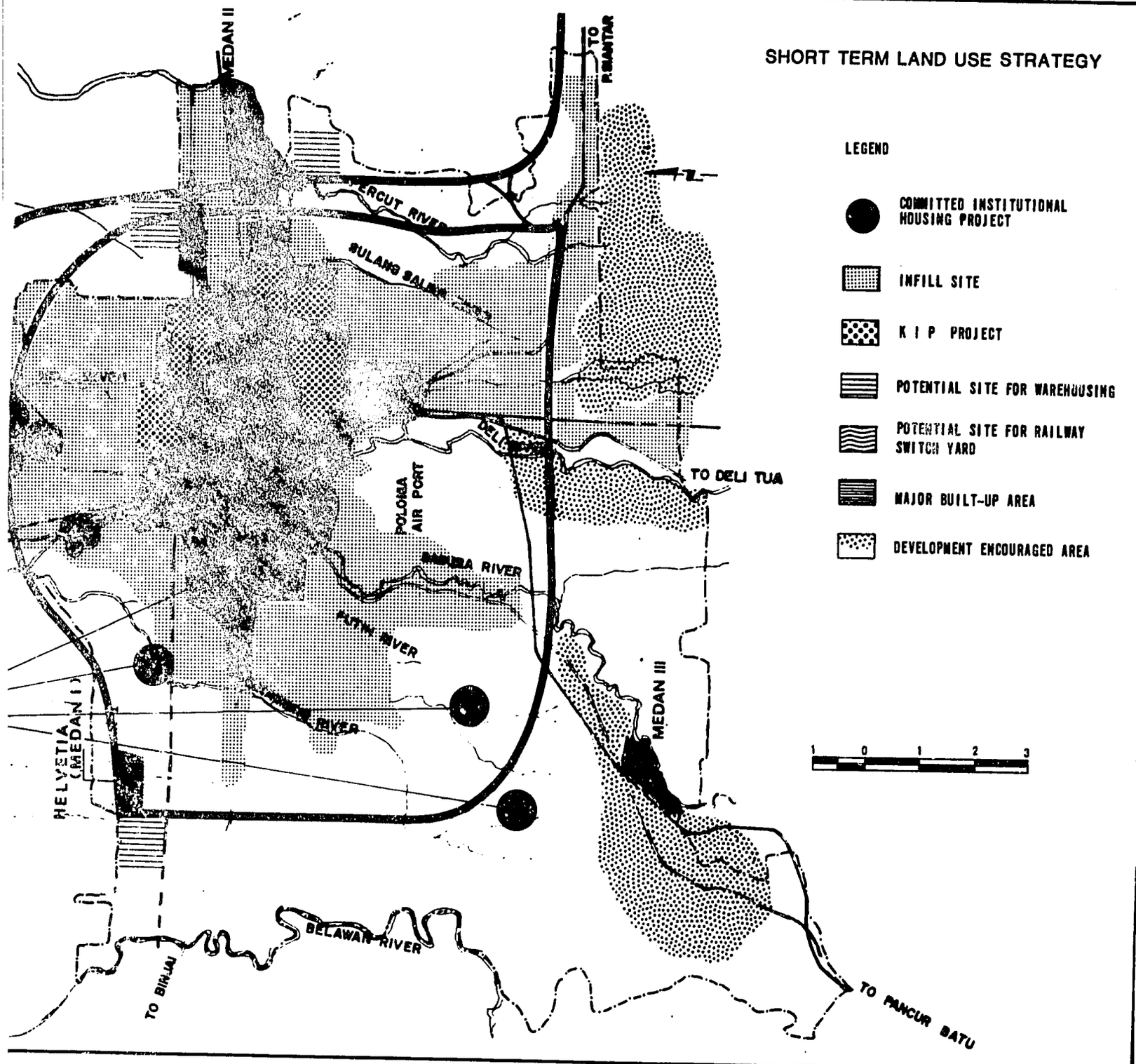
FIGURE 1



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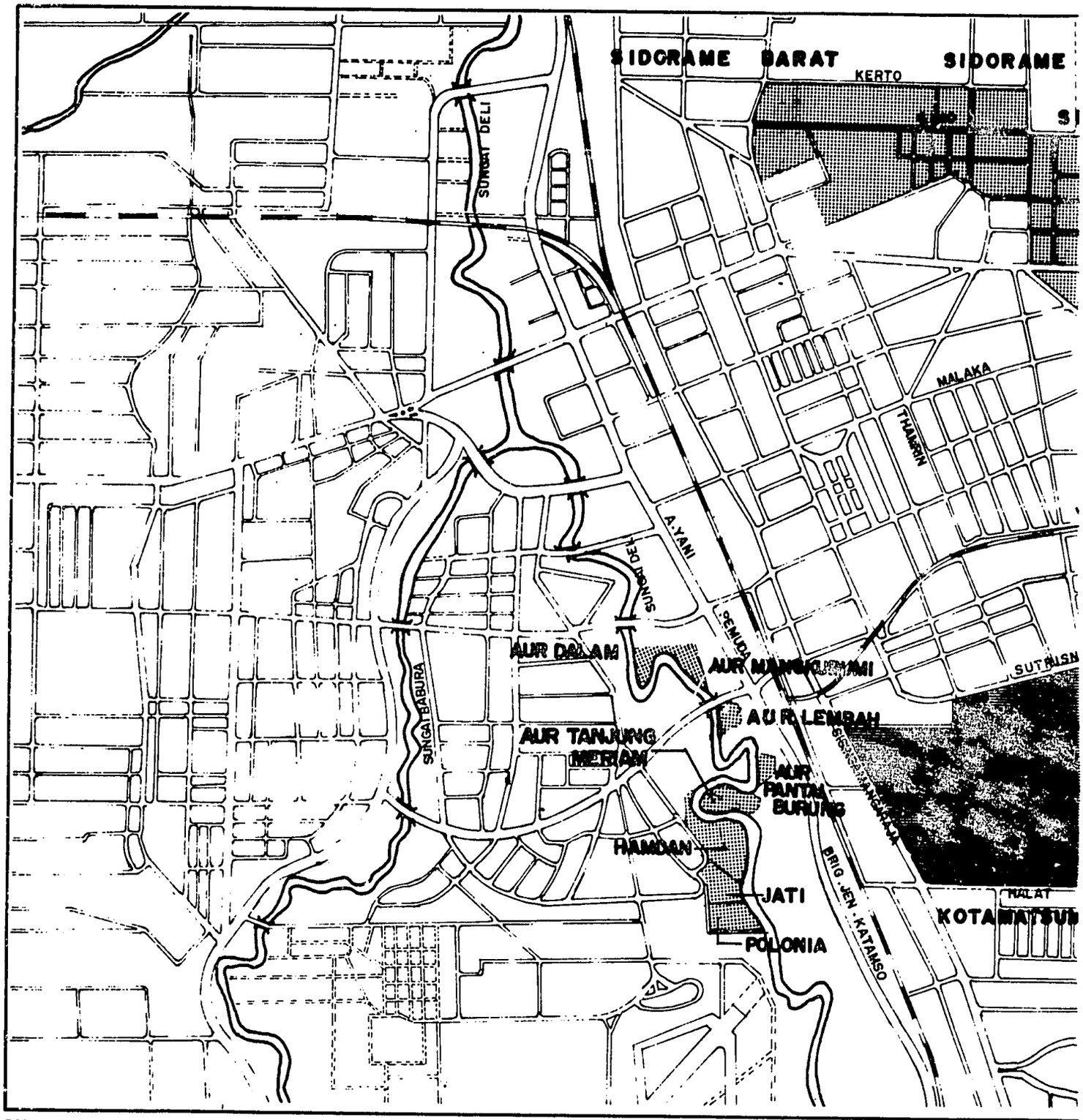

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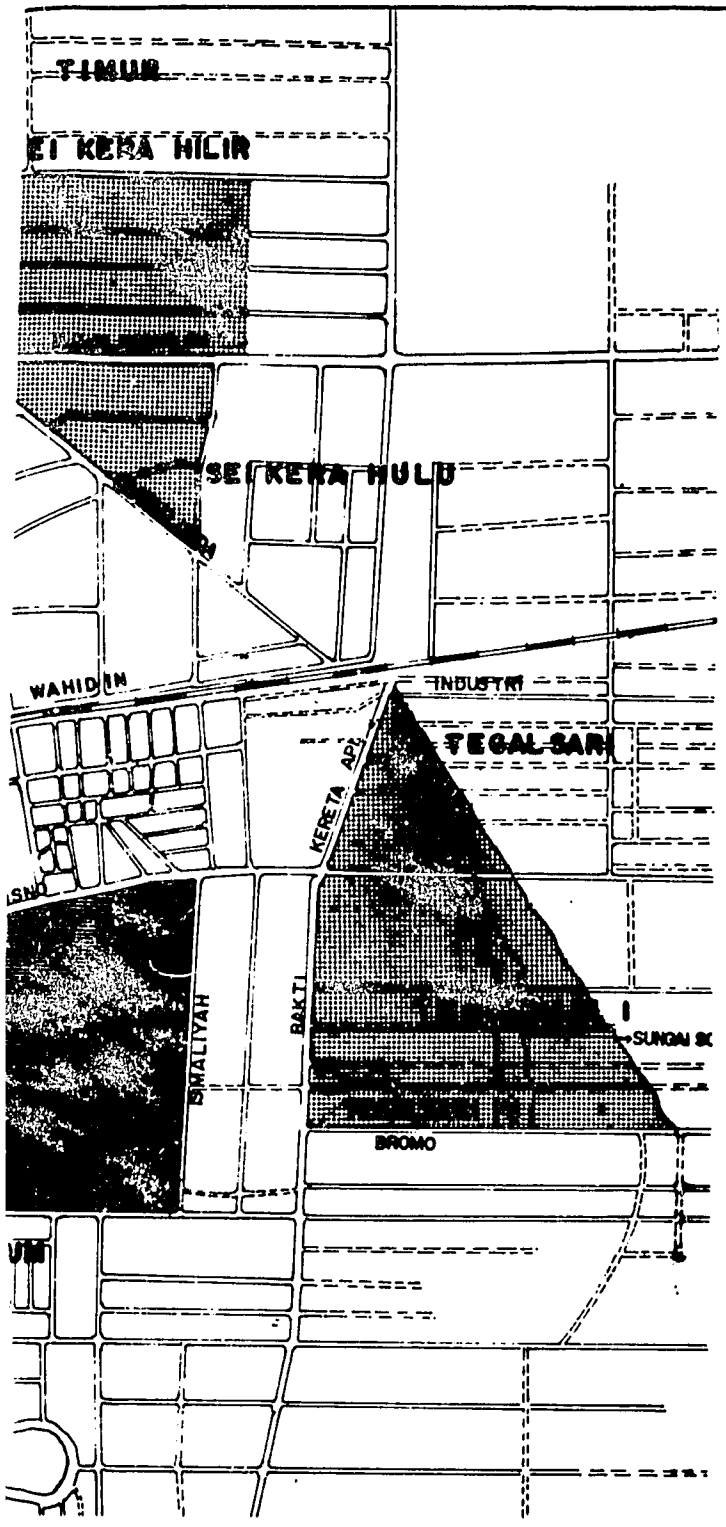

KAMPUNG IMPROVEMENT PROGRAM SITES

LEGEND

MUDS PROPOSAL

KOTAMATSUM I, II & III

1. Actions should be undertaken by Bina Marga to assure that the Toll Road functions as a limited access freeway, especially along the by-pass section, while the decision about implementation of the eastern section of outer-ring road is pending.

2. Immediate action should be undertaken by the Kotamadya for upgrading existing road conditions, especially primary and secondary roads in the city.

3. The following major road projects should be undertaken by the Kotamadya, the Province and the National Government:

   - Southern Intermediate Ring Road
   - Gelugur Intermediate Ring Toad
   - Connector Roads to the Toll Road
   - Southern Outer Ring Road
   - Northwest Outer Ring Road

   These major road projects are shown in Figure 18.3.

4. An effective traffic management program should be immediately formulated and undertaken by the Kotamadya with technical assistance provided from foreign and/or Indonesian Consultants. The emphasis of the program should be the improvement of the traffic control system and car parking policy, especially in the central area, and public transport service.

5. A financial feasibility study should be initiated by the Kotamadya and/or the State Railway Limited to redevelop the existing railway switchyard and switchyard and warehousing site into an area for business premises and for financing construction of a new switchyard and warehousing area. The feasibility study should also include investigation of freight train schedules to restrict their movement through the central area during the peak traffic hours.

Water Supply and Sanitation

Major thrust of the short term strategy recommendations for water supply is expansion in the quantity of the supply through increasing the treatment capacity of the Sunggal Plant and through expanded ground water development. To improve the functioning of the existing distribution system in the eastern portion of Medan (under Dutch aid) and increase the number of public standpipes. Expansion of the number of service connections in the major population areas is to be achieved in two stages, to allow Tirtanadi to gradualy increase its operational capacity. These are indicated in Figure 18.4.

In essence, the short term strategy for drainage improvement is to clear drainage channels and prepare for the long term improvements by

monitoring water flows of the major rivers. The locations of the recommended areas for drainage channel improvements are indicated in Figure 18.5.

The areas recommended for reforcement and intensification in solid waste collection services are indicated in Figure 18.6. Given the massive amount of investment required for sewerage collection and treatment systems and limited capital resources available, the short term strategy recommended for sewerage improvement is for immediate improvement in individual household latrines and MCK's especially in the Kampungs selected for KIP, and a very limited municipal sewerage system development.

Private Investment

While the public investment is aimed at upgrading the existing physical and social infrastructure, and at providing opportunities for private investment, it is the role of private investment to complement public investment. The sectors which are especially recommended for private investment are housing and housing improvement in KIP areas, development of infill sites, industrial development in the Medan Industrial Estate and in the small scale industry site near Medan III, in those areas proposed by the land use strategy, and in the development of a city sub-center as proposed in the Medan Master Plan. To initiate and promote private investment in the areas proposed by the land use strategy, public actions such as, facilitating changes in land use designation by the Agraria Department, and credit for land purchase for housing and industrial development from commercial banks are essential.

18.2 THE LONG TERM STRATEGY

While the short term strategy seeks to improve existing conditions in the city by reducing existing deficits in infrastructure and basic urban services thereby assisting Medan to fulfill its role as a major urban and regional center, the long term strategy is directed at enhancing the potential of both the city and its region to stimulate and contribute to future regional and national growth.

18.2.1 Long Term Strategy for Medan City

Medan's population growth at the year 2000 has been estimated at 1.95 million. To accommodate this population and related activities, some 3,400 hectares of land outside the existing built up area will be required. Land physically suitable for urban use has been identified previously in Figure 15.2. To facilitate urban use in those new areas, infrastructure should be planned and developed in accordance with the proposed urban pattern and development priorities. This section is limited to the description of the land use and transportation sectors. Other sectors, (i.e. water supply and sanitation) are discussed in other volumes of the report.

In essence, the long term land use strategy depends on: (1) the timely completion of the road network, (2) relocation of those obsolete facilities and redevelopment of their current sites, and (3) implementation

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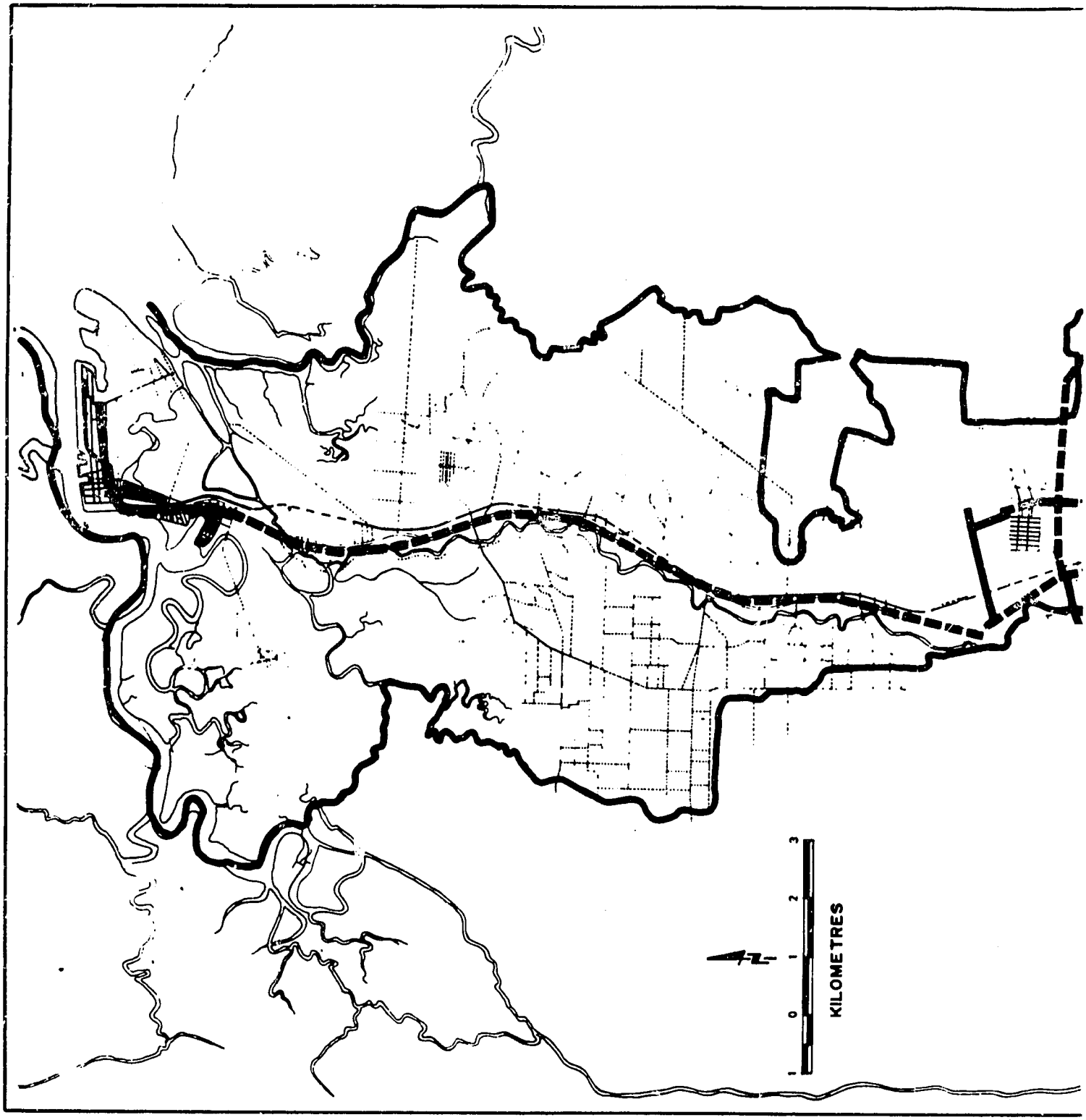

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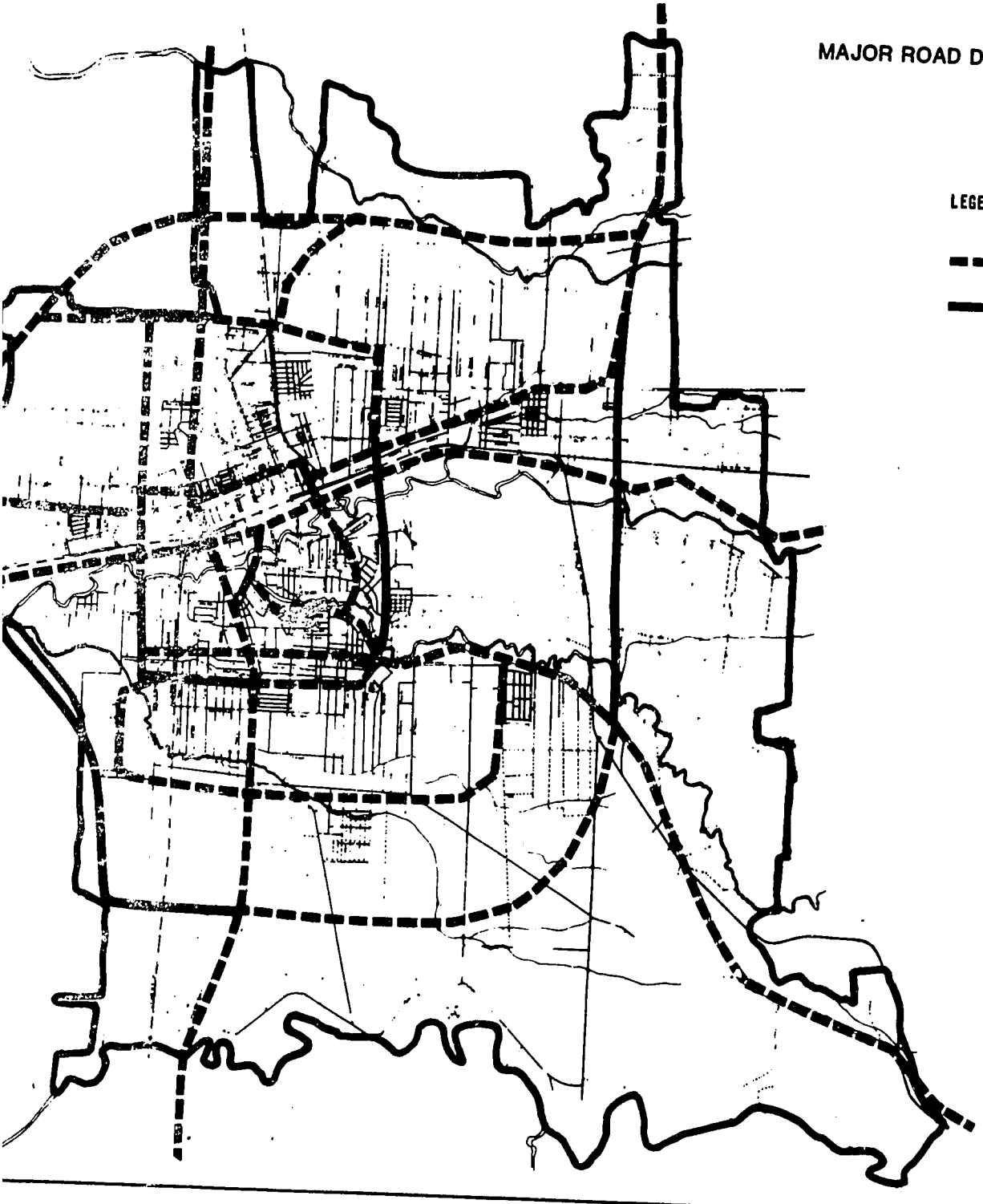
FIGURE 18.



MAJOR ROAD DEVELOPMENT PROJECTS

LEGEND

MASTER PLAN PROPOSED ROAD NETWORK

MUOS PROPOSAL FOR REPELITA III ROAD DEVELOPEMENT PROJECT

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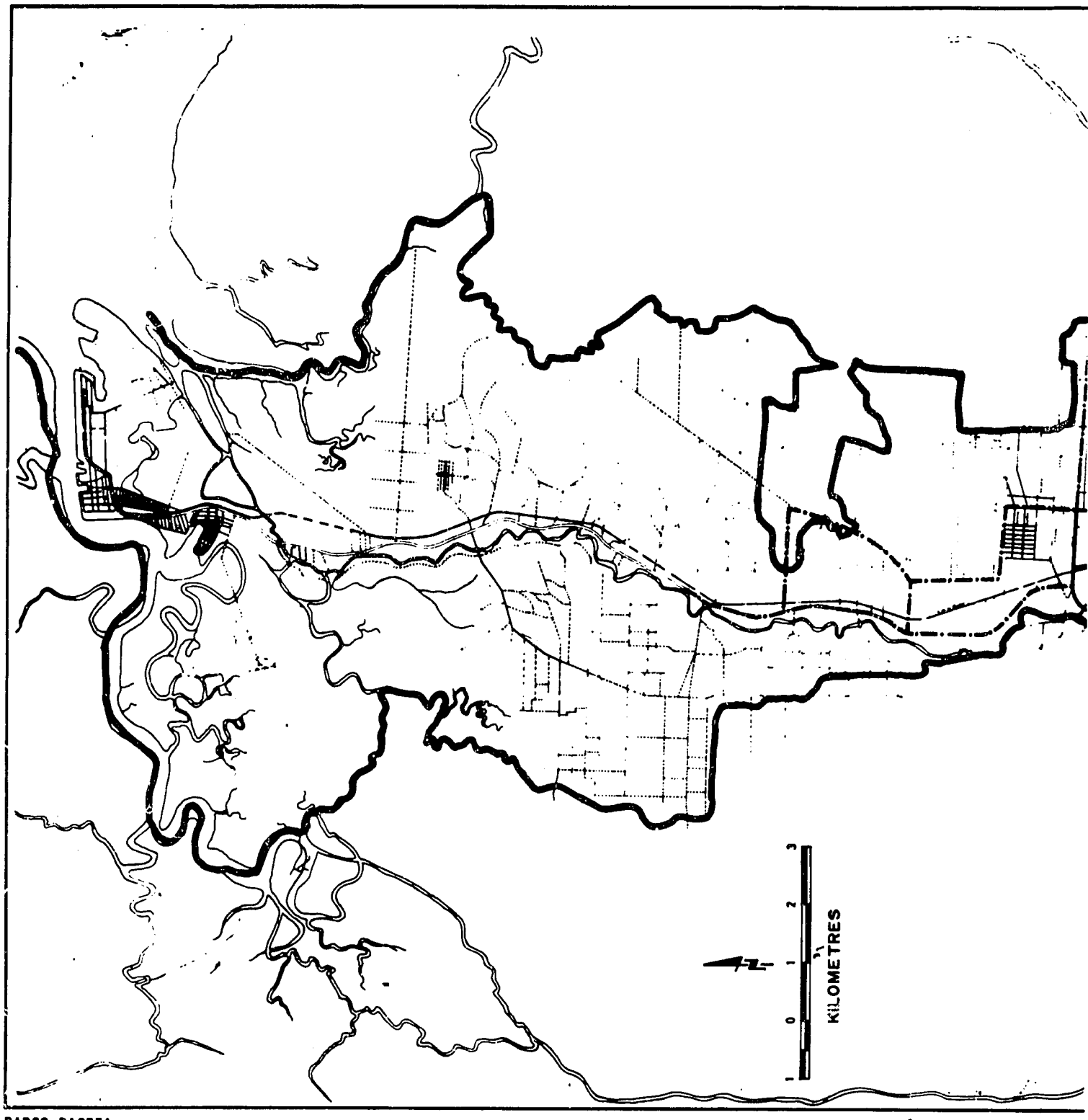

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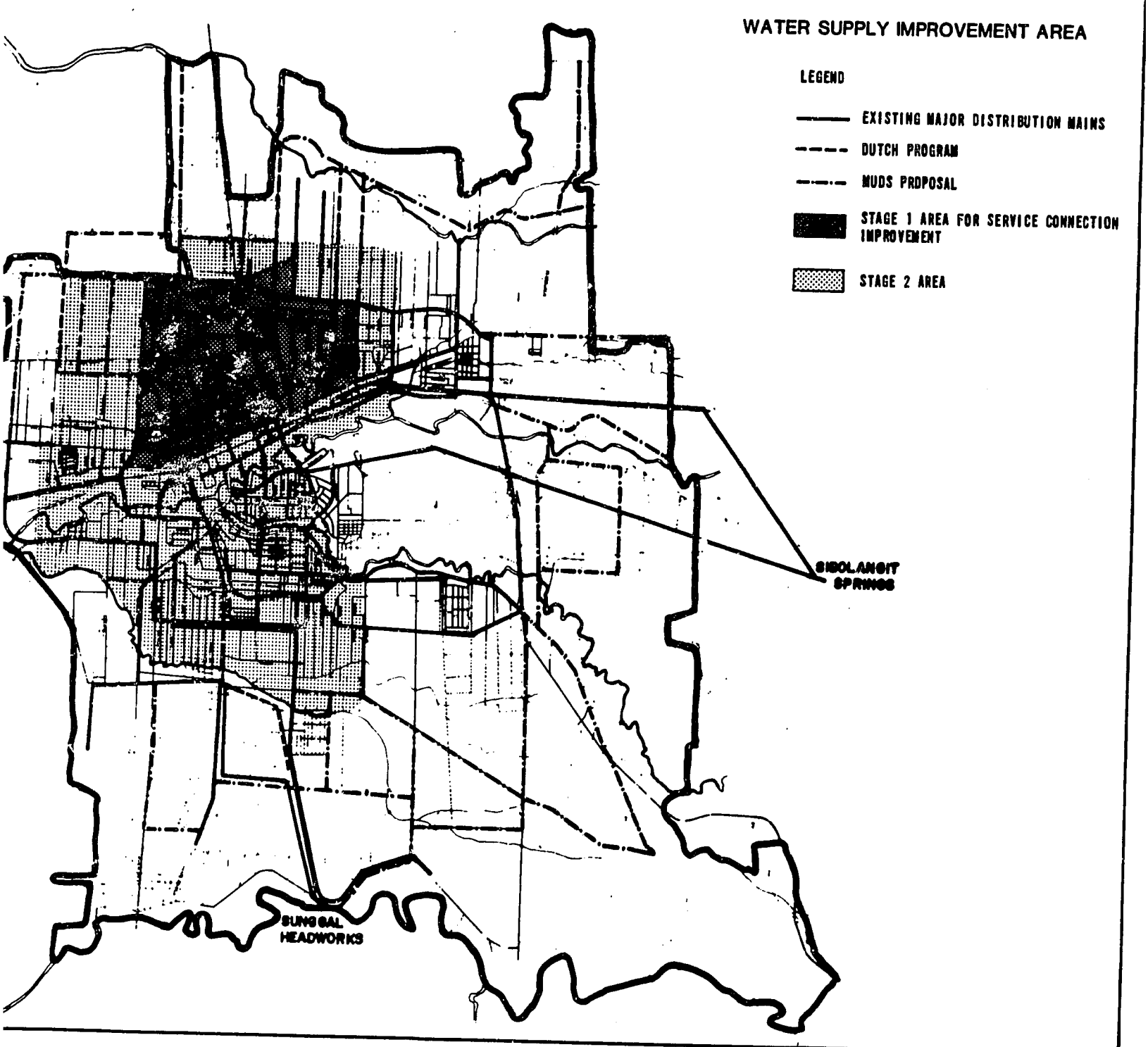
FIGURE 18.4



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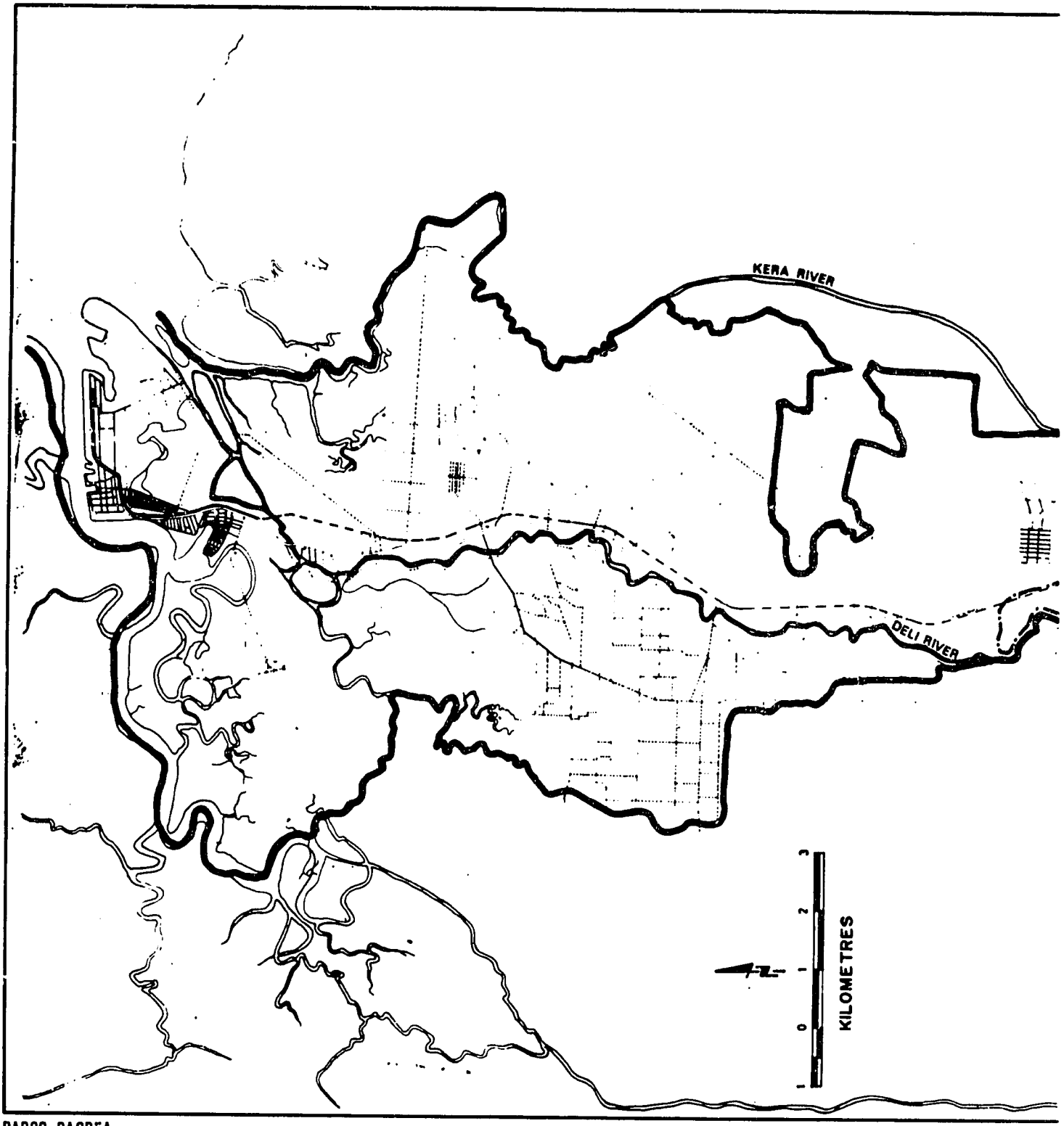

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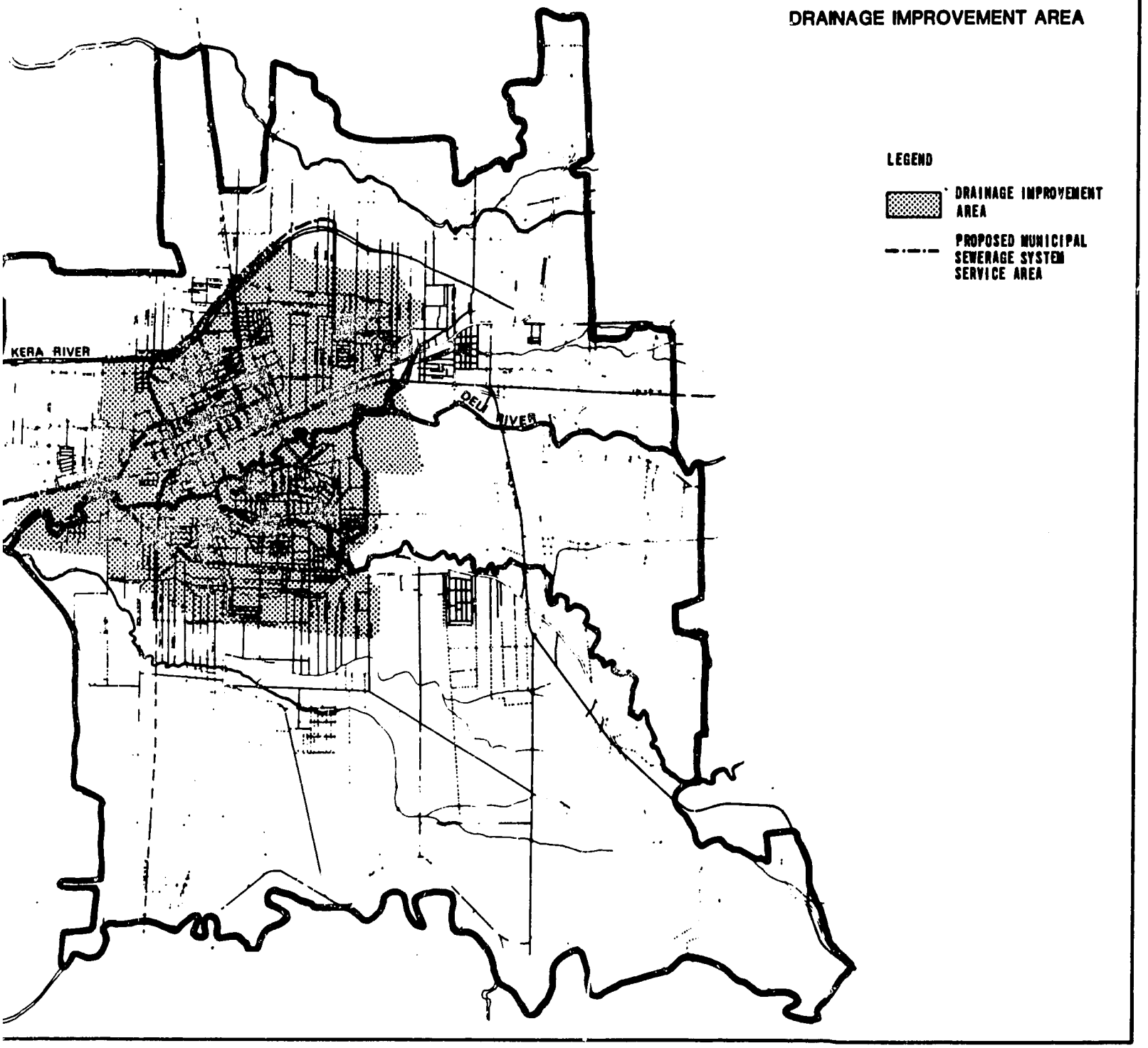
FIGURE 18.5



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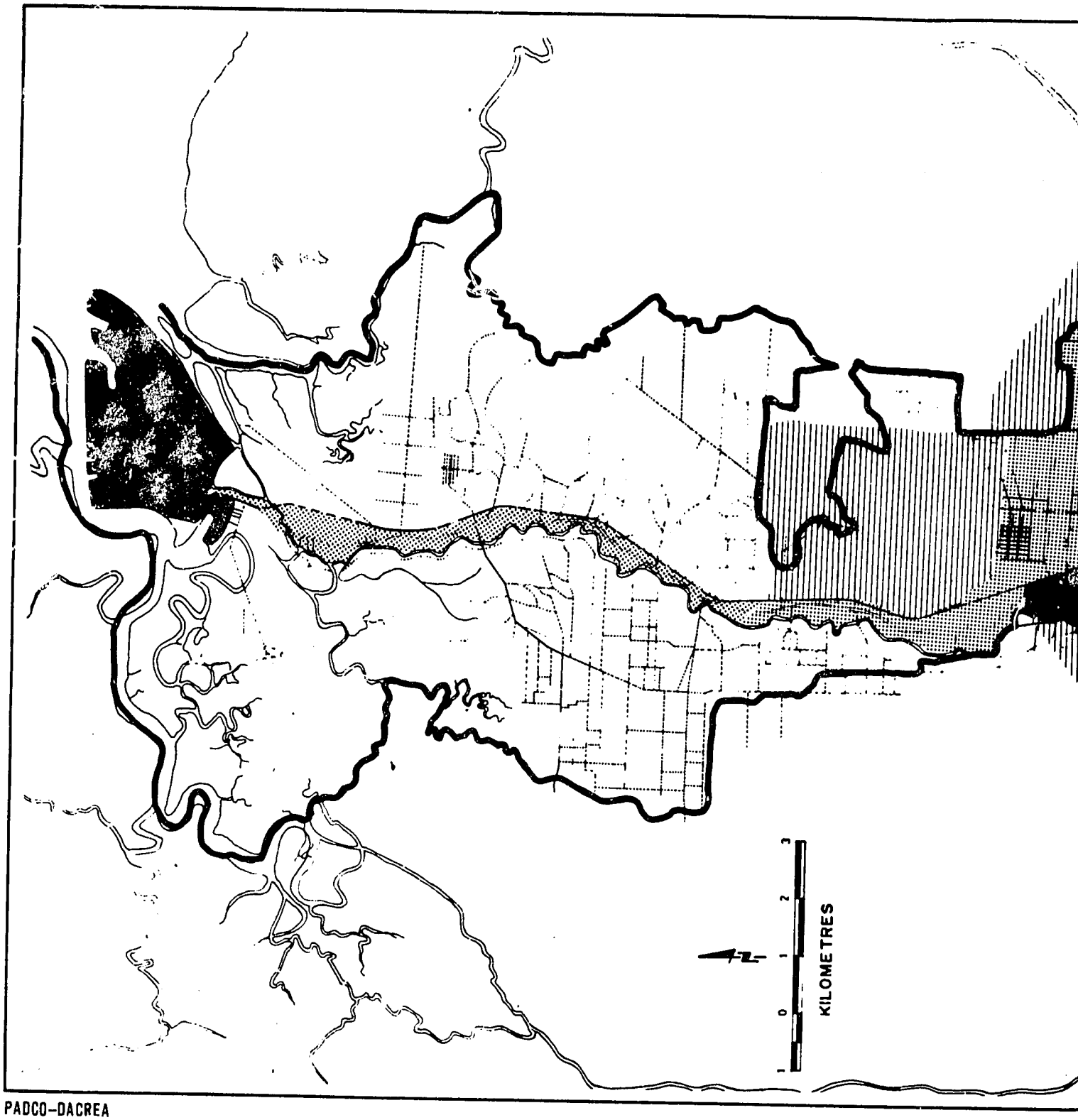

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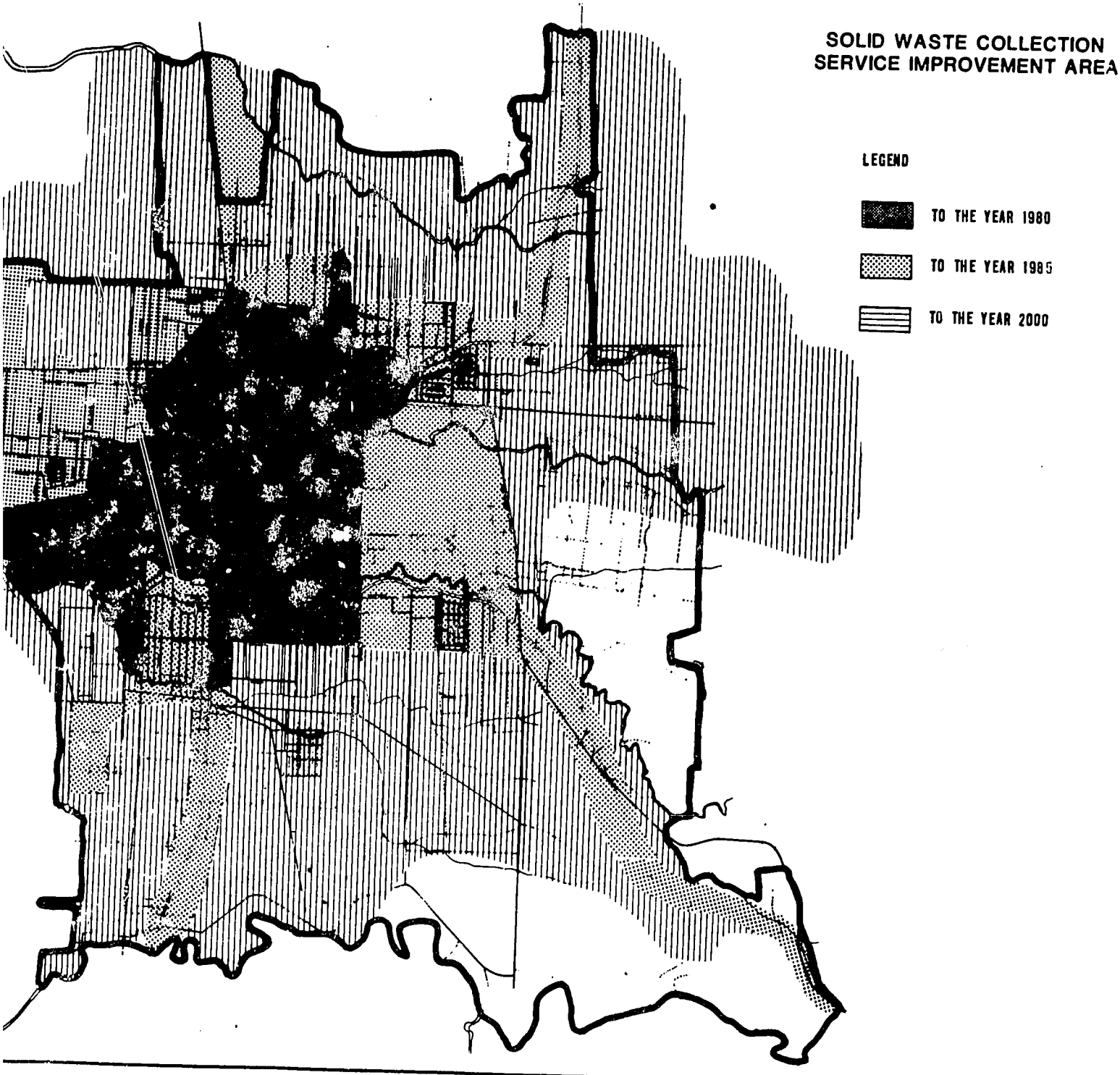
FIGURE 18.6



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of city-wide Kampung Improvement Program to facilitate growth of the central activities while upgrading environmental well-being and increasing productivity of the residents as well.

Subsequent to the implementation of the immediate action projects/programs and those recommended in the short term strategy, development efforts should be directed to the eastern area, especially those areas around the by-pass interchanges, in order to take the advantage of the public investments to be made in Repelita III. Development of the eastern area for residential, industrial and warehousing uses will provide accommodation for new households as well as facilitate the relocation of those industries and warehousing presently located in the central area. Development of this area will depend greatly on completion of the eastern outer-ring road even though the Toll Road is converted to a more accesible freeway for local use. Planning and design standards for this outer-ring road section should be lowered and based on its use as a local artery.

Development of the western area should be undertaken after improving drainage systems in Deli River basin, especially the Sikambing River. By virtue of the amount of land available for urban development in this area, improvement of Sikambing River should be undertaken after Kera River improvements. With respect to the Kampung Improvement Program, it should be extended to cover Kampungs along the outer-ring of the old built-up residential areas, i.e. Kampung Durian, Kampung P.Brayan Kota, Kampung Glugur Kota, Kampung Silalas, Kampung Sekip and Kampung S.Putih Timur in Kecamatan Barat and Timur, and Kampung Baru, Kampung Polonia in Kecamatan Baru. Low income kampungs in the Kecamatans of Kota, Denai and Sunggal should be improved subsequently.

Land use intensity in the city centre, though comparatively low (most of the buildings are two- to three-storey), should be resticted given the existing narrow streets and consequent excessive costs for widening. It is recommended that zoning regulations should prohibit floor ratios for commercial use higher than 150 per cent of the plot size (approximately double the existing ratio). Development of new office buildings should be encouraged along the intermediate ring-road so as to prevent excessive congestion of traffic generation/destination in the centre.

The effective redevelopment of the city centre will require relocation of the existing railway station. Three potential sites are identified on the proposed land use pattern map (Figure 15.2). These sites are owned by the State Railway Limited and used for warehousing. A railway by-pass for the city from Batang Kuis to Belawan should eventually be developed to set the city centre free from railway interference. The existing one-way system in the centre should be re-studied so as to eliminate unnecessary traffic. The existing on-street parking policy has significantly obstructed traffic flow in the centre. Given the existing physical constraints, expected growth of vehicle ownership and of the central activities, the feasibility of measures to limit permissible parking time and the introduction of public bus (mini bus) service for the central area should eventually be studied and undertaken as appropriate.

18.2.2 The Need for a Medan Metropolitan Regional Approach

The Long Term development strategy for Medan should not view the city in isolation, but rather in a regional context. The impact of development on the urban and regional systems must be considered within a comprehensive and integrated development program for the city-centered region. The existing land use pattern indicates that Medan and its surrounding towns (including Binjei, Pancur Batu, Deli Tua, Tanjung Morawa, Lubuk Pakam, Percut and Tebing Tinggi), already form an interlocking urban system along regional transportation corridors, albeit in an 'ad hoc' pattern without specific consideration for the function of the city as the center. Nevertheless, a metropolitan region centered on the city of Medan is emerging. Those already planned and proposed transportation investments (i.e. Toll Road, Trans-Sumatra Highway Betterment, urban train program and railway widening), will further improve the existing links between the city and those surrounding towns by the end of the current Repelita and beyond.

As the corridor development takes place and access between Medan and those small towns is improved, it is likely that more rapid growth will occur in the latter. Medan can be expected to benefit from the emergence of a metropolitan region pattern. The strong new transportation corridors will encourage relocation of those facilities which are region serving in nature and don't need a central city location. Through time and without requiring excessive public investment or initiative, there should be a logical phasing out of many obsolete downtown facilities such as region serving warehouses, timber and other goods storage yards, and perhaps even crowded higher education facilities. This process will, in turn, facilitate the natural urban renewal process in the centre city.

Thus, a broader planning approach at a metropolitan region scale, will be essential and necessary in order to upgrade the capacities of Medan to more effectively fulfill its role as prinsipal city designated in the WPU-A.

18.2.3 Potential Growth Centres and Industrial Location Strategy

As previously noted, the Medan metropolitan region is beginning to emerge in conformance with major transportation corridors. Available regional road traffic volume data suggests that the boundary of the region might be limited to the area covering Binjei, Pancur Batu, Deli Tua and Lubuk Pakam (traffic volume in 1974 between Lubuk Pakam and Tebing Tinggi was only approximately one half of Medan to Lubuk Pakam, and one third of Medan to Binjei). Nevertheless, as the proposed urban train program (a rapid transit system) comes into use after 1985, and once the Asahan Project is completed, the effective boundary of the metropolitan region will most likely extend as far as Tebing Tinggi. The metropolitan region would thus correspond with sub-region III of North Sumatra*.

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* Sub-region III encompasses three municipalities: Medan, Binjei, and Tebing Tinggi, and two regencies: Deli Serdang and Langkat, covering approximately 1,098,153 hectares and 2,899,888 persons in 1976.

This region is the most important in North Sumatra in agricultural production and contains a number of significant urban settlements. It can be assumed that the private sector and individual households in the region will continue to make their locational decisions in response to the opportunities created or reinforced by public investment. Urban development along the routes of major transportation corridors can be expected to grow rapidly as access is improved through the planned investment. The long range development strategy for the metropolitan region should, to the maximum extend possible seek to both anticipate and reflect the likely natural growth tendencies which can be expected. The limited financial and manpower resources should be focussed in the most efficient manner to stimulate and reinforce a realistic urban-rural development pattern. Thus, the combination of the growth centre concept and planned corridor development seems to provide the most appropriate feasible opportunities for enhancing the functions of Medan as the metropolitan central city supported by a series of secondary towns and market centres. Based on a preliminary analysis of existing land use, physical conditions, population and growth trends, the following towns outside of Medan have been indentified as potential growth centres outside of Medan, Binjei, Deli Tua, Tanjung Morawa, Lubuk Pakam, and Tebing Tinggi (Figure 18.7). A brief description of observed tendencies and potential for each of them is presented in the following section. Table 18.2 summarizes the general population and land characteristics of each one.

TABLE 18.2

POPULATION AND LAND AREA OF PROPOSED GROWTH CENTRES: BINJEI, DELI TUA, TANJUNG MORAWA, LUBUK PAKAM, TEBING TINGGI IN 1976

	Binjei	Deli Tua	T.Morawa	L.Pakam	T.Tinggi*
Population 1976	70,673	16,281	61,898	116,573	138,763
Population Growth Rate 1961-76 (%)	3.2	0.5	2.0	2.2	na
Land Area (ha)	1,709	1,102	14,175	23,730	33,735
Percentage of built-up area in total	20.7	21.7	7.8	7.6	na
Gross Resi. Density (per/ha)	199.7	81.9	58.1	68.2	na

* Including Kecamatan Tebing Tinggi.

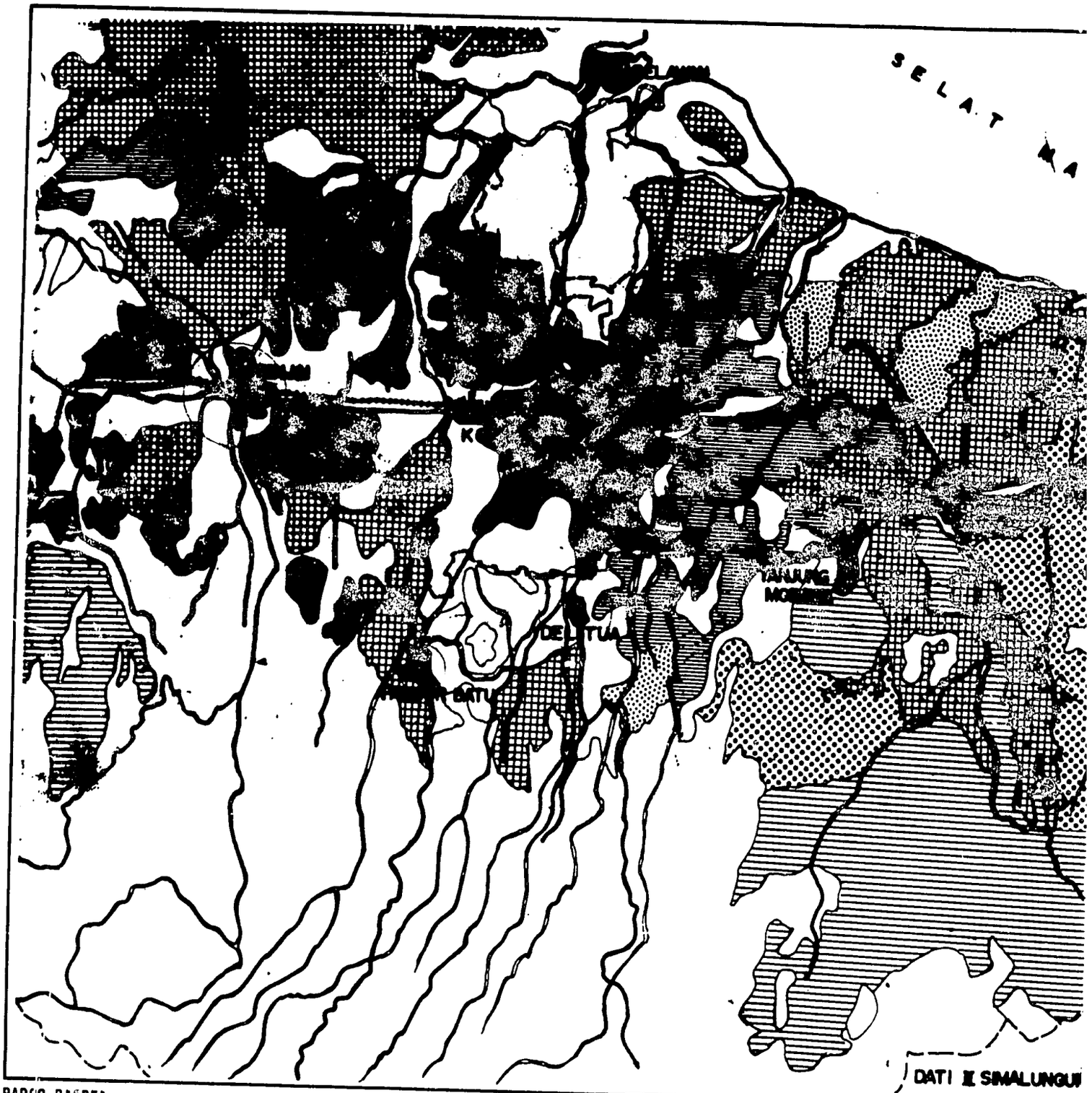
SOURCE: Kantor Sensus Statistik Daerah Tingkat I Sumatra Utara.

Binjei is a Kotamadya, situated approximately 20 kilometres from Medan and linked to the latter by both railway and Binjei-Medan national highway. Topographically, this city is located on higher land than Medan. No drainage problem has ever occurred. Ample vacant land is available for urban development in the Kotamadya; mostly owned by the plantation company. With the development of north-west section of Medan outer-ring road, this city will have a quicker and less congested access to Belawan. It is also very close to a rich natural gas deposit down the Wampu River. A major irrigation project for the river basin of Wampu is also scheduled for implementation. The significant growth potential of Binjei could be accelerated by the exploitation of the natural gas resource and corresponding development of industries as well as through the extension of agricultural production in newly irrigated areas. The role of the city in the metropolitan region should be to receive those out-migrants from the rural areas in Langkat regency, to support agricultural development, and to serve rural settlements in the regency as well.

Deli Tua is situated immediately adjacent ot Medan along Jalan Kampung Baru. Development in this Kecamatan is lagging far behind the other Kecamatans in Deli Serdang regency, primarily due to poor accessibility to Medan, low level of infrastructure provision, and a weak economic base. The major production nowadays is coconut planted by individual households. Though this kecamatan is also a major collection centre for those vegetables produced on the surrounding small holdings, the high transportation cost to Medan has inhibited significant marketing and business. Nevertheless, this kecamatan is in a close proximity to the major employment centre, Medan and vacant land with decent topography and without drainage problems is available in significant amounts. These factors suggest that this kecamatan is suitable to take the overspill population from Medan.

Tanjung Morawa is situated about 16 kilometres from Medan with a fairly well established infrastructure framework and a district shopping centre. Geographical proximity and good accessibility to Medan and major agricultural production areas, cheap land prices compared to Medan and adequate electrick power supply have permitted this kecamatan to attract industry. In 1979, a total of 10 factories with a minimum land area of 2 hectares each were established. The already committed toll road will start from this kecamatan. Further growth of industrial development can therefore be expected. There is also a general hospital owned by PNP II located in this kecamatan. This kecamatan could eventually provide region serving facilities (i.e., warehousing, storage yards, large-scale industries) which will find difficulty in locating in Medan because of limited land availability and higher land costs. It could also take the overspill population from Medan. This kecamatan might be expected to develop into a self-sustained city. Public investment in this kecamatan should emphasize educational facilities and water supply.

Lubuk Pakam is situated at about 30 kilometres from Medan and at the centre of the major agricultural production areas in Deli Serdang regency (especially paddy rice). Its brick industry is the major export industry, providing about 80 percent of the total supply in North Sumatra.



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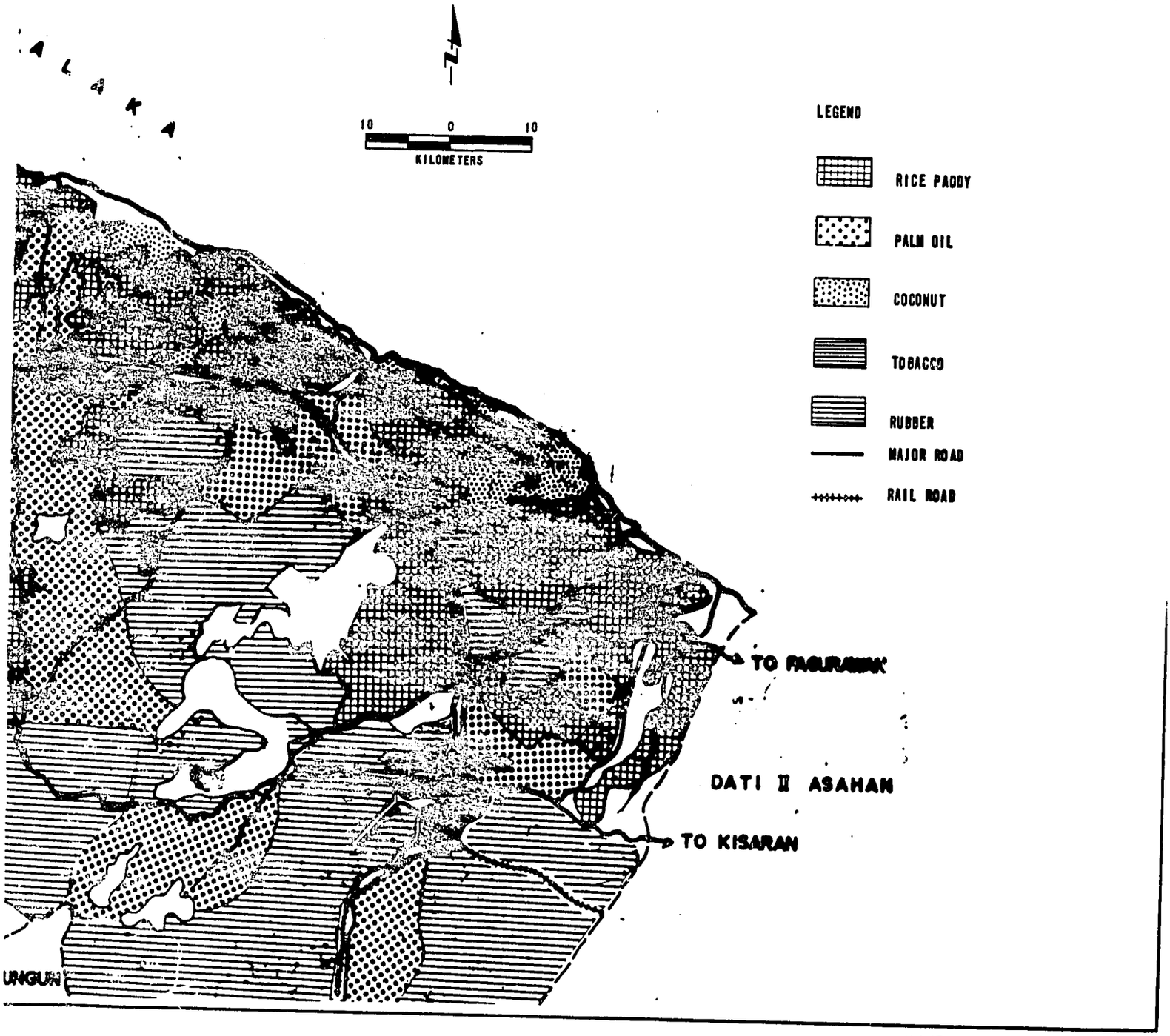
LONG TERM CONCEPTUAL STRATEGY



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This, despite the fact that the existing production techniques are rather primitive. This kecamatan has been designated as the capital for the regency based on its geographic location and the need to control potential social problems. Although it is subject to annual flooding because of its low lying ground level and overflow of Ular River, major improvement of the river is now being undertaken by the provincial government. The priority urban development project to be undertaken by the regency government is municipal water supply. Lubuk Pakam is also situated at a strategic transportation point, — the coverging point of the railway and Trans-Sumatra highway. There is ample land presently vacant or used for timber storage yards in the urbanized area. This kecamatan should develop improved shopping and education facilities to support the surrounding areas, while improving brick and rice production to supply the whole region.

Tebing Tinggi is situated at about 80 and 20 kilometres from Medan and Kuala Tanjung respectively and also at the end of proposed urban train program. It is the major processing centre for palm oil in North Sumatra. The city is, in fact, self-sustained in terms of employment and shopping. The level of infrastructure provision is even better than in Medan, especially road and drainage facilities. The Kotamadya is almost entirely built up, but land available for development can be found at the outskirts of the Kotamadya in Kecamatan Tebing Tinggi. Development potential will be greatly enhanced through the aluminium smelter project in Kuala Tanjung and the hydro-electric power available (50 MW) for industrial and urban uses. The role of this city should be to accommodate labor force immigrating from the surrounding rural areas to seek work in Kuala Tanjung area. Though a new town for 60,000 population was recommended in the report of General Observation of Industrial Potentially in North Sumatra, it has not thus far been given priority attention by relevant authorities. When the smelter project is completed and those associated industries established, there will be a pressing need for residential development in Tebing Tinggi. Its role might also including serving Asahan regency which is mostly dominated by plantation estates.

Detailed and specific policy for each town development must await further analysis under a separate follow up study. However, the long term strategy itself is clear. It depends on the development of region serving transportation facilities which are already planned to create an attractive environment for major private sector initiative in development. The role of the public sector will be to stimulate and facilitate this essential private sector initiative through selective follow up investment along the main transportation corridors and within the subcentres or growth centres already existing or likely to spring up spontaneously within the metropolitan region.

This strategy is conductive to minimum levels of essential public sector investment and minimal needs for the application of extensive land use controls except when they are necessary to prohibit growth in areas not suitable for development. It should however, have a major mitigating effect on land speculation by opening up access to substantial amounts of new developable land for urbanization outside the Medan city center. In short it is responsive to the basic constraints previously discussed in this report.

SECTION 19

THE PRINCIPAL RELEVANT COMMITTED OR PROPOSED PROGRAMS AND PROJECTS

A wide variety of important urban and regional development projects are already planned, under active consideration or already under implementation in North Sumatra. The effectiveness of some of them will greatly influence the nature and form of Medan's development. The purpose of this section is to provide basic information on the characteristics of the principal relevant proposed and committed projects which have been identified as having potentially important impacts (both positive and negative) on the achievement of the DISP objectives and goals. As appropriate, this information is complemented by the identification of those specific actions which should be taken in order to maximize their positive impacts on Medan's integrated urban and regional development while minimizing the negative ones. These guidelines should help responsible government officials and technicians to make more effective use of existing limited resources to achieve the maximum positive impact on the urban form and economy.

These projects are classified by their geographical location - Medan Area, and North Sumatra, and include Medan Area: (1) Belawan Port Development*, (2) Toll Road/By-pass for Medan to Belawan*, (3) Medan Industrial Estate*, (4) Pulau Sicanang Power Station*, (5) Medan II Housing Estate*, (6) Outer-ring road, and (7) Polonia Airport Relocation Study* for North Sumatra, (8) Urban Train Program, (9) Trans-Sumatra Highways Betterment Project (Tebing Tinggi to Medan*), (10) Railway Widening (North Sumatra - Aceh), and (11) Asahan Area Projects*. (see Figures 19.1 and 19.2).

It should be mentioned that in essence, these projects are interlocking and complementary to each other. It is for the convenience of discussion that they are treated separately.

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* Those projects marked with an asterisk (*) are committed which implies that funds for construction or study are available, and that construction or study schedules are fixed. The remainder are proposed projects. Locations of the above projects are shown on Figures 19.1 and 19.2 for Medan Area and North Sumatra, respectively.

19.1 MEDAN AREA PROJECTS

19.1.1 Belawan Port Expansion and Development Purpose

This project will expand the port facilities to enable it to handle expected foreign general cargo traffic up to 2000. Basically, this project is to complement plantation projects and other efforts of the Government to encourage the development of agricultural export.

The principal function of Port Belawan is to carry primary products of those plantation estates in North Sumatra and Aceh for export and to import fertilizer, rice and cement needed for the city and hinterland.

19.1.1.1 Location and Principal Components

Belawan Port Development Project is located at the northern extremity of the city. Extensive dredging of the main channels will be required. This is planned for land reclamation of the swamp areas at south of Belawan district by in-filling with dredged materials. A total of 350 hectares of swamp land will be reclaimed, of which 270 hectares will be for industrial and warehousing uses and 80 hectares for residential uses to accomodate households affected by this project. Land development is envisaged in a master plan (see Figure 19.3).

19.1.1.2 Institutional and Responsibilities, Costs and Scheduling

The port development responsibility is shared by Port Administration Belawan (PAB) and Directorate General of Sea Communication (DGSC), while PAB and the city are responsible for land development. The total cost of the first stage development was estimated in 1978 at US$ 100.48 millions of which US$ 66.84 millions are foreign currency costs and US$ 33.64 millions are local currency costs. The foreign currency cost component includes a US$ 26.30 millions loan from the Asian Development Bank (ADB), with the remainder borrowed from a West German Bank. Local currency cost will be financed jointly from port authority revenues, local financial houses and GOI. Construction of the first stage will be started in 1979 and completed by June 1984. This is part of a 25 year program contemplated in Belawan Port Development Master Plan.

19.1.1.3 Expected Impacts

Belawan district is one of the major industrial areas in the city. The port expansion will increase its relative importance in employment. It is estimated that upon completion of the project and industrial development there will be a total of 18,000 jobs in Belawan district*.

The positive impact which might result from the development of the Port and affiliated warehousing is the opportunity to redevelop the

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* Indonesian Ports Study: Belawan Port Development Draft Final Report Vol.5 Part 4 Appendix 6.

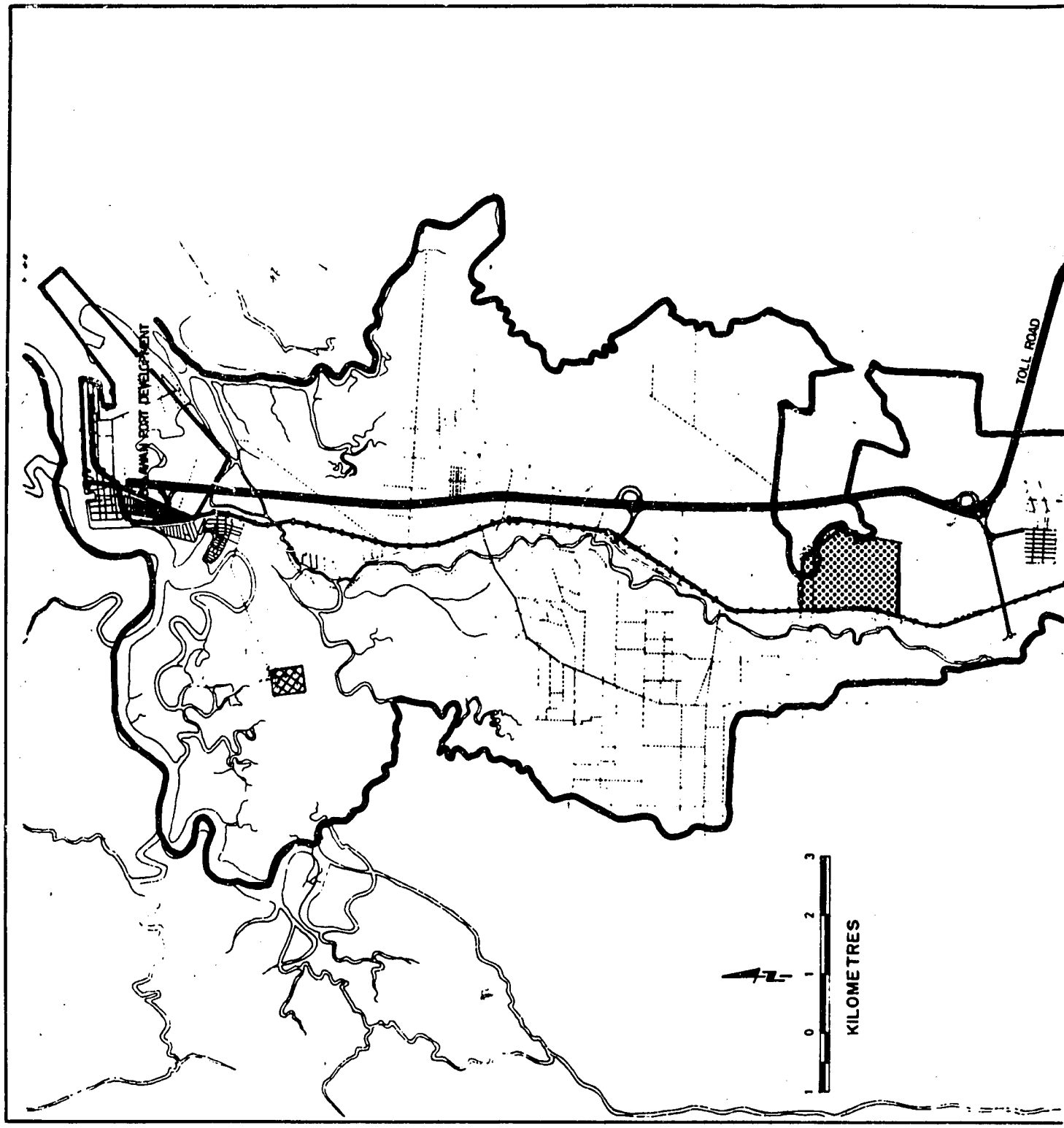

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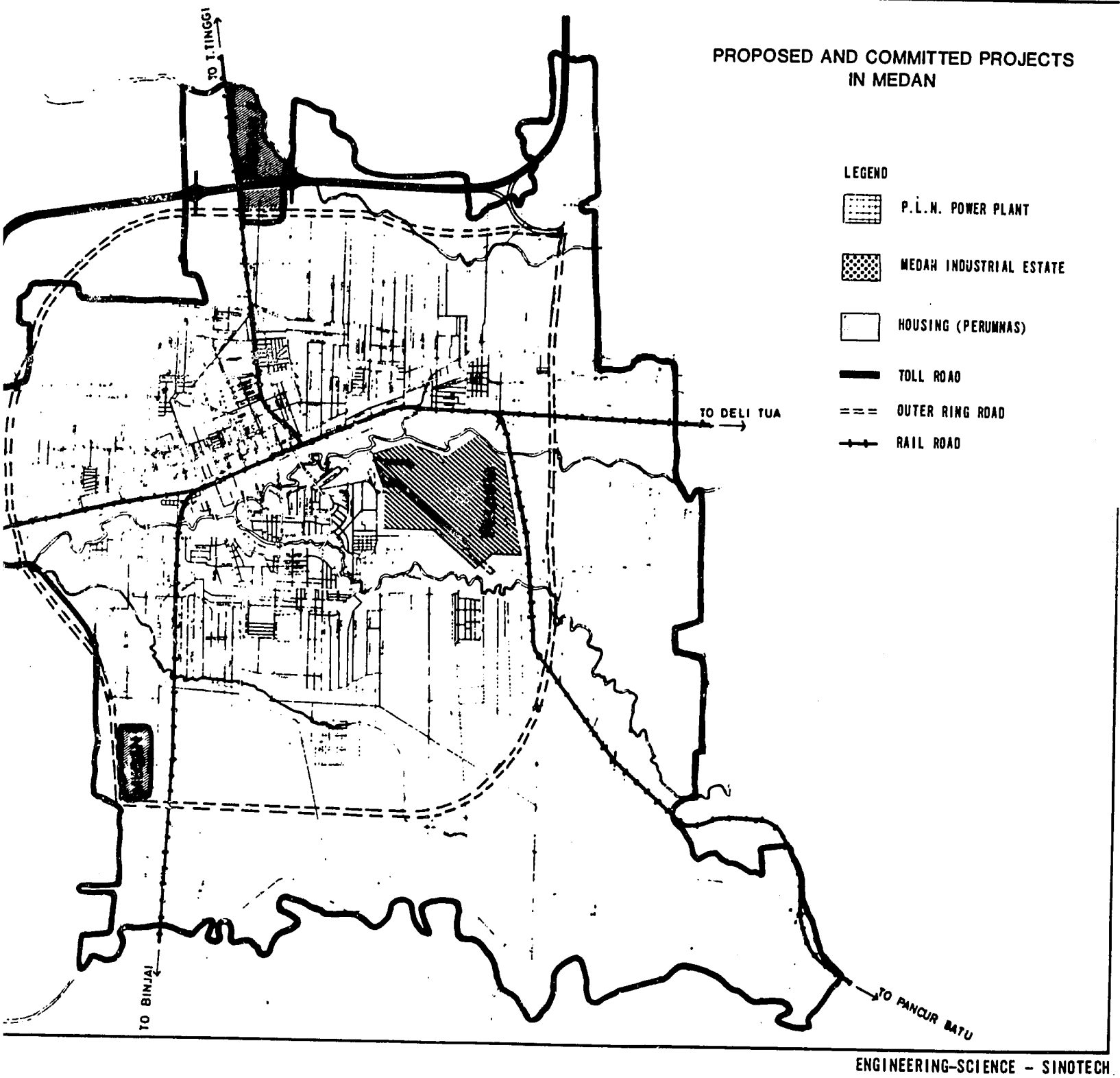
FIGURE 19.



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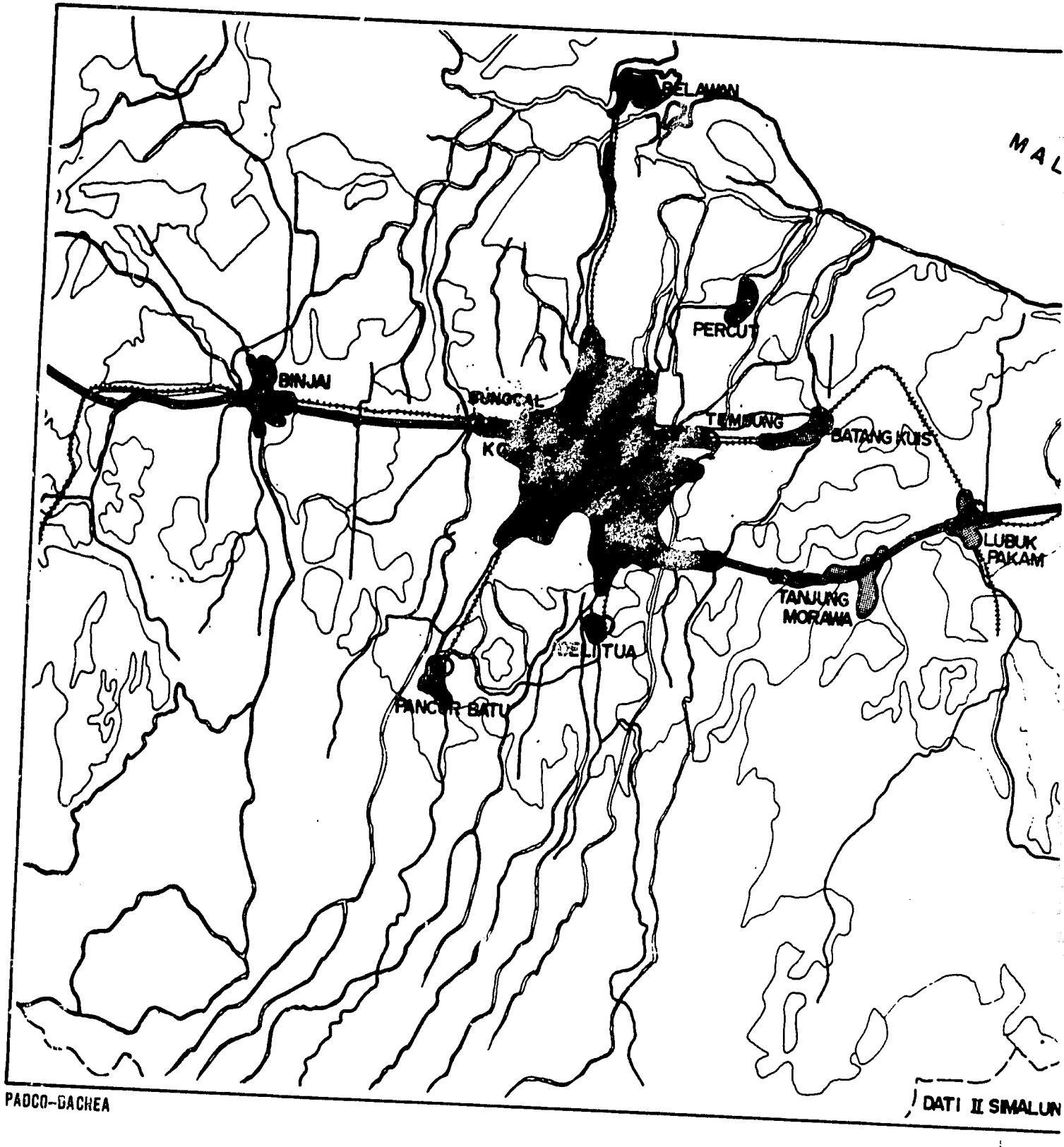

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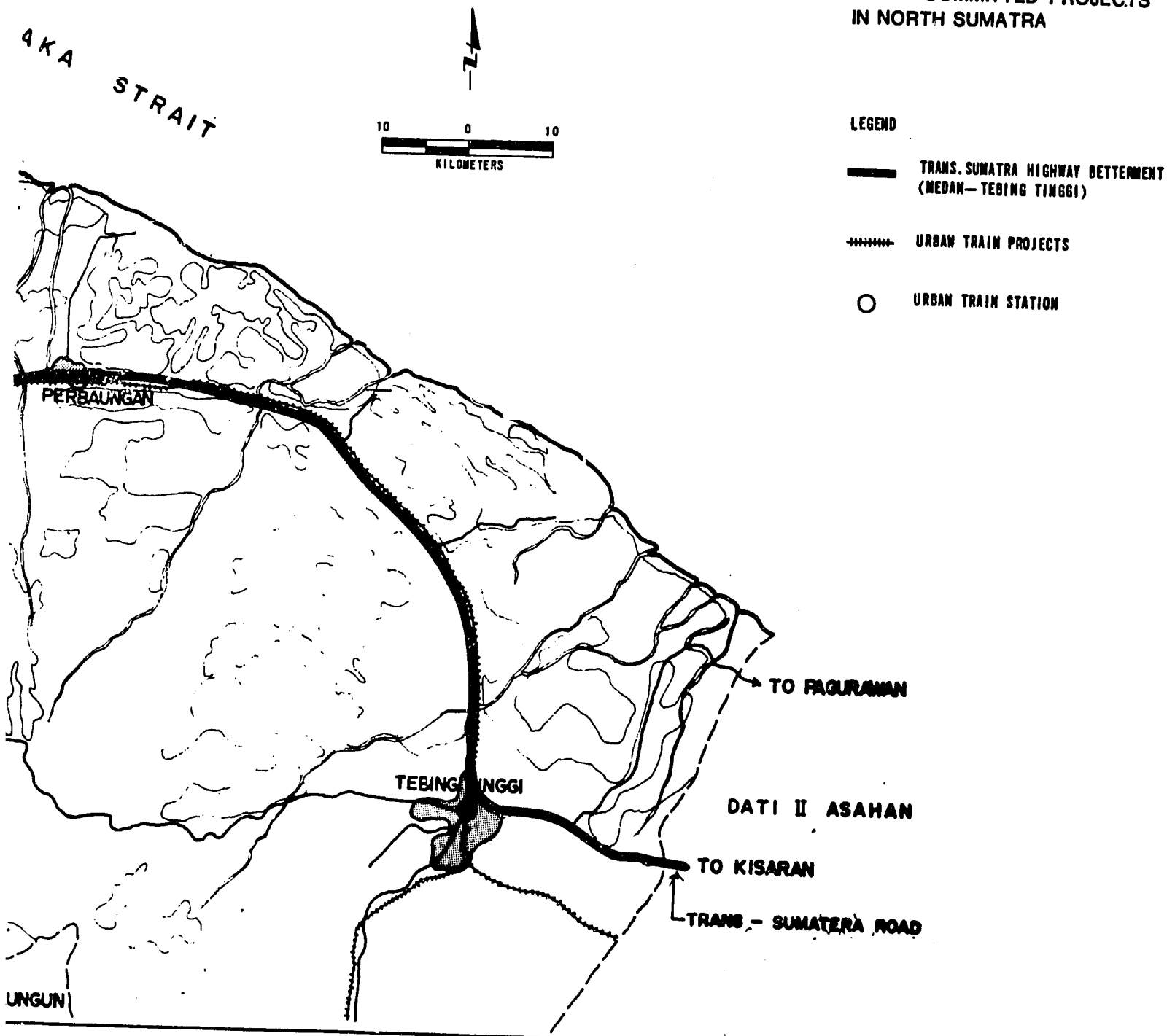
FIGURE 1

PROPOSED AND COMMITTED PROJECTS
IN NORTH SUMATRA



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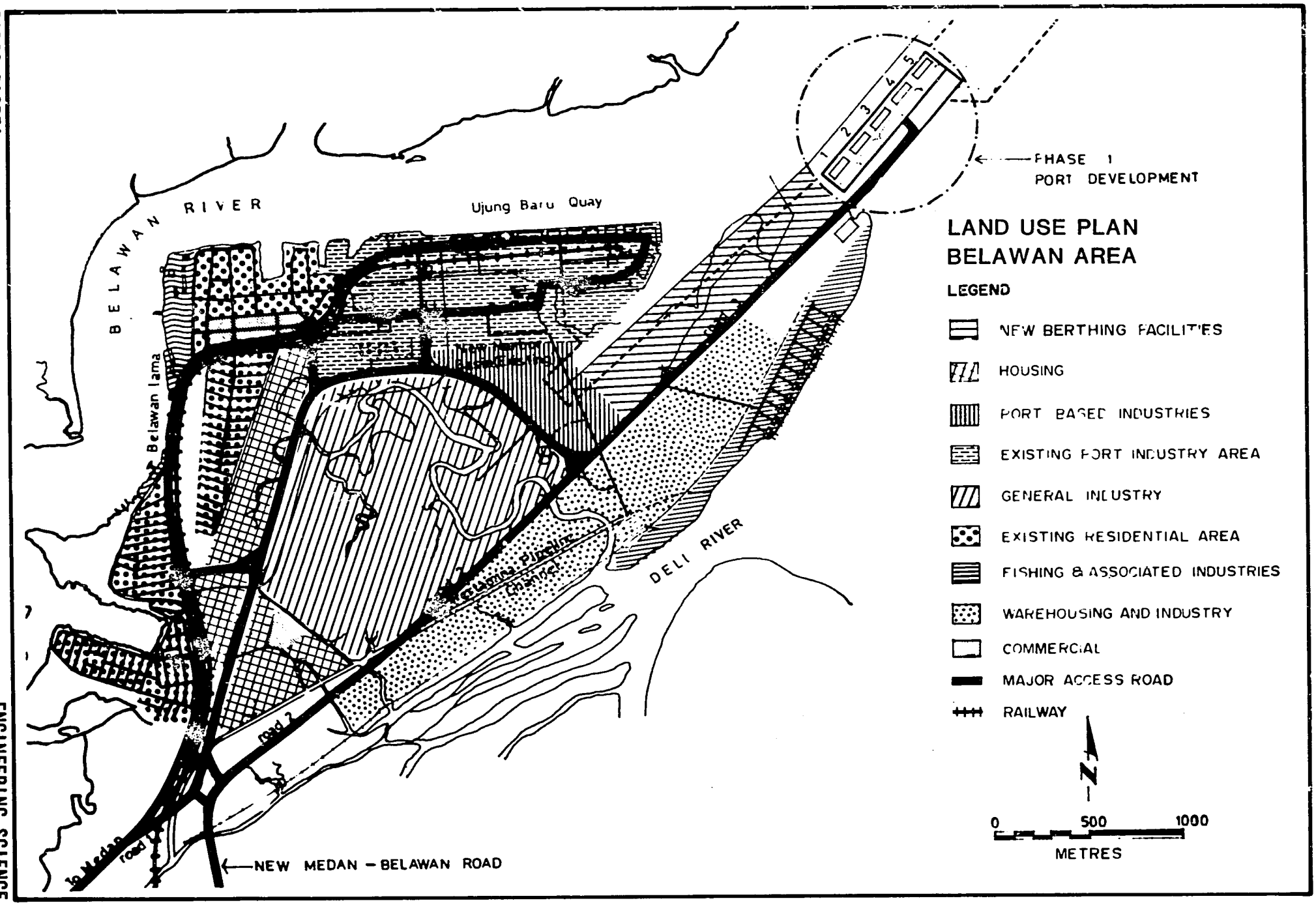
BELAWAN RIVER
Ujung Baru Quay
Belawan lama
DELI RIVER
Belawan Pipeline Channel
road 2
to Medan road
NEW MEDAN – BELAWAN ROAD
PHASE 1
PORT DEVELOPMENT
1
2
3
4
5
LAND USE PLAN
BELAWAN AREA
LEGEND
NEW BERTHING FACILITIES
HOUSING
PORT BASED INDUSTRIES
EXISTING PORT INDUSTRY AREA
GENERAL INDUSTRY
EXISTING RESIDENTIAL AREA
FISHING & ASSOCIATED INDUSTRIES
WAREHOUSING AND INDUSTRY
COMMERCIAL
MAJOR ACCESS ROAD
RAILWAY
N
0
500
1000
METRES

FIGURE 19.3

railway switch yard and associated warehousing areas around Medan railway station. The switch yard and warehouses total about 17 hectares situated in the heart of the city centre. The switch yard was designed to redirect the trains to and from Binjei, Aceh and the Port. But due to inadequacy of the Port's handling capacity, the switch yard is nowadays primarily used as a detention area when the Port is full of cargo. The warehousing area is the main redistribution centre for imported goods for the city and the hinterland. This centralized location is no longer required for effective operation. It also generates an excessive amount of truck traffic in the centre. This project will therefore open up a portion of land area in the switch yard and warehousing area for growth and expansion of central activities, and could simultaneously improve existing traffic circulation in the central core.

This project could also engender some negative impacts as well. Of which, the most significant is an increase of railway traffic. Presently, the railway network, which radiates from the central core and crosses major roads on the ground level, contributes to severe traffic congestion in the central area. The expected increase of railway traffic could worsen the existing congestion. The port development therefore should be complemented by further study and investment on urban transportation, probably including relocation of the existing railway network and investment in public transport to facilitate commuting.

Meanwhile, because land available for residential use is limited in Belawan and its surrounding area, more employment and residential uses will probably result in unplanned squatter settlements developed on swamp areas adjacent to the Port, especially for low income workers and their familities. It is estimated that some 7,000 workers will have to be accomodated outside Belawan district.

19.1.1.4 Complementary Actions Recommended

It is recommended that a more vigorous housing development policy in the city should be launched from the beginning of Repelita IV. Location of the housing for Belawan workers is envisaged at around toll road interchanges. To facilitate commuter traffic and reduce railway/road traffic conflicts, action required in this Repelita has been recommended in the short term physical development strategy.

19.1.2 Toll Road/By-Pass from Medan to Belawan

The toll road/by-pass will integrate the regional transportation network of the Belawan Port and Trans-Sumatra Highway. The road's purpose is to provide a new access to Port Belawan and to relieve existing traffic congestion in Medan's centre.

19.1.2.1 Location and Principal Components

The toll road/by-pass project begins at the end of the proposed primary access road in Belawan, stretches through Belawan-Medan corridor and by-passes Medan to Tanjung Morawa. Its total length is 34.6 km with five interchanges enroute linking it with Medan's road network. This road consists of two sections. The section between Belawan and Desa

Tanjung Mulia (15 Km) is an access to Belawan from Medan and is also a condition of the ADB loan, and the other section is 19.6 Km. Location of the road is indicated on Figure 19.4.

19.1.2.2 Institutional Responsibilities, Costs and Scheduling

The Directorate General of Highway Development (Bina Marga) assumes exclusive responsibility for this project. Total construction cost was estimated at 20,100 million Rp. in October 1978 (4 lanes for the whole length of road). Funds for construction would be borrowed from the Kuwait government. Construction is scheduled to begin in 1979 and be completed in 1981.

19.1.2.3 Expected Impacts

One of the positive impacts of this project on Medan's urban development is that it will open up new areas suitable for relocating the warehousing mixed with commercial use in central districts. The warehouses surveyed in 1976 numbered 519 of which 69 percent were located in the four central districts (Medan Kota, Timur, Barat, and Baru) and occupied 20 hectares. These warehouses formed an important element in the urban structure of the city. They should, however, no longer be located in the central areas of the city as they generate heavy truck traffic. A traffic survey conducted in April 1978 revealed that the 69 warehouses surveyed generated 748 trucks per day*. Some relocation has already been carried out from the city centre to outer areas, particularly to those places along Jln. Yos Sudarso in Medan Denai district, because of accessibility and land prices. These warehouses could better be relocated around the interchanges of the by-pass section. Relocation of those warehouses will not only provide the opportunity to re-vitalize the central city activities but will also alleviate the excessive concentration of truck traffic in the central areas.

Two negative impacts will arise from levying a toll on this road. These were also identified by the road's consultants. First the imposition of a toll will inevitably result in a reduction of the number of users. In view of uncertainty of the outer-ring road and the inadequacy of road provision in the city, encouraging more users on this road to facilitate north-south bound traffic for the eastern area of the city will further decrease traffic congestion in Medan's centre. Second, the toll is a discriminatory measure with the greatest negative impact on the low income segment of the population using the road. The measure departs from the DISP's objectives.

19.1.2.4 Complementary Actions Recommended

Aside from the action recommended in the short term strategy to open up the road as an access limited freeway, it is also recommended that public transport vehicles should be toll free while using this road.

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* Bina Marga, Padang - Medan Highway, Addendum 2, p 2-49.

Although there are five interchanges enroute, there is no direct link to Medan Industrial Estate. Action should therefore be undertaken to provide direct access to the industrial estate.

19.1.3 Medan Industrial Estate

19.1.3.1 Purpose

The purpose of this estate development is to encourage and accelerate the investment and growth of manufacturing industries in the Medan area. Its total land area is about 200 hectares which will be developed in three stages. The first stage is about 80 hectares, which is now under-construction, the second stage about 60 hectares, and the remainder in the third stage.

19.1.3.2 Location and Principal Components

The estate's location at Kp. Mabar is about 8.7 kilometers from Medan on the road to Belawan. The area has been designated for an industrial district in the Medan Master Plan. Selection of the estate location was largely determined by its accessibility to Belawan Port and Medan city. It is proposed to provide space for 45 factories at each stage, and is designed to meet individual business requirements.

Physical infrastructure required for industrial establishments will be fully provided in the estate. There is also a railway siding planned in the estate to meet the needs of some specific industries. In addition to physical infrastructure provisions, an industrial training centre, test laboratory and administration office and other communal facilities will also be provided in the estate. The "Free Export Processing Zone", a duty free, bonded industrial area of 30 hectares is intended to attract foreign capital and technology.

19.1.3.3 Institutional Responsibilities, Costs and Scheduling

The development agency is P.T. Medan Industrial Estate which is a legal entity with equity owned completely by the public sector for development and operation of the estate exclusively on a non-profit making basis. The share of equity is: GOI 60 percent, Provincial Government 30 percent, Medan Municipality 10 percent, - initially totalling the equivalent of US$ 2 million. The total cost for the whole estate was estimated in June 1975 to be US$ 16.3 million including land acquisition broken down into: first stage US$ 7.5 million, second stage US$ 5.2 million, and third stage US$ 3.6 million.

The first stage was scheduled to be in full operation in 1982, and the first two stages by 1985. However, it was originally anticipated that construction would begin around April 1976 and the first factory be operational by mid-1978. To date, no options on factory sites have been offered. Due to the high land development costs, resulting from land fill, the estate is proposing to subsidize land to provide a stronger incentive to industrial investment.

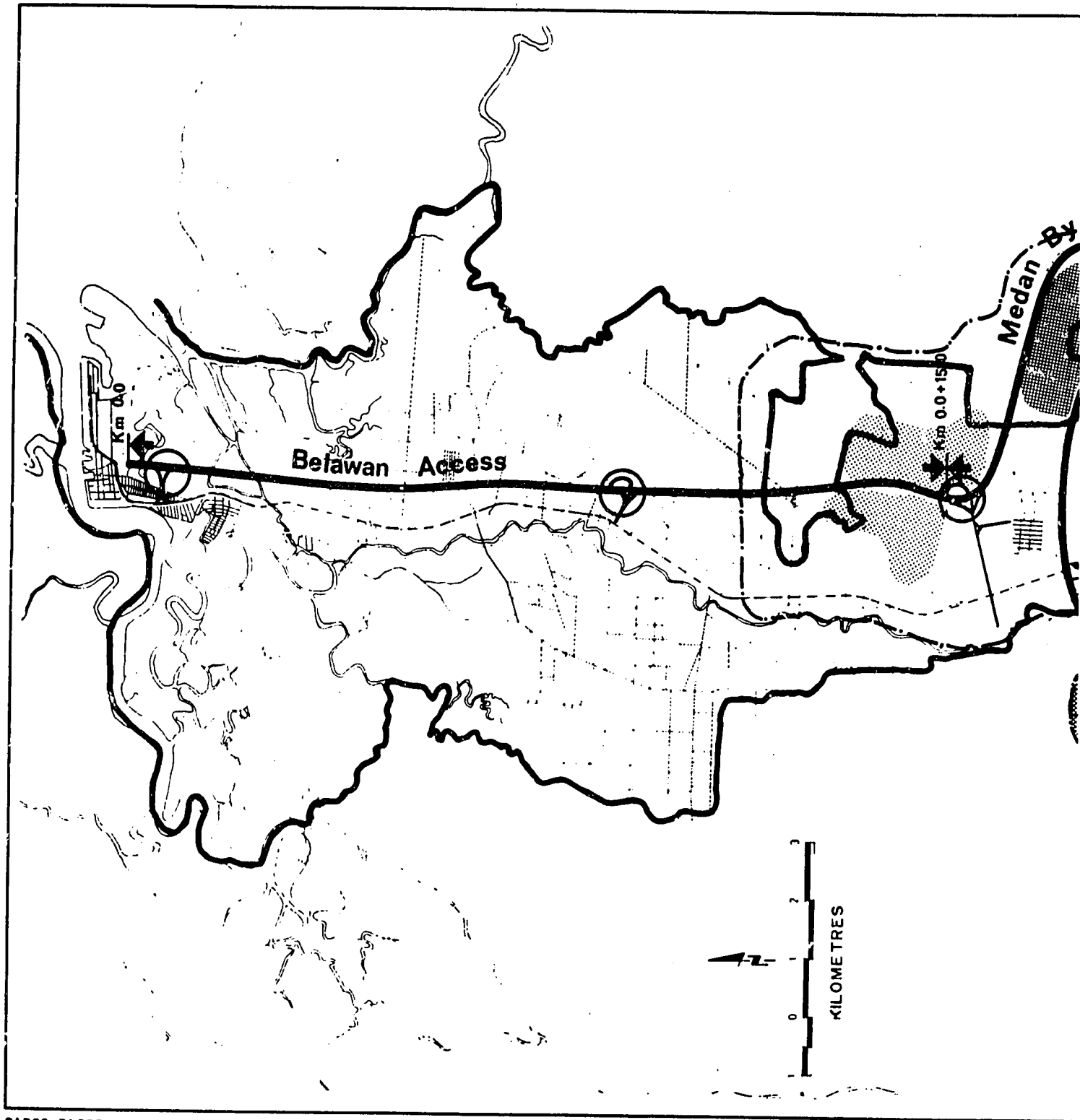

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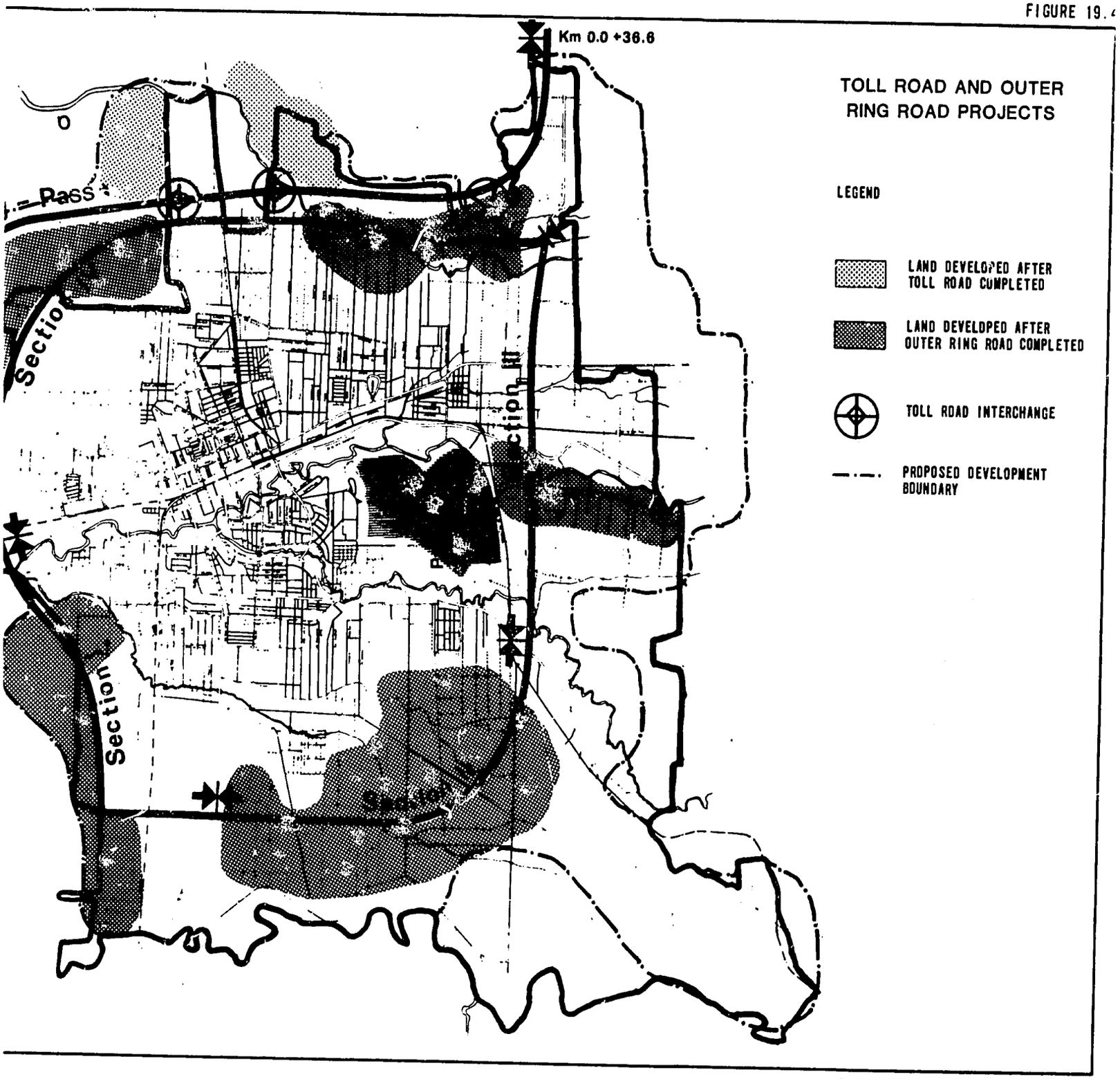
FIGURE 19.4



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19.1.3.4 Expected Impacts

The estate, if successful, could certainly achieve the non-quantified benefits which the consultants claimed it would, such as:

- Encouragement of the infusion into local industry of much needed technology and management methods
- Increased employment opportunities at up-graded levels of responsibility for the large number of young adults seeking work
- Support of the national and provincial government's policies of decentralization and regional development

It was estimated by the consultants that 6,600 new employment opportunities would be created by the first stage in three years after construction completion. This represents some 35 percent of the total industrial workers registered in 1977/78, and would have a considerable impact, especially on the unemployment rate estimated at 15 percent of the labor force in the same year.

However, there are negative impacts inherent with the land price subsidy and more concentration of industrial employment along Belawan - Medan corridor. Subsidized land prices will merely shift the cost of the development to some other group or the local authorities.

Belawan corridor is one of the existing major industrial concentrations in the city. More than 50 percent of existing industrial establishments, particularly large and medium-scale assembly plants, in Medan are distributed along this corridor. Further industrial development on this corridor will generate an excessive commuter traffic during rush hours and exert housing development pressure. As noted, this corridor is within a flood prone area resulting from overflow of the Deli River.

19.1.3.5 Complementary Actions Recommended

The following actions are recommended to facilitate industrial investment in the estate and to diminish those potential negative impacts which might detract from the estates' success:

1. P.T. Medan Industrial Estate should be encouraged to take vigorous action for the promotion of industrial investment and location in the estate.
2. Land price should reflect the actual development cost and result in a fair market price for the estate.
3. The other two actions in housing development and access to toll road were recommended in the two projects described previously.

19.1.4 Pulau Sicanang Power Station

19.1.4.1 Purpose

The purpose of this project is to increase power supply to Medan and relieve the existing backlog in the city.

19.1.4.2 Location, Principal Components and Scheduling

Pulau Sicanang Power Station is situated at about Km 20 in the North of Labuhan district and occupies approximately 47 hectares. Two sets of thermal generators are being installed with a generating capacity of 65 Mega Watts (MW). The station is now under construction and scheduled for completion in 1984. Upon completion, its total electricity generating capacity will be 130 MW. Development responsibility is exclusively of State Electricity Limited, PLN.

Power supply in 1973 was only 19.8 MW and increased at a rate of 20 percent. As a result, there is backlog of unsatisfied demand in Medan, and the PLN has granted consumers the right to generate their own power, particularly to large and medium-scale industries. Currently, supply is primarily limited to central districts where many have to resort to kerosene lanterns lighting. Further generating capacity is still needed beyond the mid-eighties, when Medan industrial estate and Belawan industrial district should be in operation. The PLN is planning to construct another power station in the city to meet the shortfall. However, studies should also centre on Asahan hydroelectric project (discussed later in this section), which will have an installed capacity of 600 MW. Thus far, however there is no firm plan to distribute the power as far as Medan which is at least 130 kilometers of distance.

19.1.4.3 Expected Impacts

The positive impact of this project is to benefit those households presently not connected with electricity service, and to benefit those industries which have to supply their own power needed for production. A negative impact is that the site is within the existing flood prone area and must be reclaimed by infill. The land reclamation will inevitably result in expansion of flood prone areas or longer detention of flooding in the existing prone area, if expensive Deli River improvements are not concurrently undertaken.

19.1.4.4 Complementary Actions Recommended

It is recommended that a cost effectiveness study of the supply from Asahan area versus a power station development in Medan city should be immediately undertaken before development of another new station is committed. Action for Deli river improvement is discussed separately in the Water Supply and Sanitation Reports.

19.1.5 Medan II Housing Estate (Perumnas)

19.1.5.1 Purpose

The Medan II project has been designed to increase the supply of basic housing, particularly for lower and lower-middle income groups.

19.1.5.2 Location, Principal Components, Responsibility and Scheduling

Location of Medan II Housing Estate is in Kampung Mandala of Deli Serdang Regency, immediately outside of the city's eastern boundary. The estate is traversed by the Toll Road with an interchange at the south. Its total land area is 178 hectares and accomodates 9,400 serviced lots and core housing units. Development is scheduled for completion by mid-1980. Construction of the first 47 hectares (Stage I) was completed by July of this year. Despite its location, infrastructure and social facilities are provided by the city and integrated into the city's system. The site itself is almost flat and quite suitable for low income housing development.

Historically, the city has spread towards its eastern side. Access from the estate to the major employment areas at the city centre, Belawan and south-eastern extremity is good, particularly once the Toll Road and the interchanges with Jln. Seto are in use.

19.1.5.3 Expected Impacts

The main impact will be to increase the extent of urbanization and add to the existing housing stock of Medan area.

The estate is surrounded by Medan Denai district which is the most rapidly growing area of the city, accomodating 32.4 percent of the city's growth population from 1973 to 1978. Meanwhile, within 1.5 kilometers of the estate, Kampung Tegal Sari, Tegal Sari I and II are among the worst residential areas in physical terms. Development of this estate will, therefore, potentially relieve housing pressure and further environmental deterioration in these kampungs.

This project also represents a significant break-through in the existing planning practice of Indonesia which normally limits urban development to areas within city boundaries. It demonstrate a more flexible policy which will allow Medan to promote housing outside its boundary if required in the future.

19.1.6 Outer-Ring Road

19.1.6.1 Purpose

One of the key strategies contemplated in the Medan Master Plan is development of the outer-ring road. Purpose of the road is to integrate major urban activities, to improve regional traffic and movement, and to open up new areas for housing and commercial development.

19.1.6.2 Location and Principal Components

The road, located in the peripheral area of the city is divided into four sections. Section 1 stretches from Jln. Yos Sudarso to Jln. Binjei, Section 2 from Jln. Binjei to Jln. Brastagi, Section 3 from Jln. Brastagi to Jln. Singamangaraja, while the remainder is Section 4. Section 1 will be constructed in the Repelita III. The remaining sections are not committed. The function of Sections 2 and 3 as proposed by Bina Marga is as a regional primary artery. Sections 1 and 4 are local artery/ main collector roads (see Figure 19.4).

19.1.6.3 Institutional Responsibilities, Costs and Scheduling

It is clear that Bina Marga will assume the responsibility for the construction of Sections 2 and 3, while the Kotamadya will finance Sections 1 and 4. Construction cost for each section is presently estimated as following:

Section 1	864 million Rupiah
Section 2	1,614 million Rupiah
Section 3	903.5 million Rupiah
Section 4	1,894 million Rupiah

The DISP's recommendation for development of the remaining three sections of the road has been presented in the Future Land Use Pattern (Section 15 of this report).

19.1.6.4 Expected Impacts

The existing road network has concentrated housing development in four central districts (Medan, Medan Baru, Medan Timur, and Medan Barat) and along regional roads in a linear form, while also localizing traffic congestion in the central core. This road will open up an immediately developable area of more than 1,500 hectares, most of which is along Sections 2 and 3 in Medan Sunggal and Medan Tuntungan districts. This development will therefore offer the potential to direct growth trends and relieve housing development stresses in the eastern section of the city.

19.1.6.5 Complementary Actions Recommended

Thus far, the main problem encountered in the development of this road is land acquisition. It is therefore recommended that the policy and practice of public compulsory land acquisition should be studied. However, given the priority and schedule for development, it is necessary that the Kotamadya acquire land along both sides of the road for resale at market prices in order to recover a portion of the road's construction costs. Funds for this additional land purchase could conceivably be borrowed at commercial rates from banks. Furthermore, application of land acquisition rights permitted under "Road Fund" legislation should also be immediately investigated by the Kotamadya prior to development of the road.

19.1.7 Polonia Airport Relocation Study

Polonia airport is located in the central district of Medan Baru and covers a land area of approximately 900 hectares (Figure 19.4). This airport is the only one in North Sumatra with domestic and international flights connecting Medan with the major cities in this country, as well as Penang, Singapore, and proposed extension to Bangkok. The airport recorded 216,167 arrivals and 219,515 departures in 1976, and is limited to DC-9 aircraft. Its capacity will be expanded to handle DC-10 aircraft in Repelita III, and a new terminal is now under construction. However, site limitations may preclude further expansion. Due to the growing importance of air communication the Directorate General of Air Communication has received a loan from the Asian Development Bank for relocation study, preparation of master plan and detailed designs for the first stage development* to be undertaken in the period of Repelita III.

Should traffic demand projections justify the relocation of the airport several significant impacts will result. The immediate one is that it will potentially release the site of 900 hectares for other urban uses. In the Medan Master Plan, the site is designated for a regional park which extends to the mountainous area in Brastagi. However, this valuable urban land is suitable for multiple uses in addition to recreation. The relocation will relieve development constraints determined by its approach way, environmental nuisances, and prevent potential hazards to the city centre which is now directly underneath the approachway. The airport is a major regional transportation facility. A new location, if deemed necessary, will inevitably affect the urban form and settlement patterns in the long run by attracting airport associated industries and employment.

19.2 NORTH SUMATRA

There are a number of committed or projects for North Sumatra Province, of which of the Medan area is directly concerned.

19.2.1 Urban Train Program

The urban train program is in fact a sub-regional mass passenger transit system using the already existing railway routes and facilities. This program is proposed by North Sumatra Regional office, State Railway Limited, for implementation in three stages during the current Repelita III. This mass transit system is based upon the existing Medan Railway Station as the centre with service radiating to Belawan, Tebing Tinggi, Deli Tua, Pancur Batu and Binjei. The first stage development is the Belawan section, followed by Binjei section, and Pancur Batu and Deli Tua sections. Existing facilities in Belawan, Binjei and Tebing Tinggi sections are operational, while Deli Tua and Pancur Batu sections need rehabilitation. For each section, there are several stations proposed

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* Domestic Airports Project; Loan No.353-IND; approved 14 September 1978, the Asian Development Bank

enroute. The major costs of this program will come from the procurement of rolling stock and rehabilitation of two sections of rail line. Funds for the procurement is expected through a loan from the ADB. It is also understood that the World Bank will incorporate this program as a part of its North Sumatra railway study which started in May of 1979. The preliminary service schedule calls for five trains a day between Belawan and Medan with and estimated carrying capacity of 2,000 passengers daily.

Upon completion, this program will not only further facilitate the movement of the population between Medan and those major towns in Deli Serdang regency and Binjei, but also pave the way for a regional city approach for Medan's long term development. A potentially negative impact resulting from this program is that increased frequencies of train service will simultaneously increase the frequencies of road circulation disruption at grade crossings in Medan. This could result in reduction of road carrying capacity and traffic congestion, particularly in the central area where most level crossings are situated.

19.2.2 Trans-Sumatra Highway Betterment (Tebing Tinggi to Medan)

Trans-Sumatra Highway is the predominant artery for the movement of goods, services and people in Sumatra. The current project seeks to improve its traffic capacity and safety. The upgrading of this road from Padang to Tebing Tinggi has been completed, and the section from Tebing Tinggi to Medan is to be completed by March 1983. This second section of the road lies entirely within the territory of Deli Serdang regency and Medan Municipality. Corridor development has been rapidly emerging along this transportation spine.

The Trans-Sumatra Highway carries some 80 percent of regional passenger traffic in North Sumatra. Betterment of this road will enhance the role of Medan in supporting central business and services to the region. The major concentration of large and medium-scale industries along this section of Trans-Sumatra Highway will be reinforced as this project improves accessibility to Port Belawan, Polonia Airport and the hinterland raw materials. Acceleration of the emerging corridor development of industrial and urban settlement should result.

19.2.3 Railway Widening (North Sumatra - Aceh)

During the current Repelita, the railway in Aceh will be widened to the same dimension as those in North Sumatra. Existing narrow gauge railways in Aceh severely hinder the capacity of this railway. This project also forms a part of those measures complementing ASEAN fertilizer project at Lhok Seumawe. Presently, Port Belawan is the major facility for fertilizer import and redistribution in Medan to plantation estates. This project will substantially reduce costs and improve the flow of goods movement between these two provinces, and also enchance the role of Medan as the centre of a regional transportation network which extends to Banda Aceh.

19.2.4 Asahan Project

Asahan project is an integrated development project of natural resources, industrial and transportation sectors. Major features are a series of hydroelectric power stations, an aluminium smelter, the Kuala Tanjung port and a new town. Location of the power stations are up-stream on the Asahan river, which is a natural outlet of Lake Toba. The aluminium smelter is about 20 kilometers south-east of Tebing Tinggi or 100 kilometers from Medan. Kuala Tanjung port is close to the aluminium smelter. Electricity production capacity is 600 MW, while 225,000 tons aluminium will be produced per year. A new town will be designed to accomodate the 60,000 persons directly working for the aluminium plant and its associated facilities. Total investment for the project was estimated in excess of US$ 2,000 millions in 1976. This projection is under the direction of BAPPENAS.

Asahan occupies the central position within the alluvial plain of eastern Sumatra. It is believed that this project would be able to induce three groups of industries to be established in this area; aluminium affiliated industries, electric power consumption type industries, and plantation allied industries*. Potential impacts on Medan from this project are: (1) increased demand for supporting services in banking, trading, industrial training and education, and administrative services, consequently enchancing the existing status of Medan as the regional business centre, (2) migration from Medan to this area, particularly of industrial and construction workers. Existing data reveals that the manpower required for construction work is approximately 8,900 persons, while 2,100 persons will be required for the operation of the aluminium smelter; and (3), accelerated urban development along the axis between Medan and Asahan may occur due to the increased interaction of the project's industrial production and Medan's service centre.

This project is the most ambitious undertaking thus far in North Sumatra. Impacts of this project at regional level will include increased industrial production and stimulation of economic growth, and will change the existing distribution pattern of industrial population and urban settlement as well.

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* A. Kinoshita, "General observations on the Potential of North Sumatra" May 1976, p.81.

SECTION 20

RECOMMENDED ORGANIZATION FOR IMPLEMENTATION

20.1 INTRODUCTION

It will be necessary for the government to identify the organizational mechanisms necessary to plan, coordinate and implement the interrelated aspects of water supply, sewerage, drainage, and solid wastes especially with social and other community programs (kampung improvement and sites and services programs). Also, to integrate teh work on urban economic development and planning and sector development projects and studies (Land Registration, Traffic Management and Roads Development, Land Resources etc. - see Figure 20.1). The implementation of the DISP action program for Repelita III would also be utilized to upgrade and reinforce the capacity of the Kotamadya and the provincial and national governments to stimulate and manage urban growth in Medan and its metropolitan region on a continuing basis.

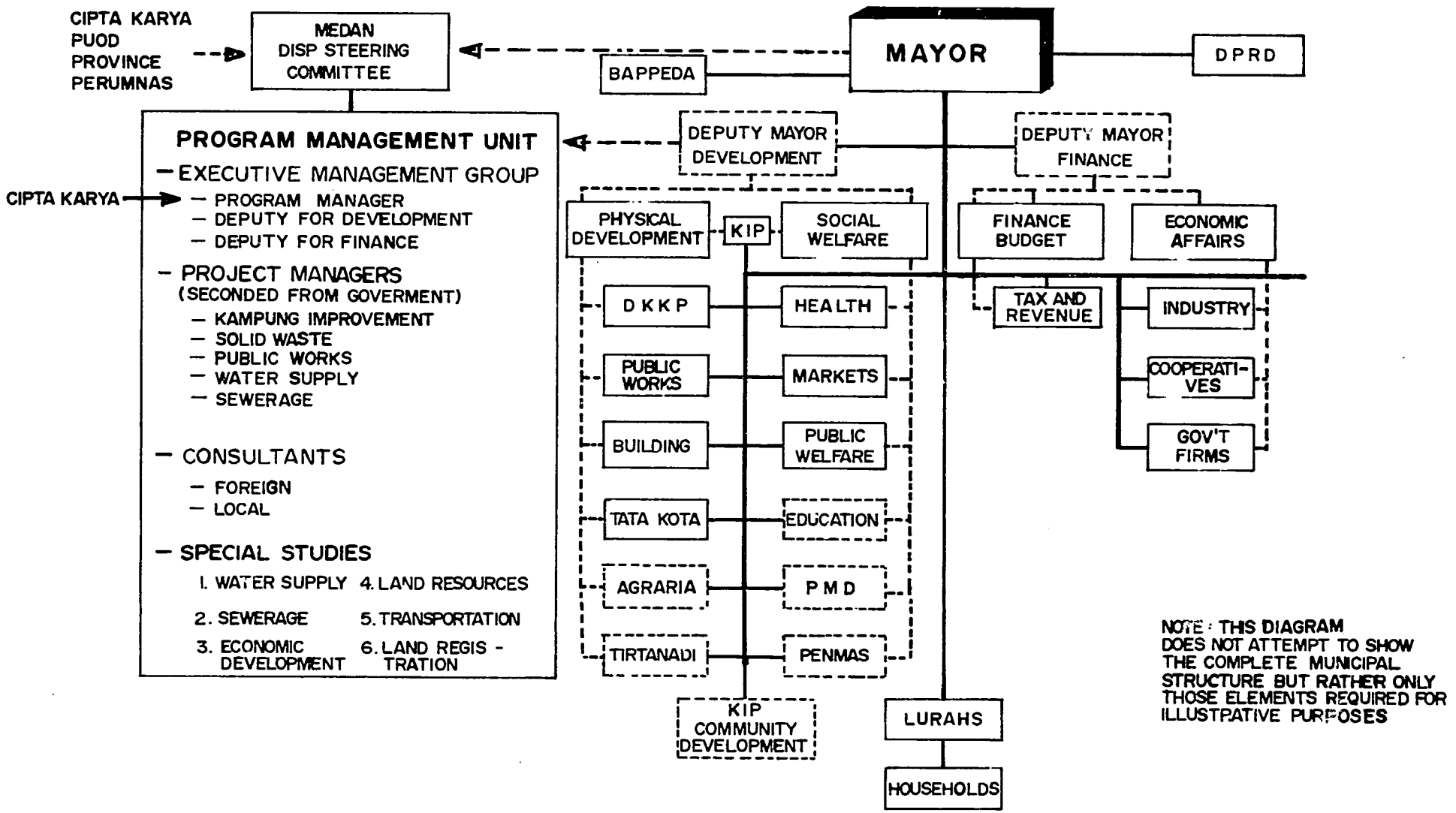
The organization recommended in this section for the implementation of DISP is therefore based not only on the need to implement the specific high priority programs and projects which have been recommended, but also on the need to utilize the processes of their implementation to establish a more effective continuous process for the planning programming and coordination of Medan's future development. At a minimum, the organizational structure proposed for DISP should achieve the following purposes: (1) provide the necessary financial resources, (2) upgrade administrative capacity, (3) establish and monitor implementation strategies and performance, (4) achieve political support at all levels of government, and (5) effectively coordinate the complicated process of development planning and programming and financing.

20.1.1 The DISP Steering Committee

A DISP Steering Committee should be responsible for implementation of the first stage DISP action program and policy guidance for the long-term development of the Medan Metropolitan Region. Representatives should be appointed from Cipta Karya; PUOD, under the Ministry of Home Affairs; the North Sumatra Provincial Government, Kotamadya Medan; and Deli Serdang and Langkat Regencies.

The Steering Committee would be responsible for finalizing recommendations concerning the establishment of both provisional as well as permanent institutional mechanisms which are deemed adequate to undertake and coordinate the functions and responsibilities of the long-term development program in Medan and its metropolitan region.

PROPOSED ORGANIZATION FOR IMPLEMENTATION OF DISP ACTION PROGRAM



20.1.2 The DISP Program Management Unit

The Government of Indonesia should establish a DISP Program Management Unit to provide for overall coordination, planning and programming supervision, monitoring and evaluation, and guidance in the integrated implementation of the DISP Action Program for Repelita III. This unit would be responsible for providing the centralized follow-up surveys and studies recommended for the various sectors and financial management advice as required by program participants. The Program Management Unit would coordinate with the Executing Agencies responsible for specific sectoral components and liaison with the provincial and national governments as well as with international lending agencies responsible for financing parts of the program. Specifically the Program Management Unit could be responsible for:

1. Provision and coordination of Central support services in respect of survey and tests and studies.

2. Supervision of the activities of consultants appointed to carry out detailed engineering of the project.

3. Coordination of ongoing physical construction work under the project.

4. Quality control of physical work.

5. Coordination of the allocation of funds to individual project components.

6. Budget preparation and budgetary control of the overall project.

7. Coordination of reporting (including financial) to lending institutions and government agencies concerned.

8. Coordination of field modifications of working drawings.

9. Coordination of contractors on the sites of the works.

10. Recommendation of actions to alleviate implementation problems.

11. Oversee preparation of tender documents, prequalifications of tenderers, selection of contractors and award of contractors.

12. Preparation of reports to the Steering Committee on the progress of ongoing projects.

13. Coordination of the other government agencies involved in implementation such as the KIP unit and PERUMNAS.

14. Channelling of overall technical supervision and support of Cipta Karya, as well as PUOD, etc.

15. Assure the effective integration and upgrading of Kotamadya resources and capacities throughout the implementation process.

16. Providing on-the-job training for project personnel as required through the effective utilization of project staff, consultants and relevant government agencies.

20.1.2.1 Executive Policy Management

The DISP Program Management Unit should be headed by an experienced professional as Project Manager who would be appointed by Cipta Karya and the Medan government and be responsible on their behalf for the total program implementation. Together with the Deputy Mayors for Development (Pembangunan) and Finance (Keuangan), representing the Kotamadya Medan, the Program Manager would form the Executive Management Group of the Unit for the first stage of the DISP Program. This high level policy management group will permit the maximum development and integration of the national, provincial and local administrative, technical and financial resources within the immediate action program while setting the base for reinforcement and upgrading of the capacities of the Kotamadya over the period of implementation.

20.1.2.2 Sector Managers

The Project Management Unit would also have Sector Managers of the various project components, appointed by their respective executing agencies. This group will be strengthened by staff consultants for the various aspects of the DISP.

20.1.2.3 Consultants

All consultant services will be officially centralized in the Program Management Unit in order to provide the most effective control and marshalling of resources. In actual implementation, it is anticipated that those consultants assigned tasks within specific components or sectors would work shoulder-to-shoulder with their respective executing agencies, on a daily basis, thereby facilitating both formal and informal on-the-job training. Others providing centralized services or management assistance would be permanently located in the Program Management Unit.

20.1.2.4 Special Activities/Studies and the Creation of Task Forces

A number of important studies will need to be carried out in support of the DISP implementation program. These will include consultant studies such as the groundwater exploration and well drilling program and other engineering surveys which form an integral part of the implementation of the Water and Sanitation projects. Land registration is an activity which will require no consultant assistance but rather will be carried out by Agragria (Propinsi) as part of the KIP. Land resources and transportation-related studies in traffic management, etc. will be located within the Kotamadya, but will require involvement of the most important relevant national and provincial agencies and organizations to orient and guide the work to be done in order to assure that the findings and recommendations are implementable.

Wherever possible, Task Forces, representing the principal relevant agencies and individuals, should be formed for each major study or activity area wherever no existing agency has hegemony. The DISP Program Management Unit, while not directly responsible for supervising many of these studies and activities should play a facilitating role in their organization and should work with executing agencies and consultants in setting the required policy framework as well as a schedule for implementation. The DISP management unit should receive and review regular reports on the progress of the responsible executing agencies.

20.1.3 The executing Agencies

Cipta Karya should provide the overall technical supervision and coordinating functions for implementation of the first stage DISP Action Program through the Project Management Unit and the Directorate General of Public Administration and Regional Autonomy (PUOD). The Ministry of Home Affairs will exercise general supervisory functions with respect to those project components relating to the Kotamadya government. Particular emphasis in this regard will be placed on the integration of all activities through the Executive Management Group mentioned previously.

The KIP, Solid Wastes Management, and Drainage components will be carried out by the Kotamadya under the technical supervision of Cipta Karya. Water supply and sewerage will be implemented by Tirtanadi with the technical supervision of Cipta Karya on behalf of and with the integral involvement of the Kotamadya. The SSCH/LCH component will be implemented by Perumnas. Advisory Technical assistance (staff consultants) in planning, budgeting and finance provided to the Kotamadya Medan will be managed by the Kotamadya under the supervision of PUOD. Other technical assistance provided to the Kotamadya in the areas of solid wastes, drainage, and KIP will be managed by the Kotamadya under the supervision of Cipta Karya. Preparation of the specific studies recommended for implementation under the DISP will be carried out by Consultants engaged for the purpose under the supervision of Cipta Karya and the Program Management Unit, and special purpose task forces organized as required.

20.1.4 Kotamadya Implementation Arrangements and Functions

20.1.4.1 Deputy Mayors for Development and Finance

Under the arrangements outlined above, the Central and Medan governments should formally or informally consider reorganization of the various planning and financial offices of the Kotamadya so as to centralize responsibility and implementation for these functions under one or two senior officers of Deputy Mayor rank with appropriate provision for staffing, equipment and other requirements. These offices would be solely responsible to the Mayor. The proposed reorganization would be carried out under the guidance and direction of PUOD.

Although the formal establishment of such an institutional framework within the Kotamadya may require a significant period of review before adoption by the central government (Dalam Negeri), it is recommended that an informal reorganization take place before the initiation of the DISP implementation program for Repelita III, or at the earliest stage

of its implementation. Only in this way can the current bottlenecks in the local urban administration be sufficiently eliminated and a satisfactory base provided for the effective participation of the Kotamadya and its city departments and directorates. Under the proposed reorganization (see Figure 20.1), the current city Dinases and Directorates involved in physical and social welfare activities would report directly to the Deputy Mayor for Development (Pembangunan). They would be directly responsible to him for the preparation of annual operative plans, programs and budgets which reflect development priorities as well as the budgetary and financial structures set jointly by the Deputy for Development and the Deputy for Finance. The achievement of such an annual planning, programming and budgeting system is one of the major institutional goals to be achieved during Repelita III. It will assure not only the adequate implementation of those proposed DISP action projects which are the Kotamadya's responsibility, but also their effective maintenance and operation on a continuing basis. It would provide dramatic gains to future development by energizing and strengthening Medan's urban planning implementation and policy structure. These requirements are discussed further in Section 21.

The proposed Deputy for Finance would be responsible for the earliest possible preparation, adoption and implementation of a more effective program of financial planning, budgeting and urban revenues directed at significantly increasing both near and long term tax and other receipts along progressive lines and the effective use of such resources. Alternatives methods for financing development would be explored and recommended in order to ensure a more effective and realistic annual expenditure plan.

As indicated earlier, both the Deputy for Development and the Deputy for Finance would form a part of the Executive Policy Management Group of the DISP Program Management Unit, thus providing the maximum opportunity to take full advantage of the potential provided by the DISP action program to stimulate and accelerate Kotamadya Institutional development.

20.1.4.2 The KIP Unit

The Kotamadya should establish a KIP Unit headed by a qualified and experienced person as unit manager. The organization of this unit is described in detail in the DISP Housing Program Report (Volume IV). It will operate as a special unit of the Kotamadya reporting to the Deputy for Development and will have full responsibility for the planning, detailed engineering, construction supervision, tendering and contract administration and evaluation of the Kampung Improvement Projects and activities. Consultant services should be utilized for the preparation of detailed engineering designs. Budgetary control of all funds appropriated for KIP Projects will be exercised by this Unit under the overall guidance of Keuangan and the DISP Program Management Unit (of which the KIP Manager will be a member). The location of the KIP Unit under the Deputy for Development is recommended in order to most effectively integrate its immediate efforts at comprehensive social-economic and physical development for the urban poor within the context of the institutionalization of a viable annual development planning, programming financing and budgeting system within the Kotamadya. It will also ensure that:

(1) the KIP learning process is adequately shared and diseminated through complementary changes in the operation of other city agencies who deliver services within the low-income kampungs of Medan; and (2) that adequate resources are allocated to KIP and KIP related activities within future annual development plans and budgets in order to maintain the program on a continuing basis. The representatives of executing agencies on the Program Management Unit (all of whom have KIP related responsibilities) will function as the primary advisory committee to the KIP Unit in order to facilitate the effective coordination of the various program elements. At least two other working advisory committees will be formed to ensure effective linkage of services with the kampung communities. In this respect, particular emphasis will be placed on more effective mobilization and integration of the community and its resources throughout the planning and implementation of the KIP. Mechanisms to achieve this are described separately as part of the Housing Report. (see Section 5.4 Volume IV).

20.1.4.3 Organization of DKKP and Solid Wastes Management

The increase in the size of the service area of DKKP, and the staff and equipment necessary to implement the DISP solid wastes program over Repelita III and beyond will require an expansion of DKKP in order to provide more adequate supervision and control. The solid wastes project manager will be a member of the DISP Program Management Unit. Within the Kotamadya, be will report directly to the Deputy for Development. As with the KIP unit, these institutional arrangements will help to ensure the successful implementation and coordination of the immediate action program with other DISP program components while incorporating these efforts within the Kotamadya's revitalized annual planning and budgeting system. The specific features of the reorganization of the DKKP are described in Section 15 of the Master Plan Report for water and sanitation. Particular emphasis will be placed on the decentralization of operations to permit greater efficiency. In areas where the KIP is operating the viability of assigning communal collection and maintenance responsibilities to the Kampung and Kecamatan administrations will be investigated. The KIP Community workers trained under KIP would be responsible together with local leadership for inaugurating such pilot efforts.

20.1.4.4 The Organization of Public Works

The Public Works Department of the Kotamadya will be represented on the DISP Program Management Unit and have primary responsibility for the implementation of the drainage component while also playing a major role in carrying out many of the Transportation related components of the DISP.

The reorganization of the drainage functions of Public Works Department into a separate section is recommended in order to carry out the comprehensive construction, maintenance and monitoring system proposed under DISP (see Section 15, Vol V, the Master Plan for water and sanitation).

The roads and bridges section of Public Works will be responsible for implementing portions of the road betterment and new roads development components and undoubtedly part of the immediate physical improvements

to better traffic movement in Medan as part of the traffic management project.

A Transportation Task Force would be formed under the Kotamadya's auspices to review the DISP transportation recommendations and to prepare a final schedule for their coordinated implementation during Repelita III. Members of the Task Force should include Public Works, Tata Kota, the Transportation Section of the Sub-Directorate of Public Order, the Police of the Kotamadya and Bina Marga. The task force will assess the full requirements of the DISP recommendations and assign corresponding implementation rates and responsibilities. Substantial investments required from the Kotamadya's annual development budget for many of these components will require their careful integration within the annual planning and budgeting system. The Deputys for Development and Fiannce would be directly responsible for overall guidance and direction of these efforts.

As outlined in the previous section, under the above arrangements Indonesian and Medan governments should consider formally or informally reorganization of the key planning and financial offices of the Kotamadya so as to centralize responsibility and implementation for these under one or two senior officers with appropriate provision for staffing, equipment and other requirements. These offices would be solely responsible to the Mayor.

SECTION 21

KOTAMADYA MEDAN FINANCIAL CAPACITY AND REQUIREMENTS

21.1 INTRODUCTION AND OUTLINE

21.1.1 Introduction

Other sections of this report assess economic and social infrastructure conditions and requirements and, on that basis, recommend a concerted set of designed capital projects and programs for the 1980/81 - 1983/84 period to approach filling past backlogs and provide first-stage investments required in critical sectors of a long-term urban development program. The estimated cost of proposed projects in water supply, sewerage and solid waste disposal, drainage, kampung improvement and low cost housing total Rp.45,023 millions ($ 72 million) in constant 1980 prices and are to be jointly financed by foreign assistance, central and possible provincial government grant aid and loans, and by municipal government, Kotamadya Medan, own savings funds. A second set of education, health and transportation projects and programs estimated to cost Rp.14,441 million ($ 23 million) in constant 1980 prices would be financed to the extent feasible by Kotamadya savings and, importantly, by its use of Central Government Inpres (Presidential Instruction) regular annual grant transfers to the municipality for those sectors. Technical assistance is proposed in staging and implementing the recommended development programs.

The size of the proposed four-year program offers a financial measure of the magnitude of past investment backlogs and first stage development requirements in those sectors. An investment program of Rp.59,500 million ($ 95 million) is at least 23 times the size of Kotamadya Medan's total development expenditure of Rp.2,592 million ($ 4.1 million) financed by all sources in 1978/79, or, on an average annual basis, at least 6 times Medan's total capital expenditures of last year. In fact, as noted below, the proposed total program cost represents an even larger increase since it appears that a considerable proportion of Kotamdya designated total development expenditures are for current administration, operations and maintenance expenditures in these and other sectors. Kotamadya finances in the future should provide for additional current operations and maintenance funds for existing roads, other transport and communications, schools, clinics and hospitals, government buildings and equipment. There are evident, critical needs for books, medicines, other supplies and enhanced operating funds to permit more effective service by municipal agencies, with high marginal

benefit-to-cost returns. Further investment will also be required in other sectors beyond those included in the proposed first-stage development program. In summary, Medan's financial requirements will be indeed large and crucial in the 1980/81 - 1983/84 period.

21.1.2 Outline

This finance section considers that problem: Kotamadya Medan's financial capability to meet both priority urban current operations/maintenance and investment requirements including as large a financial contribution as possible to the proposed first-stage development program. Overall municipal finance performance over the 1974/75 - 1978/79 Second Plan (Repelita II) and preliminary estimates for 1979/80 are reviewed. On that basis, tentative projections of probable Kotamadya income for the next four years are considered under alternative assumptions concerning future Kotamadya organization, practices and policies for tax and service assessments and collections and for financial planning and budgeting. The first assumption is that present financial organization, practices and policies will be continued with improvements in each over the 1980/81 - 1983/84 period. Since, as noted in detail below, the projected estimates fall far short of financial requirements, it is recommended that a new and further improved pattern of financial organization, practices and policies be adopted and implemented beginning in 1980. The basic elements involved in the new approach are considered specifically but it is recognized that these would have to be determined and adjusted over the first two years and further adjusted throughout the entire Third Plan period. Technical assistance in finance is regarded, therefore, as an important project in the proposed first-stage Medan development program.

Tentative Kotamadya Medan income projections are made for the 1980/81 - 1988/89 period assuming early adoption and implementation of the recommended taxation and budgeting systems (21.5.1).

The final section (21.5.4) considers the Kotamadya's own resource contribution to the proposed first stage Medan development program.

Discussions of the financial approach and findings have been held with senior Kotamadya Medan officials in Bappeda, Dinas Pendapatan, Bagian Keuangan and other offices throughout this study and they generally concur in its recommendations.

21.2 MUNICIPAL GOVERNMENT AND FINANCIAL STRUCTURE

The Government of Indonesia is a hierarchical structure with the national government (Negara) at the top of the pyramid with provincial governments (Daerah Tingkat I) immediately below, and with district governments (Kabupaten) and large municipality governments (Kotamadya) as the next lower tier (Daerah Tingkat II) in that framework. Functions and financial arrangements follow a similar pattern with the Central Government having overall direction, supervision and responsibilities for national finance and delegating certain functions to the provinces and to Tingkat II level governments. Central Government departments with

collaboration of lower-level governments also directly plan, implement and finance national projects and programs in the regions. Negara also transfers some of its revenues to lower-level governments via salary, pension and rice subsidies to national civil service employees (pegawai organik) working in regional governments, an important current receipt of these governments freeing them from wage and benefit concerns. In development finance, the Central Government provides general development Inpres I and II grant transfers to provincial, second-level governments and villages (desas) as well as specific development grant transfers for education (Inpres SD) and health (Inpres Kesehatan) buildings and certain uses and provides through a State Bank (Bank Rakyat Indonesia) non-interest bearing loans for public market buildings (Kredit Pasar).

To finance these national and regional functions, the Central Government has retained most of the large and income elastic sources of revenue: personal and corporate income taxes, oil revenues, sales and excise taxes, import and export duties.

Medan as a second-level municipal government in this structure obtains its financial resources from four sources:

1. Its own local revenues, explained in detail below.

2. Central government grant transfers and loans, important in financing significant parts of its current and development expenditures.

3. Province of North Sumatra grants and loans of relatively small magnitude.

4. Occasional and small grants and funds from private and public enterprise in the region.

Both receipts and expenditures, in principle, are divided into two categories by all levels of governments. Current or routine budget receipts consist of all revenues and receipts from Medan's own and external sources and are applied to current or routine expenditures for administration, operations and maintenance. Capital or development (Pembangunan) receipts are all internal and external funds designated specifically to be used for investment. The division in practice throughout Indonesia is not so clear-cut and many expenditures for minor and major maintenance, operations, administration and rehabilitation are placed in development budgets, and especially so if it appears that the proportion of routine expenditures appears high. This practice is strengthened by Central Government preference that development expenditures should constitute over 50 percent of total expenditures to provide the investment required for future growth, although relevant conditions in the region are to be considered in allocating scarce resources. Allocations in Kotamadya Medan are reviewed in the following section.

21.3 AGGREGATE FINANCIAL PERFORMANCE, 1974/75 - 1978/79

21.3.1 Introduction

This sub-section reviews Kotamadya Medan's overall financial performance -- receipts and expenditures from both its own resources and from external sources -- over the Second Plan period, 1974/75 - 1978/79. This is followed by an examination of Medan's own tax and other incomes and expenditures over this period. These reviews provide an examination of the recent financial record and trends and a basis for considering the municipality's capacity both (1) to meet regular ongoing and expanded routine and development expenditures required for administration, operations and development, and (2) to contribute financially to the recommended Rp.59,500 million ($ 95 million) first-stage Medan capital improvement program for Repelita III, 1979/80 - 1983/84.

The data for these analyses are based upon official budget and realization estimates provided by Kotamadya agencies, adjusted to include receipts and expenditures from all sources and to permit usual economic and financial assessment (see Appendix B). The Kotamadya budget data follow formats provided by the Central Government and, in this regard, indicate substantial improvement in coverage and presentation over the period. It should be noted, however, that this does not necessarily imply completeness, accuracy or true meaning in the broader sense. As noted below, not all current receipts from taxpayers are included in official receipts; the latter may reflect what is turned into government accounts. Secondly, not all current administration, operations and maintenance expenditures are included in routine expenditure estimates; a significant proportion are included in capital or development budget and realization expenditure estimates. This implies that official current expenditure estimates are consistently underestimated, municipal and total savings overestimated and, accordingly, capital or development expenditure estimates overestimated. Lastly, expenditure estimates do not necessarily imply that all funds spent were utilized for the stated purpose or effectively. It has not been possible or feasible to adjust the data appropriately. Therefore, unless otherwise stated, the data presented are based on official estimates. In some important cases, attention is called in the text to differences between official and more appropriate estimates.

There is a noted lack of review and analysis of budgets, financial trends and implications within the Kotamadya government and legislature and by higher-level government institutions. Little review of city financial performance or requirements or basic auditing is done by governments higher in the structure.

The proposed budget for a forthcoming financial year (RAPBN) is presented to the city legislature for approval with comparisons made primarily with regard to the approved budget for the present year (APBN), even though realization estimates for 6-9 months are available. As noted below, in recent years this has resulted in very large implicit increases in both receipts and expenditures for the coming year, since there have been large shortfalls in realizations. Kotamadya attention has centered upon the gaps between the budget and actual realizations taking place.

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This practice has resulted in continuing deference of quarterly and, even, annual allocations of funds of approved budget projects and programs in attempts to manage cash throughout the fiscal year. Efficient and smooth development operations are not possible under these pressures and there are ad hoc attempts to increase tax and other collections which may damage the city tax system if continued.

In this emphasis on intra-year financial management, even medium-term financial, economic and social planning has apparently seemed academic. While Kotamadya Medan collaborated with the Research Institute of the University of North Sumatra in preparation of a five-year plan for the Third Plan period, 1979/80 - 1983/84, its officials, necessarily occupied with more pressing matters, pay little attention to periods beyond the present year. Therefore, financial projections through 1983/84 presented in this report, and the necessary conditions underlying them, have been made almost solely by the Medan Urban Development Study group.

21.3.2 Aggregate Financial Performance in Current Prices

The record of Kotamadya Medan's overall financial performance over the past four years is summarized in Tables 21.1 and 21.2. Assessment depends primarily upon the concepts and measures employed in the analysis. In accordance with Kotamadya practice, the official data rearranged for this purpose is reviewed, first, in terms of current or nominal prices. Then, the same data is analyzed in real or constant 1978 prices with focus upon basic trends and factors. Use of longer-term estimates, i.e. for the period preceding fiscal year 1974/75, have not been included since the data are less complete and reliable and trends in the earlier period unduly reflect recovery growth from the still-earlier Sukarno period.

Measured in current prices, Kotamadya financial realized performance appears reasonably satisfactory over the four-year period, although more careful scrutiny suggests emerging financial problems in the latter part of the period. Table 21.1 shows changes in most of the important financial indicators. Total Kotamadya receipts from its own resources and from IPEDA increased on average by 16 percent a year. However, major growth of 52.6 percent occurred in 1975/76 and increases in the subsequent three years were 6, - 9 and 23 percent respectively. A similar record occurs in the other important indicators. Total external receipts, largely from the central government current salary, pension and rice subsidy payments for national-approved civil servants employed in the municipality and for development transfers (called subsidies or aid), increased on average by 54 percent a year, although the sharpest rise was in 1975/76, some 255 percent. Medan total receipts from all sources, therefore, increased on average by 26 percent a year over the four-year period with increases of 90 percent in 1975/76 and 7.4, 4.1 and 19.3 percent respectively over the subsequent three years. Actual receipts available for current purposes (administration, operations and maintenance) increased on average by 23 percent a year while those available for development (capital investment) purposes rose on average by 38 percent a year. Once again, the major increases occurred in 1975/76 with rises of 72 percent of current receipts and 172 percent for development receipts with distinct slowdowns for both during the next two years and some growth recovery in 1978/79.

TABLE 21.1

SUMMARY: KOTAMADYA MEDAN RECEIPTS, EXPENDITURES & SAVINGS, 1974/75 - 1978/79
(Rupiah Million in Current Prices)

	1974/75	1975/76	1976/77	1977/78	1978/79	Average Annual Change (%)[j]
RECEIPTS						
Municipal Receipts & IPEDA[b]						
Current Receipts[c]	1703.4	2496.4	2776.1	2455.8	2934.2	14.6
(Annual % change)		(46.5)	(11.2)	(-11.5)	(19.5)	
Development Receipts[c/d]	8.6	124.9	2.1	16.2	145.0	100.2
(Annual % Change)		(1352.3)	(-98.3)	(671.4)	(795.1)	
IPEDA Development Receipts[b/e]	147.1	216.1	231.1	255.2	285.0	18.0
(Annual % Change)		(47.0)	(6.9)	(10.4)	(11.7)	
Total Development Receipts & IPEDA[b]	155.7	344.0	233.2	271.4	430.0	15.2
(Annual % Change)		(119.0)	(-31.6)	(16.4)	(58.4)	
TOTAL RECEIPTS & IPEDA[b]	1859.1	2837.4	3009.3	2727.2	3364.2	16.1
(Annual % change)		(52.6)	(6.1)	(-9.4)	(23.4)	
External Receipts[f]						
Current Receipts[b]	157.4	703.9	850.3	1283.8	1343.8	72.0
(Annual % Change)		(347.2)	(20.7)	(51.0)	(4.7)	
Development Receipts[f]	272.0	821.3	827.4	868.9	1109.2	42.0
(Annual % Change)		(201.9)	(0.7)	(5.0)	(27.7)	
TOTAL EXTERNAL RECEIPTS[f]	429.4	1525.2	1677.7	2125.7	2453.0	54.0
(Annual % Change)		(255.2)	(10.0)	(28.3)	(13.9)	
TOTAL RECEIPTS - All Sources						
Current Receipts	1860.8	3200.2	3626.4	3739.6	4274.0	23.1
(Annual % Change)		(72.0)	(13.3)	(3.1)	(14.3)	
Development Receipts	427.7	1162.3	1060.6	1140.3	1548.3	37.9
(Annual % Change)		(171.8)	(-8.7)	(7.5)	(35.8)	
TOTAL RECEIPTS	2288.5	4362.6	4687.0	4879.9	5822.3	26.2
(Annual % Change)		(90.6)	(7.4)	(4.1)	(19.3)	

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TABLE 21.1--Continued

	1974/75	1975/76	1976/77	1977/78	1978/79	Average Annual Change (%)[j]
FUNDS AVAILABLE FOR DEVELOPMENT						
Municipal Savings[g]	768.8	1262.8	1358.9	1201.6	1506.0	18.3
(Annual % Change)		(64.3)	(7.6)	(-11.6)	(25.3)	
Municipal Saving &IPEDA[h]	874.7	1418.4	1525.3	1385.3	1711.3	17.9
(Annual % Change)		(62.2)	(7.5)	(-9.2)	(23.5)	
External Development Funds[f]	272.0	821.3	827.4	868.9	1109.2	42.1
(Annual % Change)		(201.9)	(0.7)	(5.0)	(27.6)	
TOTAL FUNDS FOR DEVELOPMENT	1146.7	2239.7	2352.7	2254.2	2820.5	25.3
(Annual % Change)		(95.3)	(5.0)	(-4.2)	(25.1)	
TOTAL EXPENDITURES						
Routine Expenditures	1101.6	2062.4	2269.6	2554.2	2913.0	27.5
(Annual % Change)		(87.2)	(10.0)	(12.5)	(14.0)	
Development Expenditures[i]	946.5	2280.2	2395.5	2192.9	2591.7	28.6
(Annual % Change)		(140.9)	(5.1)	(-8.5)	(18.2)	
TOTAL EXPENDITURES	2047.1	4342.6	4665.1	4747.1	5504.7	28.0
(Annual % Change)		(112.1)	(7.4)	(1.8)	(16.0)	
Price Index (1978 = 100)						

a Source: Appendix B. Totals may not add due to rounding.
b IPEDA property tax is legally a shared national development tax transfer but for the purpose of this analysis it is shown separately but included as an addition to municipal receipts as the tax is levied on city property and collected by Kotamadya staff.
c Includes Kotamadya own receipts and beginning year balance respectively for routine and development budgets.
d Total fluctuates due to the occasionality of ad hoc receipts.
e Estimates are "gross" receipts before deductions of 10 percent payment to collectors, 9 percent payment to regional development bank.
f Exclude IPEDA property tax transfers.
g Includes routine budget surplus contribution to development budget plus Kotamadya own development receipts.
h IPEDA receipts are included here on a net basis as a contribution to development. See Appendix B.
i Total development expenditures may exceed total development receipts due to treatment of IPEDA receipts on a "net" basis.
j As measured by average annual compound rate of growth for period.

TABLE 21.2

SUMMARY: KOTAMADYA MEDAN RECEIPTS, EXPENDITURES & SAVINGS, 1974/75 - 1978-79[a]
(Rupiah Million in Constant 1978 Prices)

	1974/75	1975/76	1976/77	1977/78	1978/79	Average Annual Change (%)[j] 4 years	Last 3 Years
RECEIPTS							
Municipal Receipts & IPEDA[b]							
Current Receipts	2678.3	3401.1	3285.3	2574.2	2934.2	2.3	-4.8
(Annual % change)		(27.0)	(-3.4)	(-21.6)	(14.0)		
Development Receipts	13.5	170.2	2.5	17.0	145.0	77.0	-4.0
(Annual % change)		(1160.7)	(-98.5)	(577.3)	(752.9)		
IPEDA Development Receipts[b/e]	231.3	294.4	273.5	267.5	285.0	5.4	-1.0
(Annual % change)		(27.3)	(-7.1)	(-2.2)	(6.5)		
Total Development Receipts & IPEDA[b]	244.8	464.6	276.0	284.5	430.0	15.1	-2.5
(Annual % change)		(89.8)	(-40.6)	(3.1)	(51.1)		
TOTAL RECEIPTS & IPEDA[b]	2923.1	3865.7	3561.3	2858.7	3364.2	3.6	-4.5
(Annual % change)		(32.2)	(-7.9)	(-19.3)	(17.7)		
Expernal Receipts[f]							
Current Receipts	247.5	959.0	1006.3	1345.7	1343.8	53.0	-12.0
(Annual % change)		(287.5)	(4.9)	(33.7)	(-0.1)		
Development Receipts[f]	427.6	1118.9	979.2	910.8	1109.2	12.4	-0.9
(Annual % change)		(161.7)	(-12.5)	(-7.0)	(21.8)		
TOTAL EXTERNAL RECEIPTS[f]	675.2	2077.9	1985.4	2256.5	2453.0	38.0	+5.7
(Annual % change)		(207.7)	(-4.5)	(13.7)	(8.7)		
TOTAL RECEIPTS - All Sources							
Current Receipts	2925.8	4360.1	4291.6	3919.9	4274.0	9.5	-0.4
(Annual % change)		(49.0)	(-1.6)	(-8.7)	(9.0)		
Development Receipts	672.5	1583.5	1255.1	1195.2	1548.3	23.2	-0.8
(Annual % change)		(135.5)	(-20.7)	(-4.8)	(29.5)		
TOTAL RECEIPTS	3598.2	5943.1	5546.7	5115.2	5822.3	12.8	-0.7
(Annual % change)		(65.2)	(-6.7)	(-7.8)	(13.8)		

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TABLE 21.2--Continued

	1974/75	1975/76	1976/77	1977/78	1978/79	Average Annual Change (%)[j] 4 Years	Last 3 Years
FUNDS AVAILABLE FOR DEVELOPMENT							
Municipal Savings[g]	1208.8	1720.5	1608.2	1259.5	1506.0	5.6	-4.3
(Annual % change)		(42.3)	(-6.5)	(-21.7)	(19.6)		
Municipal Saving & IPEDA[h]	1375.3	1932.5	1805.1	1452.1	1711.3	5.6	-4.0
(Annual % change)		(40.5)	(-6.6)	(-19.6)	(17.9)		
External Development Funds[f]	427.7	1118.9	979.2	910.8	1109.2	26.9	-0.3
(Annual % change)		(161.6)	(-12.5)	(-7.0)	(21.8)		
TOTAL FUNDS FOR DEVELOPMENT	1803.0	3051.4	2784.3	2362.9	2820.5	11.8	-2.5
(Annual % change)		(69.2)	(-9.8)	(-5.1)	(19.3)		
TOTAL EXPENDITURES							
Routine Expenditures	1730.5	2809.8	2685.9	2677.4	2913.0	13.9	1.2
(Annual % change)		62.4	-4.6	-0.4	8.8		
Development Expenditures[i]	1488.2	3106.5	2832.9	2298.6	2591.7	14.9	-5.8
(Annual % change)		108.7	-8.8	-18.9	12.8		
TOTAL EXPENDITURES	3218.7	5916.3	5518.8	4976.0	5504.7	14.4	-2.4
(Annual % change)		83.8	-6.7	-9.8	10.6		
Price Index (1978 = 100)	63.6	73.4	84.5	95.4	100.0	12.0	10.9
(Annual % change)		(15.4)	(15.1)	(12.9)	(4.8)		

a Source: Appendix B. Totals may not add due to rounding.
b IPEDA property tax is legally a shared national development tax transfer but for the purpose of this analysis it is shown separately but included as an addition to municipal receipts as the tax is levied on city property and collected by Kotamadya staff.
c Includes Kotamadya own receipts and beginning year balance respectively for routine and development budgets.
d Total fluctuates due to the occasionality of ad hoc receipts.
e Estimates are "gross" receipts before deductions of 10 percent payment to collectors, 9 percent payment to regional development bank.
f Exclude IPEDA property tax trasnfers.
g Includes routine budget surplus contribution to development budget plus Kotamadya own development receipts.
h IPEDA receipts are included here on a net basis as a contribution to development. See Appendix B.
i Total development expenditures may exceed total development receipts due to treatment of IPEDA receipts on a "net" basis.
j As measured by average annual compound rate of growth for period.

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It is important to review recent trends of the sources of funds available for development both to assess Kotamadya progress over the past four years and to assess its capacity for funding investment in Repelita III. In current prices, municipal own savings plus IPEDA property tax funds on a net basis (after allowing for payments to collectors, the province of North Sumatra and the regional development bank) rose on average by almost 18 percent a year, with a 62 percent increase in 1975/76 and changes of 7.5, - 9.2 and 23.5 percent per year respectively over the subsequent three years. External funds for development purposes were reviewed above. Thus, total funds available for development rose on average by 25 percent a year with the largest rise of 95 percent occurring in 1975/76.

Total actual expenditures in current prices increased on average by 28 percent a year with almost equal rises (given the state of the data) in current and development expenditures over the entire period. The largest increases, accordingly, were in 1975/76, with development expenditures rising faster than routine expenditures that year, and a reversal of this ordering throughout remainder of the period. The rate of increase of routine expenditures, as expected, fell markedly in 1976/77 but then rose steadily thereafter, noting the magnitude of salary elements and increases. The rate of change in development expenditures fell markedly in 1976/77 and become negative in 1977/78 but recovered in 1978/79 to reflect -- in current prices -- a new high level of development expenditures in the last year of Repelita II.

21.3.3 Aggregate Financial Performance in Real Terms

It is essential to consider the effect of rising prices in assessing real growth of receipts, internal savings, external transfers and expenditures over the four-year period. Rising prices effectively reduce the real purchasing power of nominal or current price realizations. No suitable price deflators for routine or development expenditures in Medan are available and it was necessary to use the Medan cost of living index series for this purpose. That index does not adequately measure changes in the cost of supplies, maintenance or capital equipment and is believed to indicate a much lower rise for these items in several years, but especially in 1978/79. If this is the case, the apparent recovery in 1978/79 would be commensurately overstated. Medan's cost of living increased by over 57 percent over this period or by 11 percent a year. Other factors relevant in assessing financial levels and trends are also noted in this real analysis.

Medan Cost of Living Index
(1978 = 100)

	Index	Annual Change (%)
1974	63.6	
1975	73.4	15.4
1976	84.5	15.1
1977	95.4	12.9
1978	100.0	4.8*

* This relatively small increase does not appear to be indicative of the cost of supplies, maintenance and capital equipment.

Table 21.2 shows the same data as in Table 21.1 deflated by the cost of living index to indicate real purchasing power in constant 1978 prices. The table also specifically dissects in the last columns the average annual rate of growth in the last 4 year period compared to that of the last 3 years to indicate the large increases in 1975/76 and over the subsequent last three years. As would be expected in a period when prices rose by over 57 percent, there are substantial differences in constant price estimates, their rates of growth and in meaning and implications for both the past four years and the future*.

Measured in constant prices, Kotamadya Medan's financial performance, especially over the past three years, appears much less favourable. Current receipts (from taxes and other income plus the beginning annual routine budget balance) increased on average over the entire four-year (1974/75 - 1978/79) period by only 2.3 percent a year, a growth less than that of the city's population and considerably slower than the estimated 8 to 10 percent per year growth of city product during Repelita II**. Kotamadya own current receipts over the past three years (1976/77 - 1978/79) declined in real terms on average by 4 percent a year. The same pattern of large increases in 1975/76 and slowdowns and actual declines in real terms on average by 4 percent a year. The same pattern of large increases in 1975/76 and slowdowns and actual declines in subsequent years is present in these derived constant price estimates, reflecting the base data estimates in Appendix B.

Urban receipts from taxes, fees and other charges declined in both 1976/77 and 1977/78 and appeared to have increased in 1978/79 although as noted above, the real increase last year may be overstated because of the slower increase in the cost of living index. In real terms, Medan's own income in 1978/79 is at a lower level than in 1975/76 or 1976/77. Factors underlying this performance are reviewed in more detail in following subsections, but it is apparent that the Kotamadya's own real official collections over the past three years did not keep pace with rising prices, urban private income or population. Medan's own development receipts, which have not been large, followed the same pattern just noted.

IPEDA property tax receipts are Central Government (Negara) income shared with the city but, for the purpose of this study of funds available to Medan, are shown separately and added to the Kotamadya's receipts. IPEDA taxes are based on property assessments made by national government staff in Medan and tax rates are determined by the Central Government; however, collections are handled by the Kota government and officials. IPEDA receipts rose on average by 5.4 percent a year over the entire four-year period but declined by 1.0 percent a year during the past three years. This tax is considered as an important growth and social equity element in future revenues and, as such, is considered separately below.

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* It is relevant to observe that other studies assessing municipal capabilities for financing proposed urban improvement programs have not specifically analyzed past financial data nor fluctuations in real terms, projecting future financial estimates from past current price data.

** p.3-1, Laporan Pembangunan Daerah Tingkat I Kotamadya Medan, selama Repelita II, Kotamadya Medan, 10 September 1979.

Medan's real total receipts by this measure rose on average by 3.6 percent a year over the entire period but declined by 4.5 percent a year over the past three years with an apparent recovery in 1978/79.

Real external receipts for current and development purposes have followed a similar time pattern with total receipts increasing by over 200 percent in 1975/76, declining by 4.5 percent in 1976/77, recovering to almost 14 percent growth in 1977/78 and, then, slowing down to almost 9 percent growth in 1978/79. For the entire four-year period, total real external receipts increased on average by 38 percent a year; however, for the past three years, they rose on average by less than 6 percent a year.

Kotamadya total real receipts from all sources, therefore, for the entire period rose on average by nearly 13 percent a year and declined by almost 1 percent a year for the last three years, with apparent recovery in 1978/79. It is important to note that total Kotamadya real resources in 1978/79 were lower than in 1975/76.

This trend was noted to Kotamadya and Government of Indonesia officials in the October report. However, in view of the apparent real recovery in 1978/79 and the Kotamadya's 1979/80 tax intensification drive, Operasi "Sisir" (Combing Operation), assessment was deemed only possible after reviewing tax collections this year. A preliminary forecast for 1979/80 based upon preliminary estimates for the first nine months of the fiscal year (April - December) is shown later in Tables 21.5 - 21.7.

Kotamadya total real receipts from all sources are identified in the Table 21.3.

Table 21.3 indicates broad financial relationships over the Second Plan period. Total municipal receipts have tended to decline, and commensurately total external receipts to rise, as a proportion of total receipts from all sources. The relationship over the period of current receipts to development receipts as proportions of total receipts is less clear. Compared to 1974/75, current receipts in subsequent years have tended to fall as a proportion. However, in the past three years, the ratios have fluctuated suggesting that Kotamadya current receipts are tending to be around 75-76 percent and development receipts about 24 to 25 percent of total receipts from all sources.

Figure 21.1 depicts graphically the aggregate picture and relationships of total Kotamadya receipts from all sources. The sharp increases in total real receipts of over 65 percent in 1975/76 is the first prominent feature followed by declines over the ensuing two years and a recovery in the last year 1978/79. However, Kotamadya total real receipts from all sources in the last year of Repelita II were lower than in peak year 1975/76, as were Kotamadya's own current and IPEDA receipts.

It is important to review Kotamadya Medan's real funds available for development over this period as a basis for assessing its potential to finance both regular ongoing investment and contribute to the proposed large investment program in water supply, sanitation, kampung improvement, low-cost housing, education, health and transportation. Funds available for development accrue from two sources: Kotamadya own savings and external

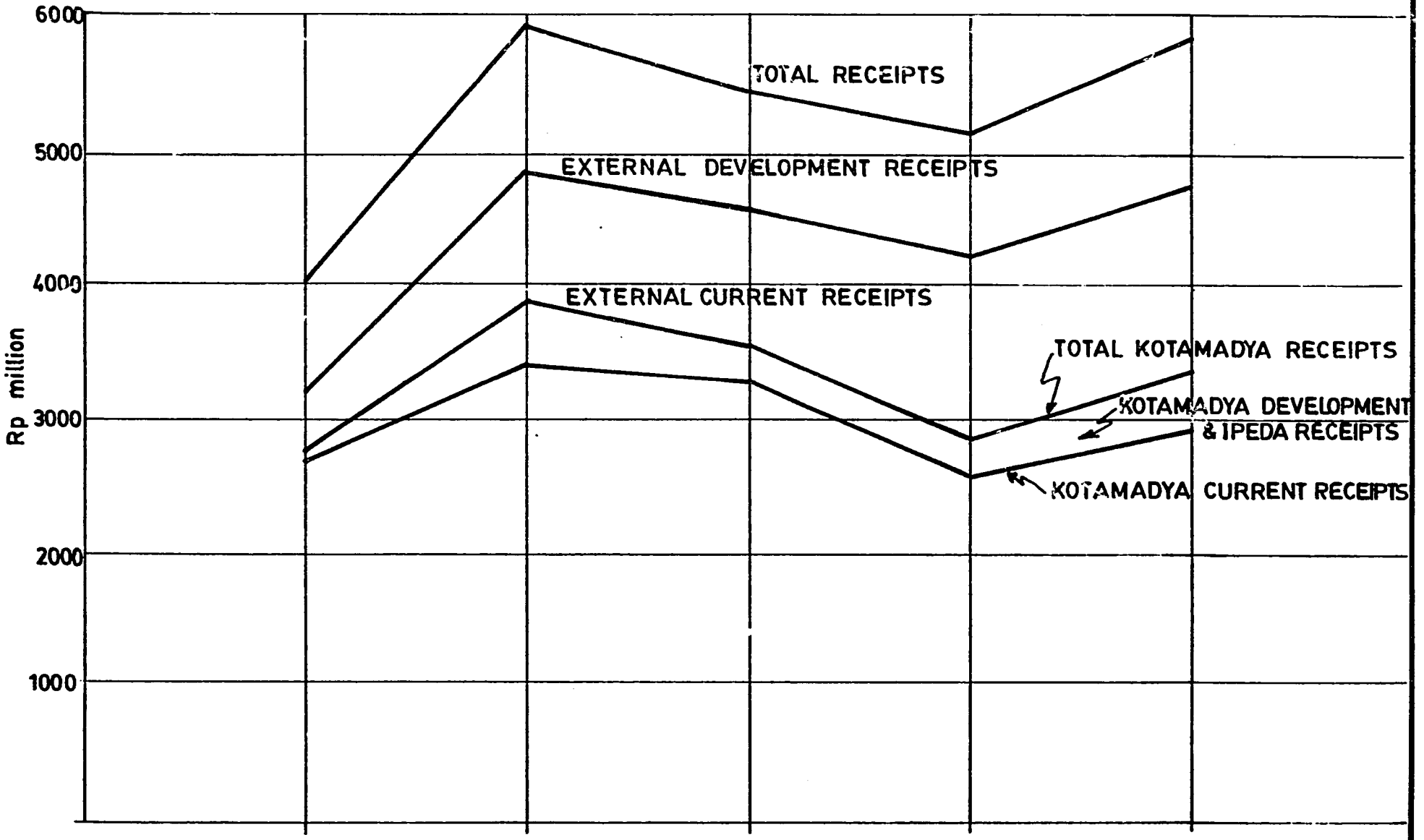
TABLE 21.3

KOTAMADYA RECEIPTS FROM ALL SOURCES
(Rupiah Million in Constant 1978 Prices)

	1974/75		1975/76		1976/77		1977/78		1978/79	
		% of Total		% of Total		% of Total		% of Total		% of Total
TOTAL RECEIPTS	3598	100%	5943	100%	5547	100%	5115	100%	5822	100%
Municipal Receipts	2923	81	3866	65	3561	64	2859	56	3364	58
Current	2678	74	3401	57	3285	59	2574	50	2934	50
Development	245	7	465	8	2176	5	285	6	430	7
External Receipts	675	19	2079	35	1985	36	2257	44	2453	42
Current	248	7	959	16	1006	18	1346	26	1344	23
Development	428	12	1119	19	979	18	911	18	1109	19
Current Receipts	2926	81	4360	73	4292	77	3920	77	4274	73
Development Receipts	673	19	1584	27	1255	23	1195	23	1548	27

KOTAMADYA RECEIPTS FROM OWN AND EXTERNAL SOURCES

(IN RUPIAH MILLION IN CONSTANT 1978 PRICES)



development finance, primarily provided by Central Government general development transfer, Inpres Dati II, and more sector-directed development transfers, Inpres SD for primary school buildings and Inpres Kesehatan for clinic buildings. Estimate of Kotamadya Medan's own savings in real term are given in Table 21.2 based on official data shown on Appendix B. The official government estimates of own savings are derived as: the current surplus of current Kotamadya receipts from all sources (essentially own current taxes and other income plus current salary - related receipts from the Central Government) minus total current expenditures (the amount spent on administration, operations and maintenance) plus Kotamadya own development receipts. In practice, IPEDA net receipts should be added to the above to obtain the total surplus available to the municipal government for development from local sources. (Economic analysis would suggest that the official measure overstates the actual total since part of this apparent surplus in fact arises from the receipt of Central Government current funding. For the purpose of this study, however, official concepts are employed).

The official measure of Kotamadya Medan savings does overstate the real funds available for investment because a significant amount of current expenditures are included in the budget as development expenditures, as alluded to earlier. It would require item-by-item budget study to determine the magnitude in any one year. Kotamadya officials estimate roughly that up to 90 percent of Kotamadya expenditures in the road transport sector may be current expenditure and around 25 percent in other sectors. They also estimate that some 12 percent of the general Central Government infrastructure transfer (Inpres Dati II) is spent on rehabilitation, 20 percent of the education transfer (Inpres SD) on current expenses, possibly up to 80 percent of the clinics transfer (Inpres Kesehatan) for medicine and supplies, 35 percent of the village transfer (Inpres PMD) on operations and maintenance, and possibly 20 percent of IPEDA property tax receipts for current expenditures. Our review of SPMU estimates (letter of issuance of payment) in 1978/79 suggests that possibly Rp.700 million in the development budget might be current expenditures, thus reducing Kotamadya own savings by this amount. This fact is merely brought to attention since official budget estimats are used in this review but it does affect judgement in making projections of free savings in the Repelita period to be available for investments. Finally, it should be appreciated that Kotamadya Medan is not alone in this practice and that it may be the principle rather than the practice which should be questioned. Many, or most, regional governments facing urgent current expenditure requirements designated these as development expenditures to comply with the principle that over 50 percent of the budget should be allocated and spent on development.

Kotamdya Medan's own real savings or that savings plus net IPEDA receipts follow the general financial pattern discerned above. By either measure, Medan savings rise markedly by around 40 percent in 1975/76, decline notably in the next two years and recover in 1978/79. Both measures of own savings are at a lower real level in the final year than in 1975/76 or 1976/77 due to the tendency for current expenditures over the period at increase at a faster rate than municipal income from taxes, fees and other charges.

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External or Central Government development grants and loans have been of key importance in supplementing municipal savings in financing Kotamadya development. Total real external development receipts exhibited the same cyclical pattern, accentuating the swings in total resources available to the city over the past four years.

External development receipts constituted the following proportion of total funds available to Medan for financing development.

TABLE 21.4

PROPORTION OF INVESTMENT FUNDS AVAILABLE FOR FINANCING MEDAN DEVELOPMENT*
(In %)

	Internal Savings**	External Funds
1974/75	76.3	23.7
1975/76	63.3	36.7
1976/77	64.8	35.2
1977/78	61.5	38.5
1978/79	60.7	39.3

* Source: Table 21.2 and Appendix B
** Internal savings includes net IPEDA receipts.

The above fluctuation in total real finance over the period are reflected in the same pattern of annual changes in total expenditures. There is one marked difference. Routine expenditures because of its relatively fixed salary, pension and rice subsidy components falls much less in 1976/77 and 1977/78 and recovers less in 1978/79 to end the period at a higher real level than in 1975/76. Further examination suggests that the reductions were made largely on supplies and maintenance. Total investment expenditures commensurately fluctuate more, dropping significantly in the two middle years and ending the period at a real level almost 17 percent below that of 1975/76. These estimates tend to confirm visual impressions that Medan city has been wanting for both urban maintenance and new investment in almost all economic and social sectors.

The above real trends in receipts, savings and expenditures pose no easy picture for the immediate future, as noted in the October report. The possible immediate opening lies in whether the apparent upturn in 1978/79 may be continued or possibly accelerated. Following sub-sections examine tax performance during the Repelita II period and preliminary estimates for 1979/80 before attempting to assess Kotamadya Medan's future financial capacity.

21.4 LOCAL REVENUE - SOURCES AND TRENDS

21.4.1 Revenue Structure

As noted above, the Central Government prescribes the permissible sources of revenue and charges for each level of government. It retains many of the large and income-elastic sources (income, sales, excise and foreign trade taxes), determines or reviews the tax rates and charges for lower-level governments and in some cases, as the IPEDA property tax, actually sets individual property assessments. The provinces (Level I governments) are assigned motor vehicle and other taxes and fees. The districts (Kabupatens) and cities (Kotamadya) as Level II governments are assigned the other taxes and fees within this structures with latitude to determine revenue bases and rates subject to approval by their respective legislatures and to review by higher level governments.

Kotamadya Medan arrays its some 65 taxes, service fees and charges under the 13 government offices and agencies which collect them. The revenue department (Dinas Pendapatan) is the largest source listed, collecting 15 taxes, fees and charges, including IPEDA, accounting for 63 percent of total municipal revenue in 1978/79. In practice, the number of collection offices, revenue items and their rates is much larger and more complex. While the 13 agencies are in some sense overseeing for the revenues listed under them, many of the receipts are actually collected by other agencies with varying amounts of guidance, supervision and control by the overall listed office. For example, under Dinas Pendapatan, radio taxes are collected by the post office, garbage fees by the individual village heads, and charges for street lighting by the Central Government electric agency. There is some logic in delegating collections to relevant operating agencies but it is recognised that there is also a serious loss of guidance, control and training in the system which has evolved, wherein non-financial offices and agencies tend to follow their own ad hoc ways in making assessments, setting rates, and executing collections. This diffusion transcends to higher levels of revenue policy and budgeting. Unlike the Central Government, where the Ministry of Finance determines and directly supervises revenue assessments and collections, neither Kotamadya Medan's office of Finance or its Revenue office have direct supervision and control over sources of revenue of the collecting agencies. It is recognised that this form of organization and procedure has serious limitations. Analyses of individual tax, fee and charge bases and collection performances are difficult and the delegation of revenue authority to many operating departments concerned largely with their regular administrative, maintenance and development functions permits little professional tax planning and implementation. Negotiation takes the form of targeting with the Mayor's office seeking higher revenue levels and the collecting agencies naturally desiring lower levels.

The draft of the Third Five-Year Plan for Medan follows a similar pattern of projecting municipal revenues for the 1979/80 - 1983/84 period - by collecting department, rather than in terms of individual specific taxes, fees or charges. The draft neither examines tax bases and rates for specific taxes nor proposes specific changes which cumulatively would increase Medan's future revenue.

The approach followed in this sub-section centers upon past performance and future potential of major tax and other revenue groups. Medan's 20 major revenue sources are considered under four groupings:

1. Property taxes and service charges

2. Amusement, transport and other fees and charges

3. Other business taxes, fees and charges

4. Other taxes, fees and charges.

IPEDA property tax is considered separately because of its nature and its future revenue potential. Legally, IPEDA is a national tax shared with regional governments. The Central Government sets the tax rate and its officers in the regions make individual property tax assessments. However, Medan officials like many other regional governments also regard IPEDA as a core part of local receipts in the sense that their officials collect the tax and the net amount due to the city can be allocated by them broadly to cover local development expenditures and it is increasingly recognized that property tax is potentially a major source of municipal income. IPEDA receipts were less than 5 percent of Medan's total receipts from all sources in 1978/79. In many less-developed countries, property taxes account for 20-45 percent of total city receipts.

Kotamadya Medan revenue performance over the 1974-75 - 1978/79 Repelita II period is indicated in Tables 21.5, 21.6 and 21.7 under the five major revenue groupings, with both planned budget and actual receipts given for 1978/79. In accordance with the preceding financial analysis, Table 21.5 presents detailed Kotamadya Medan's local revenues and IPEDA for this period in current prices. Table 21.6 gives the growth of the five major revenue groups in both current and constant 1978 prices. Table 21.7 provides the detailed local and IPEDA revenue data in constant 1978 prices and includes our estimate of revenue for the present year, 1979/80, when there has been a concerted city campaign to increase municipal and especially IPEDA receipts. The latter table as such serves as a base for considering future municipal revenue projections.

Kotamadya Medan's largest sources of revenue ranked in order of their 1978/79 realized collections are as follows: amusement taxes; rent, fees and other charges on government markets; tax on foreigners; tax on hotel, bars, restaurants, and night clubs; building permit fees; meat inspection, slaughter and other service charges; PRT household tax; business license fees; street lighting charges; and advertisement and other business fees. If IPEDA property tax is included in the list of local taxes it would rank third and if IPEDA and PRT real property and household taxes were considered jointly, they would total Rp.474 million in 1978/79 and rank second only to the sum total of numerous amusement taxes. It should be noted that the amounts, and therefore the rankings, are based on gross receipts. Many of the service receipts and charges are from agencies which have to provide facilities and services. Their salary, maintenance, supply and other costs are provided in budget expenditures.

TABLE 21.5

KOTAMADYA MEDAN INCOME FROM LOCAL REVENUES AND IPEDA, 1974/75 - 1979/80[a]
(RUPIAH MILLION IN CURRENT PRICES)

Major Income Sources	1974/75 Actual	1975/76 Actual	1976/77 Actual	1977/78 Actual	1978/79 Budget	1978/79 Actual	1978/79 % Realized[c]	1979/80 Budget[d]
Property Taxes & Services Charges[b]	262.8	405.9	670.1	505.9	968.6	635.7	65.6	1,471.2
PRT household tax	105.8	155.6	152.0	154.5	252.2	188.7	74.7	276.0
Street lighting charges	-	-	222.6	85.1	160.1	107.8	67.3	300.0
Sewage charges	13.3	21.9	18.3	14.6	52.0	13.9	26.7	51.2
Garbage charges	13.5	21.0	14.1	14.8	42.5	13.6	32.0	42.5
Building permit fees	72.4	98.3	124.6	121.5	236.5	214.5	90.7	515.0
Land registration fees	33.2	26.7	31.6	38.4	50.0	37.2	74.4	80.0
Location permit	13.6	22.6	25.5	23.5	35.0	33.1	94.7	80.0
Road repair charges	5.7	15.5	32.9	44.6	75.0	13.0	17.7	68.5
House and shop rent	-	4.1	6.7	7.8	10.0	7.8	77.7	10.0
Receipts from sale of houses	10.7	40.2	41.8	1.1	55.0	6.1	11.0	48.0
Amusement, Transport & Other Taxes, Fees & Charges	780.3	976.4	1103.1	1133.2	1715.8	1409.5	82.0	2,033.8
Amusement taxes	279.3	314.4	422.7	454.1	759.0	648.8	85.5	1,023.7
Hotel, bar, restaurant, night club taxes	167.9	212.8	210.9	234.5	350.0	246.9	70.6	362.0
Beca, bus, other transport taxes	101.2	106.6	101.7	72.1	121.0	85.0	70.3	109.9
Parking fees	6.8	11.6	28.2	30.0	36.0	47.7	132.4	60.0
Clinic and health charges	12.4	23.7	30.4	44.9	49.8	78.7	158.1	56.2
Tax on foreigners	212.7	307.3	309.2	297.6	400.0	302.4	75.6	422.0
Other Business Taxes, Fees & Charges	443.5	685.6	753.6	741.7	1013.9	796.2	78.5	1067.2
Business license fees	129.3	182.1	180.2	150.1	255.0	161.2	63.2	261.0
Public market rents, fees and charges	186.0	307.0	349.1	323.1	442.9	331.2	74.8	453.0
Advertisement tax and other business fees	28.4	66.5	80.8	85.6	107.5	98.9	92.0	135.0
Meat inspection, slaughter and services	99.8	130.0	143.5	182.9	208.5	204.9	98.3	218.2

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TABLE 21.5 -- Continued

Major Income Sources	1974/75 Actual	1975/76 Actual	1976/77 Actual	1977/78 Actual	1978/79 Budget	1978/79 Actual	1978/79 % Realized c	1979/80 Budget d
Other Taxes, Fees & Charges	188.2	245.8	231.0	69.3	109.9	73.6	67.0	156.5
Total Municipal Receipts	1680.2	2313.7	2757.8	2450.1	3808.2	2915.0	76.5	4728.7
(Annual % Increase) e		(+37.7%)	(+19.2%)	(-11.2%)	(+54.4%)	(+19.0%)		(+62.2%)
IPEDA b	147.1	216.1	231.1	255.2	350.0	285.2	81.5	400.0
(Annual % Increase) e		(+46.9%)	(+6.9%)	(+10.4%)	(+37.1%)	(+11.8%)		(+40.2%)
Total Municipal Receipts and IPEDA	1827.3	2529.8	2988.9	2705.3	4158.2	3200.2	77.0	5128.7
(Annual % Increase) e		(+38.4%)	(+18.1%)	(-9.5%)	(+53.7%)	(+18.3%)		(+60.3%)

a. Source: Data compiled from estimates provided by Bagian Keuangan, Dinas Pendapatan, Bappeda, Kotamadya Medan.
b. These local property taxes should be merged with the IPEDA shared property tax in analyzing Medan's total property tax receipts. This separate classification is in accordance with the central government designation of IPEDA as a national tax shared with municipal and district second level (Tingkat II) governments. See text.
c. Actual receipts as a percentage of budgeted receipts for the fiscal year.
d. Budget estimates for the current fiscal year.
e. Annual percentage change is measured from actual receipts of the previous fiscal year.

TABLE 21.6

SUMMARY OF KOTAMADYA MEDAN INCOME FROM LOCAL REVENUES AND IPEDA, 1974/75-1979/80 [a]
(Rupiah Million in Current and Constant 1978 Prices)

	1974/75	1975/76	1976/77	1977/78	1978/79		1979/80
	Actual	Actual	Actual	Actual	Budget	Actual	Budget
Property Taxes & Service Charges [b]	268.2	405.9	670.1	505.9	968.9	635.7	1471.2
(Annual % Increase) [c]		(+51.3%)	(+65.1%)	(-24.5%)	(+91.5%)	(+25.7%)	(+131.4%)
In 1978 Prices	421.7	553.0	793.0	530.3	968.9	635.7	1226.0
(Annual % Increase) [c]		(+31.1%)	(+43.4%)	(-33.1%)	(+82.7%)	(+19.9%)	(+92.9%)
Amusement, Transport & Other Taxes Fees & Charges	780.3	976.4	1103.1	1133.2	1715.8	1409.5	2033.8
(Annual % Increase) [c]		(+25.1%)	(+12.0%)	(+2.7%)	(51.4%)	(+24.4%)	(+44.3%)
In 1978 Prices	1226.9	1330.2	1305.4	1187.8	1715.8	1409.5	1694.8
(Annual % Increase) [c]		(+8.4%)	(-1.9%)	(-9.0%)	(+44.4%)	(+18.7%)	(+20.2%)
Other Business Taxes, Fees & Charges	443.5	685.6	753.6	741.7	1013.9	796.2	1067.2
(Annual % Increase) [c]		(+54.6%)	(+9.9%)	(-1.6%)	(+36.6%)	(+7.3%)	(34.0%)
In 1978 Prices	697.3	934.1	891.8	777.5	1013.9	796.2	889.3
(Annual % Increase) [c]		(+34.0%)	(-4.5%)	(-12.8%)	(+30.4%)	(+2.4%)	(+11.7%)
Other Taxes, Fees & Charges	188.2	245.8	231.0	69.3	109.9	73.6	156.5
(Annual % Increase) [c]		(+30.6%)	(-6.0%)	(-70.0%)	(+58.6%)	(+6.2%)	(+112.6%)
In 1978 Prices	295.9	334.9	273.4	72.6	109.9	73.6	130.2
(Annual % Increase)		(+13.2%)	(-18.4%)	(-73.5%)	(+51.3%)	(1.4%)	(+76.9%)
TOTAL MUNICIPAL RECEIPTS	1680.2	2313.7	2757.8	2450.1	3808.2	2915.0	4728.7
(Annual % Increase) [c]		(37.7%)	(19.2%)	(-11.2%)	(+55.4%)	(+19.0%)	(+62.2%)
In 1978 Prices	2641.8	3152.2	3263.7	2568.2	3808.2	2915	3940.6
(Annual % Increase) [c]		(+19.3%)	(+3.5%)	(-21.3%)	(+48.3%)	(+13.5%)	(+35.2%)

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TABLE 21.6 -- Continued

	1974/75 Actual	1975/76 Actual	1976/77 Actual	1977/78 Actual	1978/79 Budget	1978/79 Actual	1979/80 Budget
IPEDA[b]	147.1	216.1	231.1	255.2	350.0	285.2	400.0
(Annual % Increase)[c]		+46.9%	6.9%	10.4%	(+37.1%)	(+11.8%)	(+40.2%)
In 1978 Prices	231.3	294.4	273.5	267.5	350.0	285.2	333.3
(Annual % Increase)[c]		(+27.3%)	(-7.1%)	(-2.2%)	(+30.8%)	(+6.6%)	(+16.8%)
TOTAL MUNICIPAL RECEIPTS AND IPEDA	1827.3	2529.8	2988.9	2705.3	4158.2	3200.2	5128.7
(Annual % Increase)[c]		38.4%	18.1%	-9.5%	(+53.7%)	(+18.3%)	(+60.3%)
In 1978 Prices	2873.1	3446.6	3537.2	2835.7	4158.2	3200.2	4273.9
(Annual % Increase)[c]		(20.0%)	(2.6%)	(-19.8%)	(+46.6%)	(+12.9%)	(+33.6%)
Price Index	63.6	73.4	84.5	95.4	100.0	100.0	120.0

a. Source: Estimates from Table 21.5.

b. These local property taxes should be merged with the IPEDA shared property tax in analyzing Medan's total property tax receipts. This separate classification is in accordance with the central government designation of IPEDA as a national tax shared with municipal and district second-level (Tingkat II) governments. See text.

c. Annual percentage increase is measured from actual receipts of the previous fiscal year.

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TABLE 21.7

KOTAMADYA MEDAN INCOME FROM LOCAL REVENUES AND IPEDA, 1974/75-1979/80[a]
(Rupiah Million in Constant 1978 Prices)

Sources	1974/75 Actual	1975/76 Actual	1976/77 Actual	1977/78 Actual	1978/79 Actual	1979/80 Estimate[b]	Annual Growth Rate (%) 5 Years[c]	Annual Growth Rate (%) Last 3 Years[d]
Property Taxes & Service Charges[e]	652	846	1067	798	921	1060	10.2	0
IPEDA[e]	231	294	273	268	285	320	6.7	5.4
PRT household tax	166	212	180	162	189	115	-7.0	-14.0
(Total IPEDA & PRT)[e]	(397)	(506)	(453)	(430)	(474)	(435)	(1.8)	(-1.5)
Street lighting charges	-	-	263	89	108	223	∞	5.5
Sewage charges	21	30	22	15	14	15	-6.5	-12.0
Garbage charges	21	29	17	16	14	16	-5.5	-2.0
Building permit fees	114	134	147	127	215	282	19.9	24.0
Land registration fees	52	36	37	40	37	49	-1.2	9.8
Location permits	21	31	30	25	33	14	-7.8	-22.8
Road repair charges	9	21	39	47	13	16	12.1	-25.0
House and shop rents	-	6	8	8	8	10	∞	8.1
Receipts from sale of houses	17	55	49	1	6	-	0.0	0.0
Amusement, Transport & Other Taxes, Fees, and Charges	1227	1330	1305	1188	1410	1253	0.4	-1.5
Amusement taxes	439	428	500	476	649	581	5.8	5.1
Hotel, bar, restaurant, night club taxes	264	290	250	246	247	220	-3.5	-1.0
Beca, bus, other transport taxes	159	145	120	76	85	64	-15.8	-13.0
Parking fees	11	16	33	31	48	48	34.5	7.7
Clinic and health charges	19	32	36	47	79	63	27.0	11.9
Tax on foreigners	334	419	366	312	302	276	-3.6	-9.0

TABLE 21.7--Continued

Sources	1974/75 Actual	1975/76 Actual	1976/77 Actual	1977/78 Actual	1978/79 Actual	1979/80 Estimate[b]	Annual Growth Rate (%) 5 Years[c]	Last 3 Years[d]
Other Business Taxes, Fees and Charges	697	934	892	777	796	720	0.6	-7.0
Business license fees	203	248	213	157	161	104	-13.0	-21.0
Public market rents, fees and charges	292	418	413	339	331	338	3.0	-6.5
Advertisement tax and other business fees	45	91	96	90	99	103	17.9	2.4
Meat inspections, slaughter and services	157	177	170	192	205	175	2.2	1.0
Other Taxes, Fees and Charges	296	335	273	73	74	149	-13.0	-18.2
TOTAL MUNICIPAL & IPEDA RECEIPTS	2873	3447	3537	2836	3200	3183	2.1	-3.5
(Annual % Increase)		(+20.0%)	(+2.6%)	(-19.8%)	(+12.8%)	(-0.5%)		
Price Index	63.6	73.4	84.5	95.4	100.0	120.0		

a. Source: Table 21.5. Current price estimates deflated by price index to yield constant price 1978 estimates. Totals may not add due to roundings.
b. Own forecast for fiscal year 1979/80 based on estimates for first nine months of fiscal year (Arpil through December 1979) furnished by Kotamadya Medan agencies.
c. Annual compound growth rate for five-year period 1974/75 - 1979/80.
d. Annual compound growth rate for three-year period 1976/77 - 1979/80.
e. IPEDA property tax is added to PRT household tax to provide full picture of property taxes.

21.4.2 Revenue Performance in Current Prices, 1974/75 - 1978/79

Measured in current prices, Kotamadya Medan's total municipal receipts increased by over 73 percent between 1974/75 and 1978/79 or at an average rate of growth of almost 15 percent a year. Estimates in Table 21.5 indicate that actual receipts rose by almost 38 percent in 1975/76 and 19 percent in 1976/77, declined by 11 percent in 1977/78, and increased of 55 percent for the final year of Repelita II. A further 62 percent increase is budgeted for 1979/80 compared to actual receipts in the previous year.

The Kotamadya government has focussed attention on IPEDA property tax in recent years. IPEDA is legally a national development tax shared with regional governments. However, Kotamadya Medan has begun counting heavily upon it for revenue and has sought to strengthen collections. "Gross" receipts are recorded as development finance, although 10 percent of this is paid to collectors, 9 percent to the Province of North Sumatra, and another 4 percent to the Regional Development Bank. The first two payments are not for development, and while the latter is investment, it is not readily available to the city. Following official practice, this section includes "Gross" IPEDA receipts in the revenue analysis, but includes only "Net" IPEDA receipts in analysis of Medan's savings contribution available for investment. In current prices, total municipal receipts and IPEDA increased by 75 percent over the four-year period, or at an average compound rate of 15 percent a year, only a marginal difference from that of municipal receipts. The combined receipts pattern fluctuated over the period similar to that of pure municipal revenues.

21.4.3 Revenue Performance in Constant Prices, 1974/75 - 1978/79 and Forecast for 1979/80

Real revenue receipts measured in constant prices yield a much different assessment of performance, as indicated in the last part of Table 21.6 and in Table 21.7. Real total municipal and IPEDA receipts in constant 1978 prices rose sharply by 20 percent in 1975/76 and following the familiar cyclical financial pattern increased by less than 3 percent in 1976/77, declined by almost 20 percent in 1977/78, and then recovered partly with 13 percent growth in 1978/79. The real value of Kotamadya revenue in the last year of Repelita II was lower than in either 1975/76 or 1976/77. Despite the apparent increase in revenue in 1978/79, tax realization was some 23 percent below the budget revenue target for that year.

The Medan government this fiscal year mounted and intensification campaign labelled "Operasi Sisir" designed to comb out tax-payers and revenue. City officials hoped that the campaign would far surpass the upward growth of 1978/79, with the 1979/80 budgeted revenue target of Rp.5,128.7 calling for over a 60 percent increase above last year's realization. Special effort was placed on IPEDA property tax with a reallocation of Revenue Department (Dinas Pendapatan) officers to concentrate upon surpassing the budgeted Rp.400 million target by an additional Rp.200 million in light of higher market value property tax assessments decided by the Central Government. Our forecasts of 1979/80 revenue based upon estimates for the first nine months of the fiscal year now available from most departments and agencies suggest that total municipal and

IPEDA receipts in current prices may increase by some 19 to 20 percent, falling short of the initial budget target by 25 percent. With prices rising by 20 percent, total revenue receipts in 1979/80 may not show any real increase and may decline marginally. Beyond this, there is the concern that officials in their efforts to reach targets have been in essence "borrowing" receipts from tax-payers against the next year.

Table 21.7 incorporates our preliminary revenue estimates for 1979/80 to provide estimates of the probable real growth of municipal and IPEDA revenues over the 1974/75 - 1979/80 period. The last two columns indicate average annual compound growth rates of 2.1 percent over the entire 5 year period and a negative rate of 3.5 percent for the last 3 year period. Real revenues in 1979/80 may be 8 percent less than in 1975/76 and 10 percent less than in 1976/77. This would imply that the growth of revenues has not kept abreast of the growth of population. With Medan city real regional income increasing possibly at 8 percent annually, and that of its upper and upper middle income groups rising even more rapidly, Kotamadya revenue has not kept abreast of the increase in the total tax base and its incidence on higher income groups has probably declined over the period. As noted above, this stagnancy of municipal revenues has resulted in insufficient funds for city maintenance and investments.

21.4.4 Revenue Group and Individual Tax Performance

Kotamadya Medan's ability to finance future municipal maintenance and regular investment and to contribute to the proposed Rp.59,500 ($95 million) investment program will depend upon its capacity to increase its own real revenues. Preceding discussion indicated that inflation has masked real tax performance. Over the past 5 years through 1979/80, it appears that total municipal receipts plus IPEDA increased on average by only 2.1 percent a year, with most of the increase in 1976/77 (See Table 21.7). Over the past 3 years, total receipts declined on average by 3.5 percent a year. Assessment of this aggregate performance requires examination of the underlying revenue groups and their component individual taxes, fees and charges.

Total property tax and service charge receipts have not increased during the past three years. While it appears that IPEDA receipts have risen on average by over 5 percent a year, it is recognised that it is necessary to measure this apparent gain against meaningful standards. Taxation experts who have studied Indonesian urban property taxes since 1973 agree that assessments have been both very low and uneven in treatment of equal value properties by international comparison*. The Central Government in 1979/80 has adopted the concept of market value as the tax base and sanctioned a maximum tax increase of 50 percent based upon revised property assessments. A small sample review of business and high value residential property in Medan indicated that the reassessment had

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* For reference, see Daniel M. Holland and Oliver Oldman, Jakarta Real Estate Tax Study, report to Ministry of Finance, October 1972; M.C. Grossman and Dietrich Lerche, Proposed IPEDA Implementation Program, report to Ministry of Finance, November 1972; and Dietrich Lerche, Revenue Potential and The Land Tax for Urban Finance in Indonesia, Cambridge, 1974.

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been done hurriedly. The effective 1979/80 IPEDA tax rate on commercial companies ranged from 0.05 to 0.09 percent of market value. For higher value homes in the Polonia area, taxes ranged from Rp.8,480 ($13.57) to Rp.31,000 ($49.60) and the effective rates ranged from 0.005 to 0.009. Property taxes on three banks sampled ranged from Rp.80,000 ($128) to Rp.460,000 ($730), on two major hotels from Rp.300,000 ($480) to Rp.2,300,000 ($3,680). A major restaurant and night club was taxed at Rp.160,000 ($256). At the other extreme, many low-value kampung properties are being taxed below Rp.500 ($0.80) which probably does not cover the real cost of collection and administration and could still be a burden on low-income families. The recent emphasis of the Central Government is a decided move towards improvement but further steps are needed to raise assessments scientifically on high value industrial, commercial and residential properties, for both urban revenue and equity objectives, and to rationalise and establish minimum collectable limits on low-value properties. Medan and other cities revenue potential will depend upon these changes.

There are also problems in IPEDA collections, which are the responsibility of Kotamadya Medan. In 1978, the total value of assessments for Medan was Rp.476 million (excluding a sizeable backlog of unpaid property taxes for previous years). Gross collections totalled Rp.285, or less than 60 percent of current assessments. Assessments for 1979 have been raised to Rp.630 million and it is preliminarily estimated that collections this year may be around Rp.380-400 million, again, some 60 percent of present assessments omitting past unpaid accounts. Officials properly note that while organization and procedures require improvement there is a shortage of properly trained staff, vehicles and facilities. The present system relies solely on collectors visiting and revisiting some 129,000 properties, with no provision or reliance upon tax-payers mailing payment or coming to local offices to make payment. This approach is deemed infeasible since there is no effective property tax enforcement law or enforcement procedures. A review of collections in 7 kampungs covering 8,000 properties indicated the following patterns:

IPEDA Collection in Seven Kampungs in 1978

Tax Ranges (Rupiahs)	Paid Tax No.	Paid Tax %	Not Paid No.	Not Paid %	Total No.
0-499	172	31	385	69	557
500-999	576	32	1,252	68	1,828
1,000-1,999	933	45	1,151	55	2,084
2,000-2,999	983	64	557	36	1,540
3,000-3,999	141	38	235	62	376
4,000-4,999	124	50	125	50	249
5,000-9,999	529	59	368	41	897
10,000-19,999	499	62	301	38	800
20,000-49,999	179	66	93	34	272
50,000-99,999	18	53	16	47	34
100,000-299,999	7	54	6	46	13
300,000-499,999	2	100	-	-	2
500,000+	1	100	-	-	1
Total	3,626	45	4,469	55	8,095

The payment performance varied significantly between the 7 kampungs: 26, 32, 32, 37, 38, 62, 75 percent payment respectively. There is obvious need for improvement as IPEDA revenues could be doubled with more effective collection. It should be noted, however, that as property assessments are raised to appropriate levels and collections enforced, tax payers will demand more scientific assessment of property values and, as emphasized below, that the city delivers efficient services for their payments.

PRT household tax receipts in real terms have declined since 1975/76 and there is evidence, especially this year with the increase in IPEDA assessments, that tax payers are increasingly questioning whether this tax overlaps withIPEDA. The method of assessment is weak and differs from that of IPEDA on building values. The total of IPEDA and PRT property taxes have declined on average by 1.5 percent a year in the past three years. Officials in Medan and Jakarta sense this problem but thus far there has been no approach to rationalising total property taxes so they may be significantly but fairly increased. Collection costs on both are high in Medan with separate collection staffs.

It is surprising that with the notable exception of building permit fees, other taxes, fees and charges on properties show a downward real trend.

Amusement taxes, which should be highly income-elestic, have increased in real terms by 5 percent a year. On the other hand, hotel, bar, restaurant and other taxes show a decline. The fall in beca, bus, and transport revenues is not troublesome as the city wishes to encourage low-cost mass transportation and does not wish to levy repressive taxes on lower-income groups. For the same reasoning, the real growth of parking fees of almost 8 percent might well be increased by a doubling of parking fees and by improving the bidding system for selecting parking permit operators. It would be useful to analyze clinic and health charges in terms of both revenue and of incidence on lower and higher-income groups. The decline of 1.5 percent a year for the overall amusement, transport and other taxes is not understandable in view of the high population and income-elasticities of these tax bases.

21.4.5 Fiscal and Budget Planning Requirements

The above summary points up the need for careful and professional study of each tax and service fee and charge tax base. Many rates are specific (fixed amount) amounts which have not been raised for several years despite the inflation. Collection procedures should be checked for each revenue source. For many taxes and agencies, assessments and collections are handled by the same persons or office. Few tax payers receive advance official written tax notices. Of 16 businesses and 8 households interviewed, it appears that tax receipts given them on payment ranged from 40 to 70 percent of their actual payments. Medan, like other Indonesian cities, has evolved a maze of taxes, fees and charges, requiring rationalization and concentration on certain promising taxes and elimination of other small, overlapping or expensive ones to collect.

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These changes, many of which are recognised by Medan and Central Government officials, cannot directly and readily be approached under the existing diffused revenue structure with each office and agency applying ad hoc attempts to reach given revenue targets without analysis of tax bases, rates, collection methods, etc., and the incidence of taxes on higher and lower-income groups.

It is, therefore, proposed as part of the overall investment plan that a substantively revised revenue and fiscal system be adopted to assist the city in raising revenues significantly over time and improving fiscal budgeting and programming. Under this system, full responsibilities for tax, fee and charge studies, assessments and collection would be centralized in one senior officer and his office. Insofar as possible, staff of that office would assess and collect all revenue; where delegation for collection is more efficient, it would be under the full guidance and control of the main office. The office of assessment would be clearly separated from that of collection. Its first task would be to review the base and rate of each tax, fee and charge and, accordingly, recommend to the Kotamadya Government and the legislature a new system of tax rates, fees, and charges. Similarly, the collection office would examine present and possible improved collection systems. The office would explore the system of sending annual tax bills including all municipal charges on a household or business, with a set schedule of payments over the year. This is used by other developing countries and has been proposed by Medan Dinas Pendapatan. The feasibility under such a system of establishing collection offices in different sections of the city would also be examined.

Several fundamental and interdependent requirements underlie the success of any major change in the revenue system. First, of course, is tax-payer compliance. There appears to be a general belief, shared by tax-payers and tax officials alike, that local people do not like to pay taxes. This is not unique to Medan; few tax-payers anywhere welcome paying out rupiahs, dollars or francs. Several interviewees, though, stated that they obtained little Kotamadya services for their payments. If regular or emergency public service was required, they cited that they had to pay privately the public servant or obtain service elsewhere. This raises the second counterpart conditions for a successful revenue program over-time. The other side of the tax picture is that the government deliver obvious equal returns or benefits for tax payments. The proposed large Medan development program is based upon notable physical improvements and extension in water supply, sewerage, solid waste disposal, drainage, kampung improvements and low-cost housing. In addition, there would be evident improvements and investments in education and health programs. The investment cost of these programs, as noted below, will far exceed Kotamadya Medan's immediate contribution. The city will, however, incur up-front expenditures for kampung improvement and solid waste services and longer-term debt servicing obligations; and drainage and maintenance expenditures on existing and enlarged capacities will increase. Water rates and solid waste charges will also rise. Thus, the announcement of such a large urban improvement program for Repelita III should be accompanied by an announcement of a joint revenue program.

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Finally, officials have repeatedly emphasized that an enforcement law and set of procedures is an absolute requirement if revenues are to be significantly raised. They note that at present only certain ethnic and other groups feel obliged to pay taxes fully and promptly. It is these same groups who are pressured to pay next year's property taxes so that this year's tax targets may be approached. Without a clear and effective enforcement law, it will be difficult if not impossible to obtain the increases in revenue required to finance Medan's future maintenance and investment program and to build up fiscal capacity to meet loan interest and amortization payments on the enlarged Repelita III investment program proposed in this report.

As part of this enlarged program, it is proposed that the Kotamadya Government be provided technical assistance to assist in the above revenue planning and implementation program and also, importantly, in fiscal planning and budgeting. Fiscal planning and budgeting at present appears to be an important constraint to effective development. One difficulty has been the late receipt of Central Government development transfers. To some extent, city government has adjusted to a September- September cycle at some cost. Jakarta is currently studying programming so that funds may be released earlier in the fiscal year. Local financial planning, however, has had its own set of problems. As alluded to previously, revenue planning has almost consistently targeted higher municipal receipts for the coming financial year than are actually achieved. In such a situation, the city treasurer cannot sanction annual expenditures for all approved items in the budget without encountering serious cash flow problems during the year. The necessity of meeting on-going salary, pension and subsidy payments as well as attending local contributions to Central Government projects leaves a narrower area to reduce or delay expenditures if city revenues fall short of the mark. For instance, in fiscal year 1978/79, total municipal and IPEDA receipts in current prices were essentially planned to increase by 53.7 percent over actual 1977/78 receipts. Instead, actual receipts rose by only some 18 percent, a shortfall of Rp.958 or 23 percent. The result had to be an undue constaining of maintenance materials and work and a postponing of local development expenditures. Government operations therefore became one of inter-year cutting and squeezing rather than one of smooth annual planning. In this setting, five-year planning becomes academic. It should be realized that the undertaking of a much larger development program, as proposed, poses additional risks with fixed financial commitments for maintenance, front-end charges, equity allocations and, by 1986/87, sizeable interest and amortization payments if the financial revenue, fiscal planning and budgeting systems are not improved over the next few years. Similarly, there will have to be a careful holding down, if not reduction, of less essential routine and development expenditures to free local funds for higher priority commitments. Such improvements require at least two or three year lead time.

To assist the Kotamadya in initial revenue and budget planning and subsequent implementation, it is proposed that a senior financial planning consultant be financed via foreign assistance to assist the senior Medan financial official in developing such systems, returning to Medan once or twice a year during the first few years to assess and assist in their operations. It would also be desirable to engage a middle level financial consultant to assist the Medan government on a full time basis during the first year, working under the direction of the senior advisor.

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21.5 REVENUE PROJECTIONS

As should be evident from the preceding review, with the wide upward fluctuation in municipal own real revenues and IPEDA in 1975/76, followed by declines in two years, some recovery in 1978/79 and, then, no growth or a small decline in 1979/80, it is extremely tenuous to make forward projections. Figure 21.1 depicts these cycles and confirms the absence of any basis for assuming any real trend in revenues over the Repelita II period. Our preliminary estimates for 1979/80 indicate little real change over the previous year. Possibly the only conservative position would be one of projecting little future increases in Kotamadya own real resources if revenue organization, policies and procedures remain as they are at present. However, several factors suggest that would be an unduly pessimistic position. First, many important receipts are based upon very low implicit tax bases and effective tax rates. The collection system is weak. Secondly, the requirements for increased resources for salaries, maintenance and investment expenditures are heavy and experience in other developing countries tends to pose that under these conditions there are continuingly strong pressures for governments to make new efforts to secure local resources. Lastly, and importantly, discussions with Medan finance, revenue and development officials indicated their general awareness of the situation. The inflation illusion of increasing revenues measured in current prices was more than offset by the hard reality that with rising expenditure costs the real value of receipts had fallen and was not recovering sufficiently to meet routine or development requirements. Many of the suggestions for improvement were proposed by senior Kotamadya officials. Therefore, if such individual changes in assessments and collections occur year by year, with the Mayor and legislature concurring, and the Central Government steadily raising IPEDA assessments, it is possible that real municipal revenues and IPEDA receipts could increase on average by 2 to 4 percent a year over Repelita III and IV. This rate of increase would barely suffice to maintain present real unit salary and maintenance expenditures leaving meagre resources to be devoted to investment. Under such shortage conditions, it is probable that the present type of stop-and-go annual budgeting and programming would persist. Kotamadya upfront investment in the proposed investment program would be at the expense of other needs, unless a serious pruning of less essential routine and development expenditures was undertaken. The other safeguard would be the case of the Central Government markedly increasing its real development transfers to all Tingkat II levels of government and undertaking most of the financing of the proposed investment program by straightforward grnats. Even the latter approach would be insufficient. The evident backlog in transport, kampung, drainage and other infrastructure has built up from inadequate maintenance. New grant-financed investment capacities must be maintained in the future by the Kotamadya. This position is recognised.

The previous analysis and discussion, thereby, concludes that major changes in revenue and budget planning and implementation would seem to be a necessary element of future municipal development, as critical as physical or social project planning, engineering and financing. Medan's role as an important commercial, industrial and transportation centre in Northern Sumatra is critical in servicing this region.

The proposed financial program was inferred above. This section of the report thereby assumes that the Kotamadya Government moves readily and emphatically in adopting this type of program in terms of laws, organisation, policies and procedures. The following revenue projections are based on that assumption, allowing for usual lags and difficulties in the process but, at the same time, noting the advantages of beginning from such low levels of assessments and collections. The purpose of this most preliminary set of projections is to determine whether such a revenue program will yield sufficient revenues in the remainder of Repelita III and in Repelita IV to finance regular priority routine and development expenditures and to assess Medan's financial capability to contribute meaningfully to the financing of the proposed large Medan urban development program. This exercise involves a series of steps:

1. Projection of Kotamadya Medan's own total revenue and IPEDA receipts in constant 1978 prices over the remainder of Repelita II and Repelita III.

2. Projection of Kotamadya Medan's own budget resources and expenditures in constant 1978 prices over this period.

3. Projection of (2) in current prices, to estimate Kotamadya Medan's capacity to service debt incurred in undertaking its portion of the proposed urban development program.

4. Consideration of feasible financial arrangements for proposed urban development program.

21.5.1 Projection of Revenue

This projection assumes that Kotamadya Medan over the next two years centralises its revenue system under a senior finance officer responsible directly to the mayor, studies and establishes an appropriate tax base and rate for each source of revenue, converting specific to ad volarum taxes, and, essentially, indexes tax bases to the appropriate price indices; an adequate collection law is passed and collection organization policies and procedures are established. The mayor and all senior Kotamadya officials will educate the public in the necessary relationship between benefits to be gained in the new development program and the need for increased Kotamadya income.

Table 21.8 presents forecasts of major revenue groups receipts in constant 1978 prices over the Repelita III and IV periods. The projections of each of the four major tax groups were built up from projections of each major revenue source. The tenuousness of such projections in view of Medan's cyclical revenue record and the wide margins of error involved in estimating revenue improvements should be evident. This is a most preliminary set of forecasts merely to permit some aggregation for analytical purposes. A more meaningful set of projections would only be possible after a year or so of examination of each major source of revenue.

TABLE 21.8

REAL GROWTH OF MEDAN REVENUE AND IPEDA
(Rupiah Million Constant 1978 Prices)*

	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
Property Taxes and Service Charges**	1315	1509	1741	2021	2355	2632	2945	3303
(% Increase)	(10.7)	(14.7)	(15.4)	(16.1)	(16.5)	(11.8)	(11.9)	(12.2)
Amusement, Transport, Taxes and Other Charges	1455	1546	1643	1751	1864	1988	2124	2268
(% Increase)	(9.6)	(6.3)	(6.2)	(6.5)	(6.4)	(6.6)	(6.8)	(6.7)
Other Business Taxes and Fees	794	833	875	919	945	1013	1064	1117
(% Increase)	(5.0)	(4.9)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)
Other Taxes	158	163	168	173	180	183	189	194
(% Increase)	(3.2)	(3.2)	(3.1)	(3.0)	(4.0)	(1.7)	(3.3)	(2.6)
TOTAL	3722	4051	4427	4864	5364	5816	6322	6882
(% Increase	8.7	8.8	9.3	9.9	10.3	8.4	8.7	8.9

* Group revenue projections based on individual estimates for each major revenue source in each group. For content and performance of specific taxes during Repelita II, refer to Table 21.7.

** Includes gross IPEDA receipts.

21.5.1.1 Property, Taxes and Service Charges

This group is projected to increase in real terms from 10 percent a year to 16 percent a year over the 1980/81 - 1983/84 Repelita II period, largely due to sizeable rises in IPEDA property tax, street lighting and building permit gains. The real rate of increase will taper off to 11 to 12 percent a year in Repelita IV as collections approach 90 percent and the assessment base for each property becomes more realistic. The present trend of decline in the PRT household tax is reversed as the tax is changed to include primarily real household items. A basic premise is that the Central Government IPEDA assessment will be continuously increased over the period to approach realistic levels and to keep abreast of rising real estate prices.

21.5.1.2 Amusement, Transport and Other Fees

Real increases in revenues from this group reflect significant increases in amusement, hotel, bar and like receipts due to improvements in assessing the tax base and keeping apace of its real growth and prices. Demands for these services should at least grow at the same rate as urban real income. It is assumed that parking fees will be doubled in the next year or so to Jakarta parking fee levels. Bus,beca, clinical health and foreigner fees and taxes will increase at much slower rates consistent with urban social policy objectives. Thus, real increases for this group, after the increase in parking rates, will be 6 plus percent a year over the two plan periods.

21.5.1.3 Other Business Taxes, Fees and Charges

These revenues should increase by around 5 percent a year in real terms in keeping with the need to raise financial resources but still offer growth incentives for enterprise in Medan. Study of rates and collections of public market rents, fees and charges will be made to assure a decent rate of return on public assets in an inflationary period.

21.5.1.4 Other Taxes

These are assumed to rise by around 3 percent a year with reductions or deletions on some small nuisance taxes but the possible addition of new taxes and collection methods.

In aggregate, Medan's own total revenue and IPEDA receipts in constant 1978 prices might increase from 8.7 to almost 10 percent a year over the Repelita III period. The rate of increase will slow somewhat over the Repelita IV peirod to a more normal pattern.

21.5.2 Projection of Medan Budget in constant prices

It is desirous to project Kotamadya Medan's future budget and resource position to assess its future debt servicing capacity. However, it is evident that each additional set for forecasts - in view of the cyclical nature of Medan's budget over the past five years - adds another margin of error to estimating the residual "savings" available for future additional investment and debt servicing. Several other factors add to this uncertainty.

Firstly, the Kotamadya budget does not currently reflect the true amount of routine expenditures since a considerable amount of these are now included under investment expenditures. In addition, it is apparent from the condition of roads, kampungs and other municipal infrastructure that a considerable amount of additional resources could be effectively used to bring these capacities up to normal. Recent routine budget expenditures offer little guidance to such desired levels. Secondly, projecting Medan's resources in the future necessarily involves forecasting the amount and type of Central Government financial transfers to the Kotamadya for both current and development support. The pattern of past Central Government transfers, as noted above, has fluctuated widely in the recent past accentuating the swings in Medan's own resources. Several categories of Central Government assistance are fixed for certain specific purposes (education, health, raods, pasars, etc.) and are not available to be allocated to other Kotamadya investment or routine uses thereby freeing its own funds to finance the proposed urban development program. If Kotamadya Medan's financial performance was so favourable to allow slack, proper programming could suitably work within this framework. Unfortunately, this has not been the case and our postulating future revenues more optimistically on the basis of major changes in revenue organization and policies rests upon hopeful, but yet untried, grounds.

Projection of future free budget resources to finance the proposed major series of urban development programs must commensurately be based upon judgemental, rather than pure statistical, estimates. Table 21.9 illustrates a possible set of these projections in constant 1978 prices, based upon the possible favourable growth of Medan's own revenues and IPEDA receipts and some future additional allocations to maintenance expenditures to meet urgent operations requirements.

A modified budget presentation is employed in Table 21.9 to focus directly on Kotamadya Medan's own revenue (including IPEDA receipts), own current expenditures, and own current balance or savings on current account available for own investment. Central Government routine transfers for base year 1981/82 are deducted from Medan's total current expenditures to derive Medan's own current expenditures for that year. Growth of required expenditures are projected from that base year. It has been noted previously that Medan's official current expenditure figures are underestimated by some Rp.700 million, at least, with these expenditures being included in the development budget. Thus, estimates in Table 21.9 are provided on both bases with preference for the latter real estimate. In accordance, two estimates of the residual savings on current account are given.

Projections of Medan's own revenues and IPEDA receipts are assumed from Table 21.8. Growth of Medan's own current expenditures are increased significatnly throughout the 1981/82 - 1983/84 remaining Repelita III period to approach reasonable levels of operating and maintenance levels and, thereafter, allowed to increase at a more reasonable growth rate (based on budget standards of other developing countries).

The residual estimates of balances on current account on a real basis indicate that - even with notable progress in raising revenue resources - Kotamadya savings available for investment are very tight during the remainder of Repelita III but begin to increase notably in the Repelita IV period.

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TABLE 21.9

PROJECTION OF KOTAMADYA MEDAN'S RESOURCE POSITION
(In Rupiah Million in Constant 1978 Prices)

	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
Own Current Receipts[a] Plus IPEDA	3722	4051	4427	4864	5364	5816	6322	6882
Own Current Expenditures[b]								
On present basis	2260	2600	2990	3290	3620	3980	4380	4815
On real basis[c]	2960	3400	3915	4110	4320	4532	4759	5000
Balance on Current Account								
On present basis	1462	1451	1437	1574	1744	1836	1942	2077
On real basis[c]	762	651	512	754	944	1284	1563	1882

a Source: Refer to Table 21.8.

b Own current expenditures for base year 1981/82 are derived by deducting Central Government current receipts from total current expenditures to obtain current expenditures financed by Medan's own resources. Future projections are made from that base.

c Real basis includes adding Rp.700 million of current expenditures now included in development budget to Medan's own official current expenditures to give more accurate picture of Medan's own total current expenditures and own balance on current account.

21.5.3 Projection of Budget Resources in Current Prices

Prior discussion concluded that Kotamadya Medan's financial position had suffered as a result of inflation in the Repelita II period. Its revenue had not kept abreast of increasing prices and its ability to finance its current and investment expenditues at those higher prices had stagnated or declined.

The proposed revenue system is based upon both increasing real revenue growth and keeping apace of price increases.

Thus, the real revenue increases will be augmented byinflation each year to retain their real purchasing power. However, inflation does increase Medan's capacity to repay future debt nominated implicitly in the prices when it was occurred.

21.5.4 Medan's Capacity to Contribute to Urban Development Program

Our preliminary financial analysis in October 1979 indicated that Kotamadya Medan's capacity to contribute significantly to the proposed investment program in Repelita III was very limited. The financial program accordingly was devised as much as possible to have its individual projects self-financing, with cross-subsidization essentially a tax on business and higher-income consumers to subsidize lower-income users of the project. The water project outlined in Volume V, Part 1 requires no financial contribution by Kotamadya Medan. The solid waste program was formulated along similar lines but, in line with GOI requirements, a contribution to the investment program has been provided for. In addition, there will be a need for additional working capital in the first two years. Thus, the total municipal contribution to the solid wastes first stage program is Rp.1,300 million, spread over three years. No further financing will be required thereafter in respect of this program as operating costs and debt service will be met from internal revenue generation.

The KIP will also require a contribution from Kotamadya Medan. This has been determined on the basis of the GOI target guideline of Rp.6.0 million per hectare. Cipta Karya will provide half of the investment funds against this target with local governments providing the balancing finance. As it is anticipated that only a limited contribution would be forthcoming from the provincial government, it is assumed that most of the local government's share would be provided by Kotamadya Medan; Rp.850 million has therefore been allocated as the municipal contribution.

Because of the shortage of local funds, no investment contribution has been assumed from the Kotamadya for the wastewater and drainage programs. These will be financed by a mixture of grant and loan finance. Based on the projections in Table 21.9 sufficient funds will be available to meet the operating and debt service costs associated with these programs. Full details of the postualted funding packages for each sectoral program are contained in the appropriate sectoral program reports.

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The proposed urban transportation, education and health programs are to be undertaken to the extent possible utilizing Central Government general development and Inpres education and health transfers. The foreign exchange costs of the proposed technical assistance would be financed under foreign aid with Kotamadya Medan probably responsible for local costs components.

Kotamadya Medan's real balances on current account (see Table 21.9) inflated by price rises will cover the financial requirements of the proposed urban project but it is not evident at this time what alternative municipal investments such allocations would preclude in the early period. This is probably not a major concern given that some surplus will be available for alternative investments and the additional provision allowed for maintenance expenditures. This program and other Medan development does, however, depend upon early adoption and implementation of the above-proposed financial revenue and budgeting program.

TABLE 21.10

KOTAMADYA MEDAN CONTRIBUTION TO PROPOSED URBAN DEVELOPMENT PROGRAM*
(Rupiah Million in Current Prices)

	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
Wastewater	-	56	121	533	573	897	939	986	1036
Solid Wastes	650	450	200	-	-	-	-	-	-
Drainage	85	160	191	225	260	862	882	903	925
Kampung Improvement	200	350	300	-	-	-	-	-	-
TOTALS	935	1016	812	758	833	1759	1821	1889	1961

* The complete funding arrangements for each sector are described fully in the individual program reports, as follows:

Wastewater : Vol.V, Part 2
Drainage : Vol.V, Part 3
Solid Waste: Vol.V, Part 4
K.I.P. : Vol.III, Part 2

APPENDIX A

PRIORITY DISP ACTION PROGRAM AND PROJECTS PROPOSED FOR REPELITA III

Note: Projects with a project ranking of 1 are recommended as part of the Immediate Action Program. Those with a ranking of 2 are considered to be of lesser urgency than Immediate Action Projects.

APPENDIX A

PRIORITY DISP ACTION PROGRAM AND PROJECTS PROPOSED FOR REPELITA III

In order to reverse the downward trends and stimulate new growth, it is essential to take a series of concerted steps to improve the functioning of Medan, both as a city and as a regional centre. A concerted program of essential projects is therefore proposed which should stimulate continuous growth and create an environment more conducive to economic and social development, so enabling Medan to fulfill its potential as the chief city of North Sumatra. This should result in significant new investment being attracted to the city, generation of new jobs and improved living standards, particularly among the lower income groups, consistent with the policies set down in Repelita III.

The Priority DISP Action Programs and Projects recommended in this section will measureable support and strengthen the existing development program, and bring about the necessary physical and institutional changes. Their implementation should help to ameliorate the procedural and administrative constraints at the city and provincial level while increasing the planning and implementation capacity within existing city agencies, thereby promoting orderly growth.

Most of the Action Program is designed for study during FY.1980/81 and implementation of its policies and recommendations during the remainder of Repelita III and into Repelita IV. While execution of the entire program would generate the greatest benefits, certain projects are recognized as being of prime importance. Accordingly for each sector of activity, projects have been ranked in order of importance, which will permit their orderly phasing and enable them to be carried out within the scope of the available budgets and finance. Since, many of the projects are interrelated they are meant to form a continuous program. The key to successful execution of the program lies in implementing the recommended institutional procedural and organizational changes, before completing the physical improvements to Medan's urban structure. These measures are given top priority. A synopsis of each project is presented showing basic project information on its components, timing, funding and preliminary costing. For each project foreign technical assistance required has been shown separately.

APPENDIX A-1

SECTOR: FINANCIAL PLANNING

A-1.1 TECHNICAL ASSISTANCE TO THE KOTAMADYA MEDAN IN AGGREGATE PLANNING AND FINANCIAL PLANNING AND BUDGETING

PROJECT RANKING - 1

Project Description

This project is designed to aid the Kotamadya to introduce a more effective system of collection and allocation of its dues, revenues and expenditures through the preparation of an integrated annual planning/programming/budgeting/monitoring system.

Foreign technical advisers will be required to assist the Kotamadya with these tasks.

This project is considered a pilot scheme which could, if successfully implemented in Medan, be introduced in other cities in Indonesia.

Project Objectives and Components

The foreign advisors would assist the Kotamadya in developing and implementing and integrated annual planning/programming/budgeting/monitoring system which could effectively and efficiently select development projects and programs, assure early and full year funding for these projects and quarterly monitoring of their physical and financial performance and requirements. In particular, the advisors would:

- Assist the Kotamadya in developing and implementing a more effective urban revenue program which could yield significantly increased near and long term taxes and other receipts, based on progressive ability-to-pay taxation principles.

- Assist the Kotamadya, with Central Government approval, in preparing and passing appropriate tax enforcement laws and procedures

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- Analyse and advise the Kotamadya on ways of expanding the tax-base for local revenue purposes, revising tax-rates, methods of assessment and collection in order to increase receipts to Kotamadya. At present, these are determined by higher level governments which constrains city revenues and the scope of its activities

- Analyse and advise the Kotamadya as well as Central and Provincial Governments on means of assuring earlier and more regular sanctioning of higher-level government loans and grants, and

- Analyse the full financial implications of the proposed accelerated Medan Urban Development Program and devise means to handle initial and subsequent city contributions within the new revised budget and tax systems.

Supporting Policies

- The Kotamadya Government needs to centralize authority for aggregate planning and financial planning and budgeting within one office

- National and Provincial Governments need to develop legislation and procedures to allow the Kotamadya greater authority over municipal planning and budgeting of city routine and development programs.

Project Duration

The project is programmed to start in FY 1980/81. The project is estimated take 12 months, though the program will be ongoing and will be monitored annually during Repelita III.

Foreign Technical Assistance Requirements

- One senior foreign adviser skilled in municipal and national public finance to assist in initial designing and operation of the above system. The senior adviser would be expected to provide sustained support for the Kotamadya over the project's duration through a series of trips to Medan (7 man-months)

- One middle-level foreign adviser skilled in municipal and national finance and planning to assist in study and implementation of the above systems and proposals. The middle level adviser would provide support on-site over the entire project period (12 man-months).

Local Technical Assistance

A small team of full-time experienced local counterpart personnel will need to be made available throughout program. They will be trained on the project and be able to assume responsibility for program continuation in subsequents years. It is assumed that these persons are already employed by the Kotamadya.

Financial Arrangements

Project financing including salaries, travel, housing etc., estimated at Rp.116 million. Foreign exchange is estimated at Rp.105 million and is apportioned as follows:

1 Senior level adviser at US$ 10,000/month: for 7 months	=	70,000
1 Middle level adviser at US$ 7,500/month: for 12 months	=	90,000
		160,000
4 Round trips at US$ 2,000	=	8,000
Total		US$ 168,000

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APPENDIX A-2

SECTOR: ECONOMIC DEVELOPMENT

A-2.1 PROGRAM FOR ECONOMIC DEVELOPMENT AND ELIMINATION OF IMPEDIMENTS TO GROWTH

PROJECT RANKING: 2

Project Description

This project is designed to focus directly on the impediments to growth within the economy and prepare an Action Program for their elimination in order to create a better business climate which might attract investment, both foreign and domestic to Medan, and stimulate economic development.

Foreign technical advisers will be required to assist the Kotamadya with these tasks.

Project objectives and components

The foreign advisers would assist the Kotamadya in indentifying specific impediments to growth, and then help draw up an Action Program for their elimination, which would be carried out by the Kotamadya and citizens of Medan. Some recommendations may require changes to legislation or agreement by higher level governments.

In particular the advisers together with a local project team would:

- Review sectors of activity impeded in growth, namely industry and manufacturing. A survey should be carried out to determine just what problems industrial enterprises suffer.
- Carry out a stratified sample survey of 200 firms of all sizes from large through to small scale enterprises, and follow up with selected in depth interviews.
- Set minimum standards of infrastructure and transport system required by business men.

- Review the state and practise within sectors of activity impeding growth, namely the service sectors, and investigate actual cases.

- For banking it is proposed that a survey of 100 recently negotiated loans be made.

- A similar procedure should be adopted for all communication services; telephone, telegraph, telex and post office. The team should also test these services for themselves and monitor operations.

- Survey hotels and catering in a similar way.

- Assess supply and distribution channels. The objective of this would be to increase the size of domestic markets and open up export opportunities. This would include the distribution of goods by all modes, but particularly port and road. It would also take account of the need and location of physical amenities such as markets, warehousing and storage, and the effect of the industrial estate, the possible need for a free trade area and export zone, and the desirability of setting up a mini manufacturing work area.

- Consider any institutions or organizations which should be set up to promote growth as a result of gaps identified. Under this head the possibility of setting up the following offices might be considered: Business Promotion Office to help new investors; an Export Promotion Office: a Tourist Promotion Board; a small economic data collection and analysis unit.

- Consider training requirements for skilled employees and ways of increasing employment opportunities. This should include technical and clerical requirements for factories and offices. Recommend on the job training programs. Further, the relevance of university training and curricula should be examined to ensure that suitable graduates with necessary skills are being trained in the fields of engineering, municipal finance, management and applied economics.

- In addition to above, consider needs of medium and small enterprises - including access to credit etc. This should lead to formulation of a program for technical and financial assistance to medium and small-scale enterprises proposed for implementation in FY 1981/82.

- Review of pricing systems and rates charged to business men. This should cover all services provided by communications departments, hotels and catering, banking, and government departments. Assess extent of unofficial charges and taxes and recommend ways of eliminating them.

- Assess effects on legal system, identify changes to law required study areas of Central Government responsibility and Provincial and Municipal authority.

- Finally, draw up an Action Program designed to eliminate impediments within the economy and the business environment. Review it with the DISP Policy Steering Committee, Kotamadya and other interested parties.

Supporting Policies

National and Provincial Government will need to agree on a policy of devolving greater power to Kotamadya Medan, including authority over municipal planning and of city routine and development programs.

Project Duration

The project would start in FY 1980/81 and last for 12 months. A draft Action Program would be presented within nine months to allow three months for discussion agreement and final formulation of an Action Program.

Monitoring

As implementation of the Action Program would begin in FY 1981/82, some allowance has been made for a return visit by a foreign expert to monitor progress.

Foreign Technical Assistance Requirements

One senior foreign adviser, skilled in practical management to assist in initial design of project. The senior adviser would be expected to provide initial project analysis and supervision of project through a series of trips to Medan (6 man-months).

One middle level foreign adviser skilled in practical management (with experience of running a utilities office or government agency) to manage project and work with local team, who would provide on site support throughout project period (12 man-months).

Up to four specialist experts who would provide expert assistance as required. This would probably include a legal expert, an industrial and financial expert, a job creation expert etc. (12 man-months).

Local Technical Assistance

A permanent team of about six persons to be drawn from city government departments and industry, who would participate throughout project, and receive training and assume responsibility for implementating Action Programs in later years. These persons have been assumed to be already in employment with the city.

Financial Arrangements

Project financing will include foreign aid, total cost of foreign experts is estimated at Rp.163 million. In addition local finance will be required for subsistence and also cost of surveys, seminars and open

discussion meetings. Rp.10 million has been allowed for this. The detailed cost breakdown is shown below in 1979 prices:

Man-months estimated

1 Senior expert: 6 months at US$ 8,800/month	=	52,000
1 Middle level adviser: 12 months at US$ 6,000/month	=	72,000
Up to 4 specialist : 12 months at US$ 10,000/month	=	120,000
Personnel Total	US$	244,000
+ 8 roundtrips US/Indonesia at US$ 2,000		16,000
Grand Total	US$	260,000
	Rupiah	163 million

A-2.2 TECHNICAL AND FINANCIAL ASSISTANCE TO MEDIUM AND SMALL SCALE ENTERPRISES

PROJECT RANKING: 2

Project Description

This project is designed to implement the recommendations made for assisting medium and small scale enterprises in the report on Impediments to Economic Development. The objective of the project is to improve medium and small scale industry, possibly through: increasing their efficiency through improved management; improvements in the supply distribution and marketing process; expansion of production and introduction of new ranges; provision of assistance with book-keeping; facilitate access to credit and loans; help with land registration and business registration and licensing rules; recommend pricing policies, and help with other business problems. The following policies in particular are necessary to support the program:

- This program is not intended to be free, but a charge (possibly in the form of credits) would be made for services provided, including any materials or equipment supplied
- Possibility of increasing KIK and KMKP programs
- Land registration procedures should recognize needs of medium and small scale establishments to establishing title to their land.

Program

- To strengthen the role, performance and profitability of medium size firms

- To help small-scale enterprises regularise their business, obtain access to credit facilities, organize a small credit program, increase output and net revenue with particular reference to Kampung activities.

- Create additional employment.

Project Brief

- Set up small teams to be responsible for carrying out a prescribed series of tasks.

- Select target beneficiary groups from medium and small firms. The number of beneficiaries will depend on funds available. It may be preferable to start with a small pilot group who should receive a complete asssistance program, with the purpose of maximizing each firm's economic viability.

- Select from small-scale enterprises a group to obtain small credits, with technical assistance where appropriate, perhaps covering production methods and quality control, exporting or bookkeeping, and simple management.

- Firm up a program for improving supply, distribution and marketing channels dependent on recommendations laid down in report on Impediments to Economic Development. This may mean creating a new organization, or encouraging private enterprise to handle some or all of these activities.

- The program should be replicable and therefore self-perpetuating, if the project has its own allocated funds and is financially accountable, it should be able to invest its own receipts in continuing and expanding the program.

Institutional Responsibilities

This program should be directly responsible to a Bank, either Bank Indonesia or Bank Rakyat Indonesia, who would also administer the technical assistance program.

Potential Financial Arrangements

Financing will be required from foreign aid sources for technical assistance and from local funds for the credit program.

Beneficiary groups

- Medium scale business

- Small scale enterprises in selected areas and occupations

- Unemployed persons who obtain jobs

- Families whose incomes increase.

Timing

Project would commence FY 1981/82 and program would be ongoing. The first stage, requiring foreign technical assistance, would last 12 months.

The program implemented during FY 1981/82 would follow recommendations in the report on Impediments to Economic Development.

Monitoring

As the program is intended to be continuous one man-months' technical assistance has been put in 1982/83 and 1983/84 for monitoring the project.

Finance

Foreign technical assistance is estimated at Rp.92.5 million to cover 2 middle level foreign experts for one year each and subsequent monitoring (24 man-months).

Total project cost is estimated at Rp.142.5 million and includes a counterpart team of five persons, subsistence for local and foreign persons and internal travel. The foreign assistance costs are estimated as follows:

2 Middle level at US$ 6,000/month for 12 month each	=	US$ 144,000
2 Roundtrips at US$ 2,000	=	4,000
Total	=	US$ 148,000
		Rupiah 92.5 million

APPENDIX A-3

SECTOR : WATER SUPPLY AND SANITATION

A-3.1 TECHNICAL ASSISTANCE TO TIRTANADI AND KOTAMADYA MEDAN IN PLANNING, DESIGN, CONSTRUCTION, AND MANAGEMENT OF WATER SUPPLY AND SANITATION SYSTEMS

PROJECT RANKING: 1

PROJECT COMPONENTS

Engineering design, construction supervision and general technical assistance will be required to implement the first stage investment program.

Water Supply

1. Modification and expansion of Sunggal Water Treatment Plant.

2. Implement groundwater exploration, extraction, and monitoring program. Develop appropriate design criteria and construction methods for local groundwater exploration. Establish operation and maintenance procedures for deep wells.

3. Increase capacity of pump stations, reservoirs and major mains in distribution sytem. Expand local distribution system coverage to include middle and lower income groupsnot presently served.

4. Augment public standpipes and establish shallow well improvement program in coordination with kampung improvement program.

Wastewater

1. Develop local capability to plan, design, construct and operate a wastewater management system. Implement first stage of wastewater system.

2. Augment private latrine improvement program.

Solid Waste

1. Acquire solid waste handling equipment. Preparation of equipment supply specifications, evaluation of tenders and equipment selection.

2. Develop solid waste vehicle maintenance program. Preparation of inventory of existing vehicles and development of repair and replacement program. Preparation of fleet maintenance manual. Train maintenance staff. This program could be extended to include the central vehicle workshop proposed for the city of Medan.

3. Identify, acquire and design solid waste disposal sites.

4. Identify, acquire and design solid waste loading station sites.

5. Monitoring. Review and expand monitoring and control program for the existing solid waste management system including: Sampling, measurement and analytical procedures, operating logs and records, procedures for analysis and evaluation of data, inspection and control procedures, reporting format.

6. Develop program of on-the-job training for local personnel. The program should include training in: Public health aspects of solid wastes management, program planning, procedures for cost effective analyses, vehicle maintenance systems, and solid wastes operations.

Drainage

1. Construct intermediate drainage channels in Kera basin to relieve flooding in low income urban areas.

2. Clear, clean, and dredge, urban area drains.

3. Monitor drainage system operations after initial cleaning to provide performance evaluation and design data for future channel improvements.

4. Develop flood warning and emergency assistance program.

5. Develop system of controls on urban development in flood prone areas.

Supporting Policies

1. The water utility should be designated as a regional company (Perda) in order to improve its loan acquisition capabilities.

2. Tirtanadi should be authorized to collect a surcharge on water customers to support wastewater management system costs incurred by the Kotamadya.

3. A government Institution should be charged with the responsibility of managing wastewater collection and treatment facilities in the city.

Financial Arrangement

Detailed proposals for technical services in connection with the project components should be sought from foreign consulting firms, possibly in association with local consulting firms. Total foreign technical assistance costs for the first stage program for the water supply and sanitation sectors would be approximately Rp.2,500 billion. Local consultant technical assistance would comprise approximately an equal amount. This amount has been included in the overall capital costs for the first stage sectoral programs.

APPENDIX A-4

SECTOR: URBAN LAND RESOURCES DEVELOPMENT

Existing Situation

The land situation in Medan is characterized by rapidly rising prices, an apparent shortage of land for urbanization purposes, complicated and insecure land tenure, and complex land acquisition procedures. Attempts to improve the situation through land registration by the Department of Agraria have been only partially successful due to the length of time required to process applications and the high costs of registration. Furthermore national legislation proposed in 1970 which would have regularized much of the land use and tenure inconsistencies has not been passed. Finally there has been no attempt by the public sector to check land speculation or to recover a portion of the increased value in land prices which have resulted from public investment.

Land Sector Programs

Since many of the constraints in the sector require action by the central government as well as local governments and since other regional cities also suffer from similar problems, a national program should be mounted to study and develop recommendations for improving urban land legislation and for improving the operation of agencies within the sector. This national program would use Medan and its region as a pilot study from which guidelines would be developed to benefit other regional cities in Indonesia.

Two major programs have been proposed for improving the land situation both in Medan and throughout regional cities in Indonesia. A study of land resources and regulations in Medan and North Sumatra, and specific programs for Medan which would improve land use in critical areas of the city.

The first is a phased program with national impacts which would study the present land situation in Medan and its region and would recommend specific actions, legislative, administrative or institutional, for increasing the supply of land at equitable prices. As an output of this study, the feasibility of a Public Land Development Corporation should be studied.

The second program is aimed at improving the land use in specific areas of Medan. The program's impacts would be both regional and urban

in nature. Typical components of this program are development of manufacturing zones for small-and medium-scale industries and relocation of regional warehousing activities.

Financing and Institutional Arrangements

The total costs of the phased study of land resources and regulations are estimated at Rp.316 million. However the first phase of the program, the study itself, would require only Rp.177.2 million and would have a foreign component for technical assistance of Rp.116.9 million, the remainder of the costs would cover the counterpart staff expenses.

Since these programs are of national importance, they would be under the supervision of Cipta Karya. However, for the pilot study, special arrangements should be made to attach the study team to the North Sumatra and Kotamadya Bappedas and Tata Kota.

The second phase of the study would be a detailed feasibility study of a proposed Public Land Development Corporation and would only be performed if recommended by the first phase study team.

The program aimed at improving land use in Medan would be mounted under the auspicies of the Kotamadya Tata Kota. However the costs of feasibility studies necessary for development of alternative sites should be met by private developers and the State Railway.

A-4.1 PROGRAM: TECHNICAL ASSISTANCE IN EVALUATING URBAN LAND RESOURCES AND REGULATIONS IN MEDAN AND NORTH SUMATRA

RANKING: 2

Program Description

The program would analyse existing urban land resources in Medan and North Sumatra as a pilot study of a national program to increase the supply of urban land, control speculation in land prices, improve land and planning controls, and improve land tenure. Since all secondary cities in Indonesia suffer from these land problems, the program would be launched at the national level under Cipta Karya. However a pilot study which would develop guidelines for implementing recommendations of the program in other regional cities would be carried out in Medan.

Program Objectives and Components

- The first major objective of the study is to increase the supply of equitably priced land for public and private uses including housing, transport, industry, public facilities, etc.

- Secondly, it would aim at halting the current land speculation which is hampering Medan's development as well as low income groups access to urban services. In particular, it would seek means of returning a portion of the increase in land values to the public which result from public investment.

- The program would seek to improve land tenure and registration for low income groups.

- It would develop legislative and regulatory measures for improving the supply of land resources such as improved planning and land use controls, improved land tenure and others.

The primary components of the program are to:

- Analyse the existing urban land resources in Medan and North Sumatra by examining land use, market trends regarding land prices, and participants in the land market.

- Analyze national, provincial and Kotamadya legislation and regulations pertaining to land use planning and development controls, zoning and building regulations to determine the impact these have on Medan's development.

- Analyze the agencies and institutions involved in land registration, development controls and land acquisition.

- Develop measures for imporving the performance of the land market such as legislation, development controls and regulations and develop implementation procedures for city government to use in these improved measures.

Institutional and Financial Arrangements

The study would be under the supervision of Cipta Karya, however a pilot study which would develop guidelines for improving land supply conditions in other regional cities should be conducted in Medan and be attached to the Kotamadya Tata Kota.

The total costs of the program are expected to be Rp. 177.2 million of which 66 percent will be required in foreign exchange for senior and middle level foreign experts. The remainder would pay local costs of the project as well as for the services of counterpart staff.

Development Period

The program is expected to require one year to complete. However only the middle level foreign Urban Planner and the counterpart team will be required for the full period. The Senior level land economist will be required for five months, however this time would be interspersed throughout the entire project period.

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Technical Assistance

The program would require the assistance of a senior level foreign Land Economist to analyse land resources and current controls and market conditions effecting land supply. The Land Economist would be required for five months spread over the program duration. To implement recommendations develop during the program, a middle level foreign Urban Planner would be required for the entire 12 months period of the program. The urban planner would also work with other foreign and local experts to develop improved planning and bulding regulations and other development controls.

A senior level foreign architect and an engineer would be required for a total of eight person-months to develop improved building regulations and to work with the planner to develop planning controls.

A middle level foreign legal expert is required for four months to analyze existing land and planning legislation and to work with the other experts in developing improved legislstion and regulatory procedures.

An Indonesian counterpart team of a senior urban planner and middle level architect and engineer are needed to work with the foreign experts. They would also be trained during the program to implement programs.

The budget for the study of land resources and regulations in Medan and North Sumatra is estimated as follows:

Trips	local		P.M.	Rate	Total
4	5	- Land Economist	5	$ 8,000	40,000
1	8	- Planner Urban - Planning Regs	12	5,000	60,000
1	2	- Architect - Building Regs	5	5,000	25,000
1	1	- Engineer - Building Regs	3	5,000	15,000
2	4	- Lawyer Planning and Land legislation	5	6,000	30,000
	20				170,000
Counterparts					
6	8	- Planner	12	1,000	12,000
4	2	- Each	5	1,000	5,000
4	1	- Engineer	5	1,000	5,000
					22,000
		- Typist			3,000
		- Translation			2,000
					197,000

	P.M	Rate	Total
			197,000
Air fare 9 x 2,000			18,000
Local 20 trips x 200			4,000
			22,000
Perdiem - foreign Consultants			39,900
Local Consultants			19,800
Local travel at $ 400/month			4,800
Total			US$ 283,500
			Rp.177.2 million
			66% foreign

A-4.2 TECHNICAL ASSISTANCE IN ESTABLISHING A PUBLIC LAND DEVELOPMENT CORPORATION

RANKING : 2

Project Description

Land Prices in many parts of Medan and other secondary cities throughout Indonesia have increased annually by at least 20 percent. However, in areas affected by public investment in housing or infrastructure, such as Helvetia, Medan II or the Toll Road, land prices in surrounding areas have increased between 400 to 1,000 percent annually due to speculation. These land prices have resulted in a deficit of equitably priced land suitable for public projects and low income groups. Public institutions lack the expertise and legislation to effectively acquire land of public projects in a professional manner and promote orderly development of Medan. Therefore, there is a need to intervene directly in the land market through establishing an institution which would be charged with supplying land at a fair market price for public and private projects in an orderly and consistant manner.

The project would provide expert technical assistance in determining the feasibility of a Public Land Development Corporation and in a second phase, provide assistance in setting up the institution.

Description of Institution

The proposed Public Land Development Corporation would be a public entity with the majority of its shares owned by national, provincial and municipal governments. However, it would also be open to private investment. It would be established at the national level under the supervision of the Ministry of Finance, but operate at the provincial level. Its functions would be to acquire and develop land for public projects and resell land to public agencies and private developers.

The corporation would be allowed to borrow funds from commercial banks at economic rates for working and development capital. It would operate on a commercial basis, purchasing and selling land at a fair market value. Its profits would be used to expand its programs and to provide a source of revenue for the budget.

Program Objectives and Components

The technical assistance team would determine the detailed feasibility of developing a public land development corporation, namely:

- To increase the supply of land for public facilities, residential and industrial uses as needed at prices affordable to the user
- To ensure that part of the land value increases resulting from public investment is returned to the public benefit
- To check rampant land speculation now occurring within urban areas
- To attain orderly urban development at minimal public investment.

There would be two principle components to the technical assistance, the first would be a detailed feasibility study of the corporation which would make recommendations as to its establishment, organization, and necessary legislative and operational regulations. The second component which would occur only upon successful completion of the first would be sustained technical assistance to the corporation in establishing the corporation, selection and training of management and staff, and developing operating procedures.

Financial and Institutional Arrangements

The initial technical assistance team should be under Tata Kota and the Ministry of Finance at the national level, but the bulk of its work should be carried out at the Provincial and Kotamadya levels.

The costs of the detailed feasibility study are estimated at Rp.62 millions of which Rp.42 millions would be required for foreign technical assistance. The second phase, which would involve long term assistance in estimated to cost Rp.139 millions and involve a foreign cost component of Rp.111 millions.

A-4.3 RELOCATION OF RAILWAY SWITCHYARD AND WAREHOUSING

RANKING: 1

Project Description

At present the switchyard occupies a prime area comprising 17.4 hectares in the center of Medan. Most of the present activities surrounding the switchyard are inappropriate for the city center and cause unnecessary congestion. Roughly ten hectares would be reused for facilities more appropriate to the city center, while the remainder should be retained for rail usage.

Project Objectives and Components

Relocation of the warehousing would allow more suitable central city uses in the area to evolve, while bringing warehousing activities closer to production sources. It would also reduce the disruptive effects which the warehouses now have on the city center due to the truck traffic which they generate. Finally the sale of prime city land to private uses would generate revenues which could be used to finance construction of a new switchyard.

The components of the project include the relocation of the switchyard and rail storage area, and the resale or lease of the present switchyard for private development more conducive to the city center.

Financial and Institutional Responsibilities

The State Railways Ltd. in collaboration with the Tata Kota should be responsible for feasibility studies which would find alternative sites for the switchyard and warehousing activities. Development of the existing switchyard would be financed by private developers, however the Tata Kota would be responsible for determining if future development corresponds with overall city development strategy.

Funds for relocating the switchyard would come from the State Railways Ltd. and from revenues generated through sale or lease of the existing switchyard to private developers.

Development Time

Three months should be allowed for the feasibility study, which would be completed in the latter part of FY 1981/82.

The relocation should require four years for completion and be carried over into Repelita IV.

Preliminary Cost of Feasibility Study

Approximately ten man-months are required for the study. Approximate cost of study is estimated as Rp.62 million. The study should be carried out locally, with local technical assistance if

necessary. It is assumed that finance, if required for the cost of study to the State Railway Ltd. would come from foreign loans; repayment would be the responsibility of the state Railway Ltd. The detailed costs are as follows:

	Rate ($/m)	Rate (Rp/m)	Sub-total US $	Sub-total Rp.
1. Consultant Costs				
Foreign experts (2 persons; 4 months @)	8,800	-	70,400	-
Local Counterpart (2 persons @ 4 months)	-	620,000	-	4,960,000
Sub-Total			70,400	4,960,000
2. Travel				
International	2,400 @2	-	4,800	-
MDN-JKT	-	124,000 @2 Trips	-	248,000
Local (MDN)	-	186,000/mos. 4 mos.	-	744,000
Sub-total			4,800	992,000

3. Perdiem ($ 40 @ day for foreign experts in MDN and $65/day in JKT Rp.13,640/day for local counterpart)

JKT	(10 days/expert)	40,300	806,000
MDN	(foreign experts)	24,800	5,456,000
MDN	(local counterpart)	13,640	3,273,600
Sub-total			9,535,600
Grand Total		US$ 75,200 + Rp.15,487,600 (Rp.62 million)	

A-4.4 DEVELOPMENT PROGRAM FOR MANUFACTURING ZONE

RANKING : 2

Project Description

The acquisition and development during Repelita III of a 20 hectare site for the location of manufacturing workshops suited to the needs of medium and small scale industry.

Specific Objectives

To develop a workplace close to Medan III, so as to provide employment opportunities for some of the 11,000 labor force likely to be resident there. Locating a work zone close to Medan III will enable employees to save travel time and expense.

Institutional Responsibilities

Although further study is required, it is anticipated that two agencies might possibly be involved. One, to be responsible for purchase and development, - say Public Works or Perumnas, and a separate one to be responsible for sale, leasing and operation and management of the site. The latter might be undertaken by the municipality in conjunction with operating markets. Financial responsibilities for providing individual industrial loans could be extended to BAPINDO (Indonesia Development Bank) and/or Bank Bumi Daya (BBD).

Potential Financial Arrangement

The cost of land acquisition and development is estimated at some Rp.760 million. Finance would be sought from local and foreign sources. As regards financial arrangements for the individual units, flexibility in arrangements is important so that the small enterprises are not discriminated against. Arrangements should be made therefore both to lease and sell plots. In either case, the price charged should fully reflect the cost of the developed land and services.

Development Time

Land acquisition should be made in FY 1980/81, and development should be undertaken and completed in FY 1982/83 when the first stage of housing project is completed. Table 1 shown the estimated costs of the total development project.

TABLE A-4.1

ESTIMATED COSTS: DEVELOPMENT PROGRAM FOR MANUFACTURING ZONE
(IN MILLION RUPIAH)

	1979/80			1980/81			1981/82			1982/83			1983/84			Total		
	FX	LC	TC	FX	LC	TC	FX	LC	TC	FX	LC	TC	FX	LC	TC	FX	LC	TC
Components																		
Land Acquisition Costs (1,300 Rp/m^2)	-	-	-	-	260	260	-	-	-	-	-	-	-	-	-	-	260	260
Land Development Costs (2,500 Rp/m^2)	-	-	-	-	-	-	-	-	-	150	350	500	-	-	-	-	350	500
Sub-total	-	-	-	-	260	260	-	-	-	150	350	500	-	-	-	150	610	760
Eng. Design (15% of development cost)	-	-	-	-	-	-	-	-	-	22.5	52.5	75	-	-	-	22.5	52.5	75
Contingency (15% of sub total)	-	-	-	-	39	39	-	-	-	22.5	52.5	75	-	-	-	22.5	91.5	114
Total	-	-	-	-	299	299	-	-	-	195	455	650	-	-	-	195	754	949

APPENDIX A-5

SECTOR : HOUSING

Existing Situation

Housing conditions in Medan are generally in a deteriorated condition due to the high costs of construction, the lack of adequate water supplies and sanitation, the lack of access, complicated land tenure and the lack of adequate new housing to cater for population growth and replace deteriorated housing. Furthermore, present government programs in Medan have only served government workers.

If no action is taken to ameliorate the situation during Repelita III, an estimated 1.1 million persons will be living in badly deteriorated housing by the end of the period. However under current financial and institutional capabilities it is not possible to serve that entire group by the end of Repelita III. Therefore housing sector programs aim at serving those with greatest needs, i.e., the lowest income groups; and are designed to establish a firm institutional and financial foundation from which ongoing public and private sector programs can meet those requirements by 1996.

Housing Sector Targets and Programs

Three major housing sector programs have been proposed: Kampung Improvement Program; Sites and Services Low Cost Housing, and increased support of the private sector housing. During Repelita III, the first two programs will benefit 170,000 low income persons through improved housing conditions within existing kampungs and through construction of new sites and services low cost housing projects. The latter program would study impediments to increased private sector housing.

By 1996, roughly 840,000 persons will have benefited from various public sector programs.

Financing of Housing Sector Programs

The combined cost of the Repelita III Kampung Improvement Program and the Sites and Services Programs are estimated at Rp.12,394 million in 1980 prices, of which roughly 20 percent will be accounted by foreign costs. Financing from foreign lenders will be sought for all of the foreign costs. The remainder of the costs will be met by the Central Government through Cipta Karya, the Provincial and Kotamadya budgets, and Perumnas.

The full financing details are presented in the individual program descriptions in Volume IV: The Housing Development Program Report.

Technical Assistance

Two forms of technical assistance are necessary for implementation of housing sector programs: engineering design and supervision consisting of foreign and local consulting expertise and a small team of foreign and local housing experts to recommend methods of improving the delivery of private sector housing.

The KIP Program Coordinator would coordinate the activities of the various agencies involved in the physical and socio-economic components of the KIP program and would train a small counterpart team. The total costs of local KIP program management staff over four years is estimated of Rp.205.2 million while the one year technical assistance program is estimated to be Rp.175.0 million.

Both of the above technical assistance packages are given priority ranking, since without them, the basic housing sector programs cannot be achieved. The private sector housing study team is given a ranking of three (3) since its immediate benefits would accrue to small groups compared with KIP or sites and services low cost housing programs.

A-5.1 KAMPUNG IMPROVEMENT PROGRAM (KIP)

RANKING: PRIORITY

Project Description

The Medan KIP is a combined physical and socio-economic program aimed at improving approximately 350 hectares of Medan's predominantly low income kampungs during Repelita III.

The Program's Objectives and Components

- Improve the living conditions of the poorest 20 percent of the Kotamadya's population
- Stimulate additional development activities within and outside the designated KIP areas
- Provide a large number of households with minimal essential physical and socio-economic services

Its major components are physical and socio-economic. The physical components are part of a city-wide civil works program, while the socio-economic components are viewed as pilot programs for possible city-wide programs.

Physical

- Land Acquisition
- Civil Works (roads, footpaths, drainage and solid waste)
- Health and Education Facilities

Socio-Economic

- Public Health Care
- Adult Education
- Vocational Training
- Credit to Small-Scale Industry

Program Beneficiaries

- Direct benefits will accrue to the KIP target population, namely those households with incomes below the 50th percentile
- Indirect benefits will accrue to the entire city through environmental improvement, reduced health hazards, and increased educational standards and skills

Possible Negative Impacts

The present financing package may not be large enough to have a significant impact on the target households.

Preliminary Program Cost Estimates

The total program estimates, including water supply and sanitation components, are Rp.2,850 million in 1980 costs. This includes all engineering design and supervision by local and foreign consultants. In addition, it is recommended that three staff consultants be contracted for a total of one year each during the implementation period of the project. These three consultants would work closely with the proposed KIP Unit Divisions (Physical Development, Social and Economic Development, and Finance/Administrative).

The total cost of local staff program management is Rp.205.2 million, with the cost of the staff consultants amounting to an additional Rp.175.0 million.

Development Period

The program is assumed to begin during FY 1980/81 with the first stage of the KIP program scheduled for completion during Repelita III. Later stages will be completed by 1996.

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A-5.2 PERUMNAS SITES AND SERVICES LOW COST HOUSING MEDAN III

RANKING : 1

Program Description

The project would develop 160 hectares of unutilized agricultural land alongside km 10 of the Brastagi Road and provide 8,400 low to middle income housing units with supporting social and community facilities.

Specific Objectives

- The project aims at meeting a portion of the effective demand for housing represented by low income groups in Medan
- It would, for the first time in Medan, provide publicly assisted housing to both public and private groups and would seek repayment procedures which could serve individual borrowers
- All costs of the project would be met directly by project beneficiaries or through internal cross subsidies involving transfers from upper and middle income groups to lower income groups within the project

Supporting Policies

- Housing agencies such as Perumnas and BTN must develop new procedures for providing the bulk of their housing to the private market on an individual basis
- Perumnas must adopt a policy of full cost recovery within its projects
- Additional employment opportunities must be developed close to the site

Institutional Responsibilities

- Perumnas will be responsible for site acquition, development and post construction management
- BTN/Perumnas will be responsible for providing mortgage loans to beneficiary households and selection of project beneficiaries
- The Kotamadya will develop access roads and bridges and provide schools and health clinics
- PAM Tirtanadi and PLN will provide water supplies and electricity

Beneficiary Groups

Low income households having monthly income ranging from the 10th through the 85th percentile of incomes will benefit from the project.

Potential Negative Impacts

Due to the distance from employment centers, transportation costs may become a burden to low income households. This may be overcome through developing bus and bemo lines to the site and through location of employment near to the site.

Development Time

Site acquisition, development and post construction management is envisioned to require three years starting FY 1980/81.

A-5.3 STIMULATING PRIVATE SECTOR HOUSING

PROJECT RANKING : 3

Program Description

Due to the large unsatisfied effective demand for housing which will not be met by public sector housing activities, a program should be initiated to increase private sector investment in housing and develop methods of providing comprehensive financing for private sector housing.

Program Components

The primary components of the program should be developing simplified procedures for middle and higher income housing development as well as low income housing needs not served by public housing, developing financial and banking systems which would provide housing finance for all aspects of housing, improving systems of housing construction finance, improving rental housing, and providing home improvement loans.

Specific Objectives

To meet the effective demand for housing represented by middle and upper income groups. In addition, the project would provide finance for complete housing packages, as well as rental housing, it would also assist home owners to improve existing housing. Finally, the program would balance available resources in the housing market among all groups requiring housing, as well as seek methods of increasing those resources.

Supporting Policies

Full recovery of all costs, financial and economic, must be established as an initial policy of the program. Secondly, a policy of financing total housing costs must be established to provide finance for all phases of the project.

Institutional Responsibilities

The BTN is likely to be the bank primarily responsible for providing housing finance; however, since its assests are limited, other institutions should also be studied as potential sources of housing finance.

Potential Financial Arrangements

Since the only source of housing finance now is funds from the Bank of Indonesia at consessionary terms, the program should study ways of increasing housing finance through savings schemes, special taxes and other methods.

Pertinent Legislation

The program would study current legislation pertinent to housing and make legislative recommendations where necessary for improving that legislation.

Beneficiary Groups

The program is initially aimed at benefiting middle and upper income groups, but it would also benefit lower income groups through providing finance for rental housing as well as direct financial support of low income housing projects.

Potential Negative Impacts

The major negative impact may result from too much of the available financial resources being devoted to middle and upper income housing. Therefore the program will have to ensure that adequate financial resources are available to low income groups, as well as seek methods of increasing the sector's total financial resources.

Development Time

The total program development time should not exceed six months. The program is estimated to begin in FY 1983/84 for implementation in Repelita IV.

Technical Assistance Required

The program will require assistance in mobilizing funds for private sector housing, program development, tentatively estimated at foreign technical assistance Rp.20 million and local technical assistance Rp.6 million at 1980 prices.

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APPENDIX A-6

SECTOR : TRANSPORT

Existing Situation

The general state of transport infrastructure in Medan is below the comparable cities in Indonesia, especially in the central area. The roads in Medan's central area are in a deplorable state due to inadequate road provision, poor maintenance, numerous railway grade crossings, and the existing road network pattern which directs all regional traffic to Belawan Port and Polonia Airport through the city centre. The physical situation is further confused by cumbersome traffic management consisting of one-way streets and on-street car parking, non-operational traffic control facilities and the erratic movement of vehicles. As a result there is a general stagnation of traffic movement in the central area during peak hours. The function and growth potentials of the central activities in Medan serving the whole region have, therefore, been grossly impeded and road safety jeopardized.

During Repelita III, the development of major regional transportation facilities, (i.e., the Belawan Port, Toll Road, Trans-Sumatra Highway. North Sumatra Railway and Polonia Airport) will be carried out or will be studied. Their impacts will significantly influence the urban development of Medan and its region beyond the current Repelita. Thus, the main needs of transport infrastructure are a series of comprehensive improvement programs for the existing road networks and new road development, both of which immediately address the problems of traffic congestion and road safety.

Programs

The following programs are deemed conducive to urban development objectives to be pursued by the Distributed Investment Strategy Plan (DISP).

1. Improvement of Existing Roads within the City to increase the traffic carrying capacity of existing roads, especially in the major urbanized area. Typical components of the program are road and bridge widening, rehabilitation and extension of asphalt pavement, sidewalk paving, and vegetation clearing and road shoulder leveling. This project should be under-taken in combination with drainage and traffic control facilities improvement projects. Impact of this project will be at regional and urban levels.

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2. Improvement of Traffic Control Facilities to increase road safety and improve traffic flow speed in Medan's central area. Typical components are pavement markings, traffic signs, signals and railway crossing gates improvement. This project's impact will be urban.

3. Development of Public Transport Facilities to increase the accessibility of central facilities and work places. Typical components are development of bus/bemo terminals and stops, reorganization of bemo service routes and extension of bus service area, and purchase of buses. This project will benefit all the population in Medan and its region, especially the low income segment.

4. Development of New Roads to immediately improve the traffic congestion in the central area and to improve the accessibility of Belawan Port and Trans-Sumatra Highway from Brastagi and Binjei. Typical components are feasibility studies, land acquisition, engineering design and construction. This project's impact will be regional.

5. Metered Taxi Service Study to develop methods of introducing metered taxi service in Medan to meet the growing need of business community and to complement the public transport service for the upper income segment of the population in the city. Impact of this project will be mainly at the urban level.

Financing and Institutional Arrangements

The total cost of these five programs is Rp.12,806.5 million, of which foreign component for technical assistance and equipment is Rp.3,734 millions. The cost will be financed from the national, regional and kota government funds, national enterprises, and private operators. Institutional responsibilities for execution will be primarily assumed by the Kotamadya, especially Planning, Public Works, Transportation and Police departments.

A-6.1 IMPROVEMENT OF EXISTING ROADS WITHIN MEDAN CITY

RANK : 1

Program Description

Improving the existing condition of all roads in the major urbanized area and of principal roads in the out-lying areas. This program would be undertaken through execution of a series of projects and in four stages. Name, rank in execution, stages, and effect level of impact of each sub-project are shown as follow:

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Project	Stage	Level of impact
1. City Center and Regional Accesses	1st	National/regional
2. Medan South-East (Deli river to eastern railway)	2nd	Urban
3. Medan North-east (eastern railway to Deli River)	3rd	Urban
4. Medan West (west of Deli River)	4th	Urban
5. Belawan Area	1st	National/regional

This project should be undertaken in conjunction with other MUDS proposed improvement projects (i.e., traffic control facilities water supply, drainage facilities and solid waste collection service).

Project Components

Project components will primarily encompass the following:

- Widening roads and bridges: Jln. Prof. Yamin (Jln. Jati to Toll Road interchange) and Jln. Denai to 16 metres from existing 8 meters, and three bridges over Deli River and two over Babura River (Jln. P.Merah, Jln. Jen.Sudirman, Jln. Perdana, Jln. Arifin and Jln. R.Saleh) to the same dimensions as their respective approaches, so as to eliminate traffic 'bottle-necks' on roads

- Extension and rehabilitation of asphalt pavement in the right of way

- Sidewalk paving on commercial streets and on Jln. S.M.Raja (city center to Medan Super Market section)

- Vegetation clearing and leveling on road shoulders.

Institutional Arrangements

City Public Works Department will have the prime responsibility for the project execution with assistanceof Planning Department, and for road and bridge maintenance, and should be responsible for coordinating road digging with public undertakers. City Park, Cleaning and B utification Department is responsible for road sweeping and garbage collection service.

Project Costs

Total cost of the project: Rp.3,120 millions, of which local currency cost Rp.2,020 millions (65%) and foreign exchange cost Rp.1,100 millions (35%).

A-6.2 IMPROVEMENT OF TRAFFIC CONTROL FACILITIES

RANK : 2

Project Description and Components

The project would improve the working condition of the existing traffic control divices on main roads, at intersections and railway grade crossings, especially in Medan's central area. The devices include pavement markings, traffic signs, traffic signals, and railway crossing gates. Improvement will be made through painting pavement markings and traffic signs, installing new machinery and lights for traffic signals and development of more durable and secure manually operated crossing gates. This project should be undertaken in combination with the Road Improvement Program, specific problem areas are detailed in Table A-6.1.

Project Objectives

To improve road safety by regulating traffic flows of pedestrian and vehicles and to increase traffic movement speed in the central area. Impact of the project will be at the urban level.

Supporting Policies

A policy regarding traffic regulation enforcement and traffic safety education should be formulated. In addition, the phasing of traffic signals should be programmed stablize the speed of vehicle traffic in the central area.

Institutional Responsibilities

The Transportation Section of Public Order Sub-directorate of the Kotamadya is primarily responsible for the project execution with assistance of City Planning Department, Police Department is responsible for traffic regulation enforcement and road construction safety measures inspection. Traffic safety education program should be jointly developed by Education, Public Order and Police departments with technical assistance from the Ministry of Communications and implemented in schools and on the local mass media. The State Railway Limited is responsible for the development and operation of crossing gates.

TABLE A-6.1

SITUATION AND CONDITION OF INTERSECTIONS

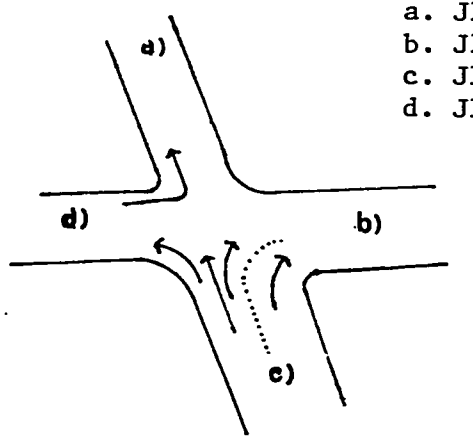
Intersections	Name of Legs or Approaches	Situation/Condition	Suggestion for Solution
 all approaches completed with sidewalks	a. Jl.Achmad Yani b. Jl.Haryono MT c. Jl.Pemuda d. Jl.Palang Merah	• on c) approach (Jl. Pemuda), traffic flow has already divided for each direction but traffic jam still often occurs - condition of traffic flow at this intersection is fair. • no parking facility, vehicles parked on sidewalk, reducing the sidewalk space for pedestrian. • on a) approach (Jl.A.Yani), parking area has already arranged. • mixed traffic flow (all kinds of vehicles), except non-motorized beca for passenger. • no lane distribution for each direction.	• parking should not be allowed on all approaches during peak hours. • provide lane marking for distributing and guiding traffic flow into each direction. • provide special lane for low speed vehicles such as motorcycle, motorized beca; prepared free area from non-motorized beca for goods.

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TABLE A-6.1--Continued

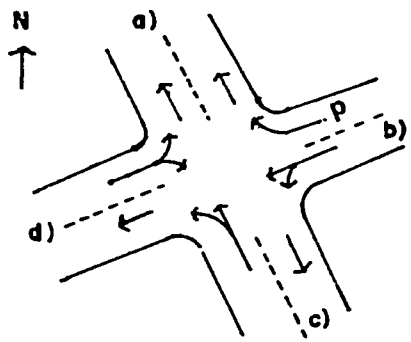
Intersections	Name of Legs or Approaches	Situation/Condition	Suggestion for Solution
 every approach completed with sidewalk	a. Jl.Pemuda b. Jl.Pandu c. Jl.Katamso d. Jl.Suprapto/ Jl.Sudirman	• mixed traffic (all kinds of vehicles); no certain lane for low speed vehicles. • on a) approach and c) approach permissible to cross median, therefore causes traffic jam on those approaches; this condition causes decreasing intersection capacity.	• on c) approach, no permission to cross median. • rearrangement about location of lane shifting on a) approach. • provide lane marking/road marking.
		• on a) approach it occurs weaving movement.	• provide special lane for low speed vehicles.
		• traffic signal operation: 1st ph 2nd ph 3rd ph b) to a) always permitted d) to a) always permitted	• prepare for free area from non-motorized beca for goods.
		• on d) approach traffic jam always occurs, becaused of the two way system and that the width of bridge, about 200 m from intersection, is insufficient to receive high traffic volume.	

TABLE A-6.1--Continued

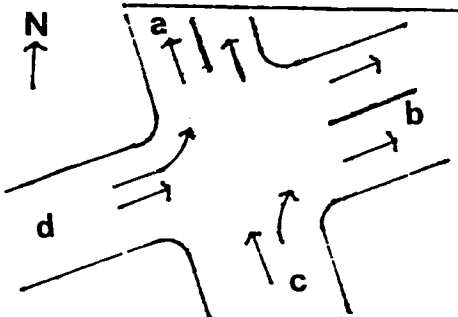
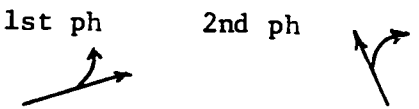
Intersections	Name of Legs or Approaches	Situation/Condition	Suggestion for Solution
 every approah with sidewalk completed	a. Jl.Sutomo (a) b. Jl.Haryono MT (r) c. Jl.Sutomo (b) d. Jl.Haryono MT(1)	• mixed traffic, except non-motorized beca for passengers. • on a) approach, sidewalk used by trade activity, causing disturbance to sight clearance and traffic flow. • also sidewalk used by vehicle parking. • traffic signal operation: 1st ph 2nd ph  d) to a) always permitted • trucks which are stopping and loading/unloading along d) approach, causes reducing road space and hence disturbing to the traffic flow. Also, their activities occupy sidewalk.	• parking should not be allowed on all approaches during peak hours. • provide special lane for low speed vehicles. • provide lane marking for distributing and guiding traffic flow into each direction. • prepare for free area from non-motorized beca for goods. • prepare for regulation about trucks loading/unloading time e.g.: permissible to load/unload after 10:00 p.m.

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TABLE A-6.1--Continued

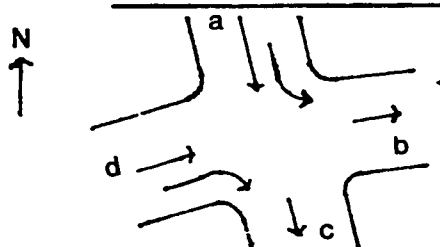
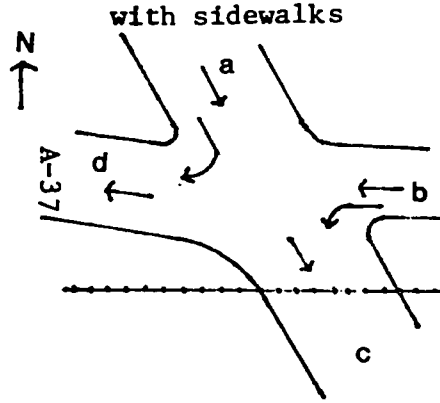
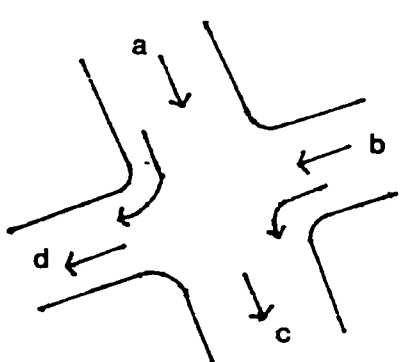
Intersections	Name of Legs or Approaches	Situation/Condition	Suggestion for Solution
 all approaches, except b) approach completed with sidewalks	a. Jl.Thamrin (a) b. Jl.Haryono (r) c. Jl.Thamrin (b) d. Jl.Haryono (l)	• generally, no problem with this intersection, except on b) approach no sidewalk provided, and the width of road narrower than d) approach, it may cause low travel speed.	• widening of b) approach, and providing sidewalk.
	a. Jl.Thamrin (a) b. Jl.Wahidin c. Jl.Thamrin (b) d. Jl.Merbabu	• intersection nearby railway crossing. • mixed traffic. • only Jl. Thamrin completed with sidewalk. • d) approach (Jl. Merbabu) is too narrow to receive traffic flow with high volume coming from a) approach and b) approach.	• widening of d) approach. • traffic signal operation on this intersection, must be coordinated with railway gate operation. • provide lane marking for distributing and guiding traffic flow into each direction. • provide special lane for low speed vehicles.
	a. Jl.Thamrin (a) b. Jl.Asia (r) c. Jl.Thamrin (b) d. Jl.Asia (l)	• no traffic signal. • mixed traffic • b) and d) approaches are too narrow to receive traffic flow with high volume. • no parking arrangement on b) and d) approaches, vehicles parking on sidewalk.	• provide traffic signal on this intersection. • widening of b) and d) approaches. • rearrangement about parking system on b) and d) approaches. • provide lane marking. • provide special lane for low speed vehicles.

TABLE A-6.1--Continued

Intersections	Name of Legs or Approaches	Situation/Condition	Suggestion for Solution
	a. Jl.Sutomo (a) b. Jl.Asia c. Jl.Sutomo (b) d. Jl.Kapuas e. Jl.Pandu	• intersection nearby railway crossing. • mixed traffic, except non-motorized beca for passenger. • b) approach is too narrow.	• traffic signal on this intersection must be coordinated with railway gate operation. • widening of b) approach. • provide lane marking for distributing and guiding traffic flow. • provide special lane for low speed vehicles. • rearrangement about parking system.

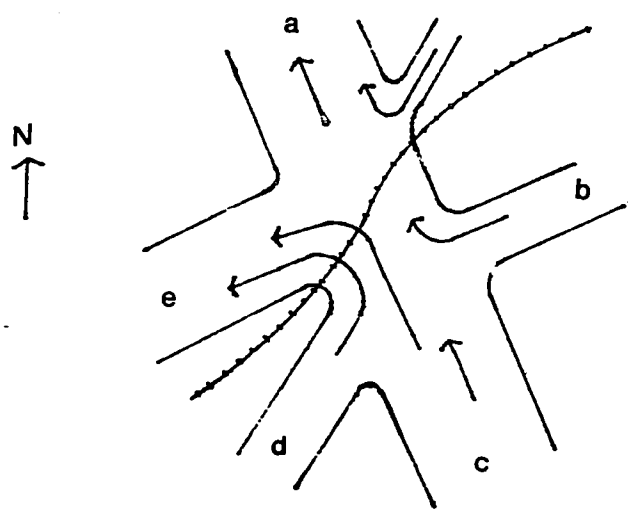


TABLE A-6.1--Continued

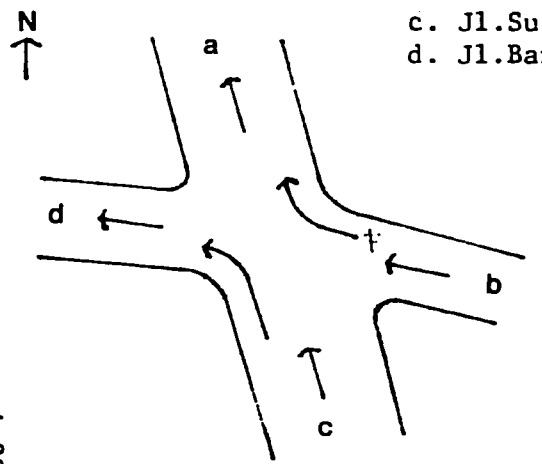
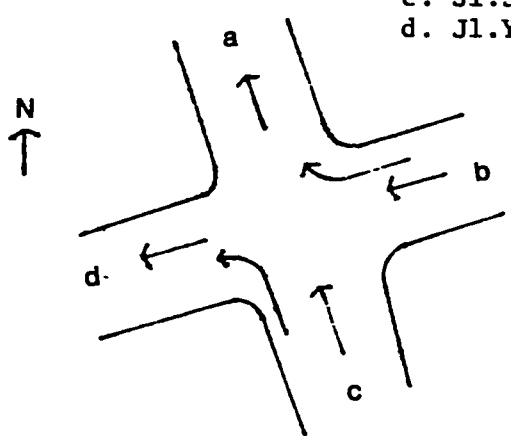
Intersections	Name of Legs or Approaches	Situation/Condition	Suggestion for Solution
	a. Jl.Sutomo (a) b. Jl.Merbabu c. Jl.Sutomo (b) d. Jl.Bandung	• b) approach is too narrow to receive traffic flow with high volume. • mixed traffic, except non-motorized beca for passenger. • no parking arrangement. • traffic signal operation illustrated as below: 1st ph 2nd ph b) to a) always permitted	• widening of b) approach. • rearrangement about parking system surrounding this intersection. • provide lane marking. • prepare for free area from non-motorized beca for goods. • provide special lane for low speed vehicles.
	a. Jl.Sutomo (a) b. Jl.Yamin (r) c. Jl.Sutomo (b) d. Jl.Yamin (l)	• mixed traffic except non-motorized beca for passenger. • no sidewalk on b) approach. • very wide sidewalk on d) approach because of its function for pedestrian walking also as parking area. • traffic signal operation: 1st ph 2nd ph c) to d) always permitted • a) approach is narrower than c) approach.	• widening of b) approach and providing of sidewalk. • widening of a) approach. • provide lane marking. • provide special lane for low speed vehicles. • prepare for free area from non-motorized beca for goods.

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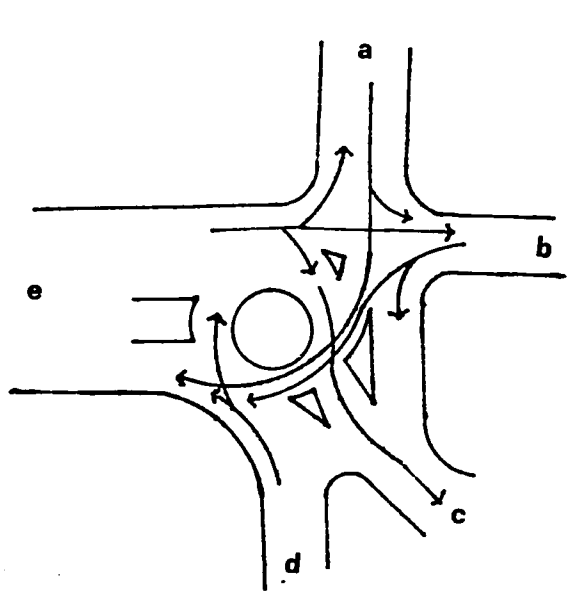
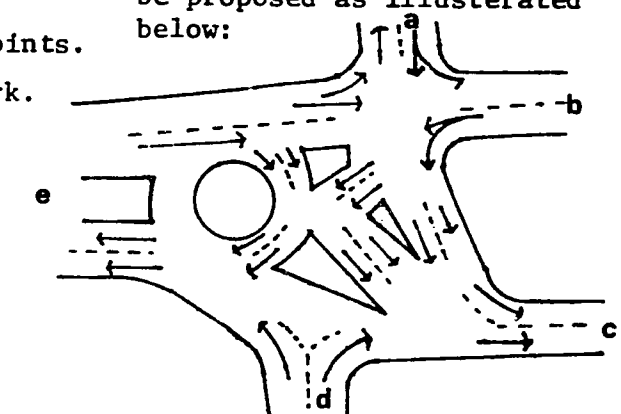
TABLE A-6.1--Continued

Intersections	Name of Legs or Approaches	Situation/Condition	Suggestion for Solution
	a. Jl.Glugur by pass (a) b. Jl.Patimpus c. Jl.Gatot Subroto (r) d. Jl.Glugur by pass (b) e. Jl.Gator Subroto (l)	• mixed traffic, including motorized beca, either for goods or passengers. • complicated traffic flow causes several conflict points. • traffic signal, out of work.	• according to ITB's study for traffic management, traffic system on this intersection be proposed as illusterated below:





- improvement for traffic signal with perfect system/operation.
- provide lane marking.
- prepare for free area from non-motorized beca either for goods or passenger.
- improvement for road islands.

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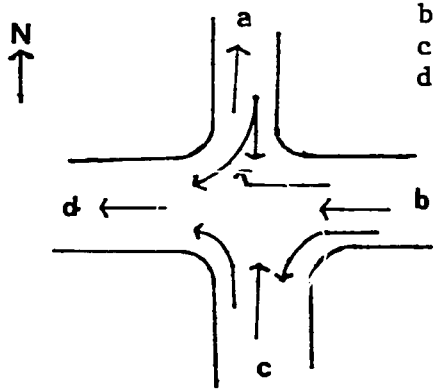
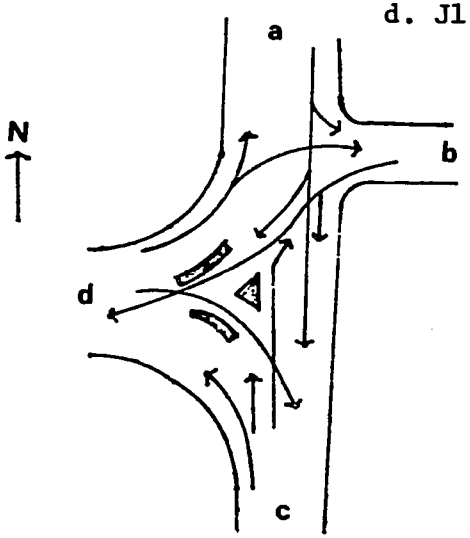
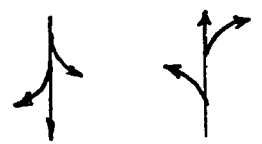
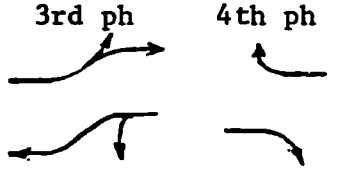
TABLE A-6.1--Continued

Intersections	Name of Legs or Approaches	Situation/Condition	Suggestion for Solution
	a. Jl.S. Parman (a) b. Jl.Z. Arifin (r) c. Jl.S. Parman (b) d. Jl.Z. Arifin (l)	• mixed traffic. • no sidewalk on every approach. • a) approach is narrower than c) approach. • traffic signal operation: 1st ph 2nd ph 	• widening of a) approach. • provide lane marking.
	a. Jl.S. Parman b. Jl.Sudirman c. Jl.Pattimura d. Jl.Abdulah Lubis	• mixed traffic. • no sidewalk on every approach. • traffic confusion caused by no signal operation of traffic.	• improvement for traffic signal with perfect system/ operation. • provide lane marking. • improvement for road islands. • signal phase proposed: 1st ph 2nd ph  3rd ph 4th ph 

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Project Costs

The total cost of this project is shown on the following table:

Item	(in million Rp.)		
	Total Cost	Foreign Exchange	Local Currency
Pavement Markings	689.3	247.1	422.1
Traffic Signs	137.8	49.3	88.9
Traffic Signals	689.3	247.1	442.1
Railway Crossing Gates	76.6	27.5	48.9
Total	1,593.0	571.0	1,022.0

A-6.3 DEVELOPMENT OF NEW ROADS

RANK : 2

Project Description

Development of the following roads including necessary bridges, which are proposed in Medan Master Plan.

1. Southern Intermediate Ring Road
2. Gelugur Intermediate Ring Road
3. Southern Outer Ring Road
4. Northwestern Outer Ring Road
5. Connector Road to Toll Road in Medan Deli

The impacts of the road development will be realized at national/ regional and urban levels.

Development of the intermediate ring roads will immediately improve the deplorable condition of traffic congestion in Medan by removing regional traffic from the city center. The development of the other three roads serves to link up regional accesses with major national/

regional transportation facilities, i.e., Trans-Sumatra Highway and Belawan Port. In addition, the development of the outer ring roads will also open up new land in the out-lying area of the city for urban use.

Supporting Policies

The provincial government should allocate a portion of its Road Fund to the Kotamadya to finance the cost of land acquisition and development, and Bina Marga should commit financing for the development cost of outer ring roads. A complementary action should be immediately undertaken by the Kotamadya in conjunction with PERUMNAS to relocate households affected by the project.

Institutional Responsibilities

The Kotamadya is responsible for land acquisition including compensation to those affected households for all of these roads and financing development costs for toll road connector and intermediate ring roads. Bina Marga is to finance the development cost for outer ring roads.

Project Costs

The total cost of this project will be Rp.3,694.4 millions.

Development Time

This project should be implemented in two phases. The first is the two sections of intermediate ring-road and developed during the fiscal years of 1981 to 1983. The second will be the remaining three roads and developed during the fiscal years of 1982 to 1984.

A-6.4 DEVELOPMENT OF PUBLIC TRANSPORT FACILITIES

RANK : 1

Project Description

Development of public transport facilities, i.e., bus/bemo stops and terminals, and improving the service level of public transport in the Medan region.

Project Objectives

To increase the existing service level of public transport for all of the population, particularly the low income segment in Medan and its region, at least cost to the government and transport operators. The impact of this project will be at both regional and urban levels.

Project Components

Project components are:

- Development of three regional bus terminals on the sites designated on Medan Master Plan
- Development of 200 bus stops and shlters thereon
- Relocate bemo terminal from Central Market to out-lying areas
- Increase the area served by bus system and reorganize bemo and sudaco service routes
- Increasing fleet size, especially of buses.

Supporting Policies

An integrated and coordinated public transport policy for the city should be developed.

Institutional Responsibilities

The city public transport policy and locations of bemo terminals and bus stops should be jointly developed and decided by Transportation Section of Public Order Sub-directorate, Planning and Public Works departments of the Kotamadya. Development and maintenance of the bemo terminals and bus stops including shelters thereon will be the responsibility of the transport operators. The right of land use for bus stops and shelters should be granted by the Kotamadya. The provincial government is responsible for the development of these regional bus terminals. Purchase, operation and maintenance of transport vehicles will be the responsibility of transport operators.

Project Costs

Total development cost for this project is estimated at Rp. 4,387 millions.

- Three regional bus terminals: 2,038.1 millions Rp, will be financed by sales of the existing sites and by the provincial government
- Bemo terminals : 253.5 millions Rp.
- Bus stops and shelters : 61.3 millions Rp.
- Buses purchase (50 buses a three years) : 1,725.0 millions Rp. all of these costs will be financed jointly by the public transport operators.
- Traffic management : 309.2 millions Rp.

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Development Time

The three regional bus terminals would be developed by the provincial government in FY 1979/80, development will be expected to complete by FY 1981/82. Bemo terminal relocation and bus stops development (including shelters) should be undertaken in FY 1982/83. Bus purchase should be carried out as part of on-going program of the transport operators with government incentives provided to stimulate the expansion of existing stock.

A-6.5 METERED TAXI SERVICE STUDY

RANK : 2

Project Description

The project would determine the preferred method for introducing a metered taxi service system in Medan to provide personal transport service to meet growing need of business community at reasonable fare and service levels. The project's impact will be mainly urban in nature.

Project Components

Project components are similar to the study for Jakarta taxi service and should include the determination of: future demand for metered taxi service and suitable size of fleet; pricing policy and rate structure; operation area and locations of taxi stops in central area; operational policy; policy for licensing taxi cabs and drivers; possible public financial assistance to encourage beca drivers to become taxi drivers and to purchase taxi cabs; stages for phasing out becas in the city; and pertinent legislation required for administration on operation. Given the narrow streets in the city center, this study should also incorporate examination and recommendation on the existing on-street car parking policy in the city center.

Institutional Responsibilities

A special committee composed of members from Transportation Section in Public Order Sub-directorate, Planning Department and Police of the Kotamadya should be formed to assess study requirements and its implementation. Regulation of taxi drivers would be entrusted them to the Ministry of Communications or Dalam Negeri.

Potential Financial Arrangements

A special fund should be prepared from the city budget to finance the study cost. The study cost is estimated at Rp.3.0 millions.

Development Time

If the study is integrated within the public transport study, it will be undertaken in FY 1979/80, if it is considered separately, then it should be undertaken in FY 1982/83.

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APPENDIX A-7

SECTOR : HEALTH

Existing Situation

Although the spending on health programs has increased during Repelita III, there is little indication that there was much improvement in the health situation. The most commonly reported diseases seem to be increasing, while the basic disease patterns did not change. Furthermore, there is a critical lack of lower level health personnel, while at the same time the health system is unable to absorb all of the doctors which are educated at the University of North Sumatra. Finally, due in part to a lack of land, the health system has been unable to expand its facilities.

Health Sector Programs

Three major health programs have been developed to strengthen the City Health Office's capacity to provide health services in Medan:

- Technical assistance to the City Health Office in program analysis and planning
- A pilot program for community workers in KIP areas
- Assistance in improving the City Health Office's communications and referral services.

These three programs are an initial, but comprehensive, approach to the city's health problems. They are aimed at providing a better analytical framework for programming health care, providing necessary lower level health care aimed at the needs of lower income groups, and strengthening the city's present tiered health system.

Institutional and Financial Arrangements

The Medan City Health Office would be primarily responsible for the program's operation. However, since expert technical assistance provided to the City Health Office would aim at developing guidelines which could be used in other secondary cities in Indonesia, the central government should also be directly involved in the program. The costs of the program are shown separately in each of the project descriptions. The total costs of all projects proposed for implementation during Repelita III are Rp.568.9 millions.

A-7.1 TECHNICAL ASSISTANCE TO THE MEDAN CITY HEALTH OFFICE IN PROGRAM ANALYSIS AND PLANNING

RANKING: 1

Program Description

Assessment of the health situation in Medan shows that there are gaps at all levels in the supply of health services. However, the primary cause of these deficiencies appears to lie in the process of health planning and programming. Thus, there is an urgent need to strengthen the City Health Office's planning and programming capacity, particularly as regards the analysis of services provided for lower income groups and the development of lower levels of health services.

The program provides for technical assistance to be given to the City Health Office to meet these needs. Although this program would function at City level, it would have a national impact since the policies which affect health performance in Medan are national. Therefore, the Medan project should be treated as a pilot project, and the guidelines developed for the improvement of health services there applied to other secondary cities.

Program Components

The program would provide the City Health Office with a foreign technical expert with experience in public health and economics. He would evaluate the existing health provisions and assist the office in improving its performance. In particular, the expert would:

- Evaluate the existing health program of the City Health Office, assess its effectiveness and its capacity for improvement.
- Evaluate existing health facilities in the city and make recommendations regarding their adequacy and requirements for improvement and expansion.
- Evaluate the City Health office's budget and recommend measures for improving the utilization of existing resources as well as measures required to generate additional revenues.
- Evaluate the present health manpower education situation, focussing on the need to educate and train health personnel at the lower levels.
- Evaluate the present system of health regulations, with especial regard for the way the system currently constrains the Health Office's ability to attract lower level health personnel, and to perform its health functions.

- Recommend and develop implementation procedures for an effective short and medium term health program which would become the basis of a long term health strategy at Medan. In particular, the plan should focus on the development of health planning and programming, management of the health system, analysis and projection of health budget requirements, and recommendations regarding health regulations and actions which need to be taken at local, provincial and national levels in order to improve the health system.

Institutional and Financial Arrangements

The Ministry of Health would be responsible for liaision with international agencies to obtain the technical assistance required under the program, although the expert would be attached to the Medan City Health Office.

It is estimated that the total cost of the program would be Rp.50.6 millions including professional fees, travel and other costs incurred in carrying out the project. The cost of foreign technical assistance is estimated at Rp.41.0 millions.

It is expected that the services of a senior Public Health/ Economics foreign expert would be required for six months. In addition, two local City Health Officers would be required to assist the foreign adviser.

Development Time

The foreign technical assistance should be programmed to start in FY 1980/81.

A-7.2 STRENGTHENING THE MEDAN CITY HEALTH OFFICE'S COMMUNICATIONS AND RURAL SERVICES

RANKING : 2

Project Description

In order for the Medan City Health Office to improve its health services, particularly for low income groups, it is necessary for lower level health facilities to communicate with higher level facilities and where necessary refer more serious cases to facilities where patients can receive more sophisticated health care. To do so, the Medan City Health Office's communication and referral systems must be strengthened as well as linked to existing health facilities which lack communications systems.

Project Objectives and Components

The primary objective of the project is to link lower level health facilities with higher level facilities so that both can be utilized more effectively and health services, particularly for low

income groups, can be provided more thoroughly and economically. The project has the following components:

- Purchase of 11 ambulances to serve existing public hospitals, Puskesmas and other public health facilities
- The purchase of 11 Mobile Health Units to serve each kecamatan in Medan
- The installation of telephones in 22 existing Puskesmas.

Institutional and Financial Arrangements

The Medan City Health Office will be responsible for managing all equipment procured under the project. The project would provide the capital and first two-years operating costs of the equipment procured. After the second year of the project, the Medan City Health Office would be expected to provide its own budgetary support for maintenance and operation of the equipment.

It is estimated that the total cost of the project will be Rp.149.6 million of which 47 percent will result from the foreign costs of the equipment. It is expected that the program could be financed through the Medan KIP program, and thus, the foreign costs could be financed by a foreign lender. The components of the program are itemized below:

Component	Cost
• Purchase of 11 ambulances	Rp. 66.0 million
• Purchase of 11 Mibile Health Units	Rp. 77.0 million
• Operating cost of vehicles during the first two years of operation including salaries, supplies, and maintenance	Rp. 141.2 million
• Installation of 22 telephones	Rp. 6.6 million
• Operation of telephones	Rp. 26.4 million
Total Project Costs	Rp. 317.2 million

Development Time

Procurement of equipment should begin early in the KIP program. It is therefore anticipated that orders should be placed by the end of FY 1980/81 for the equipment. Supply of the equipment is anticipated four to six months later.

A-7.3 COMMUNITY HEALTH PROGRAM IN KIP AREAS

RANKING : 1

Project Description

Analysis of the health situation in Medan shows that the level of health services has not greatly improved. The causes of this situation are the shortage of health facilities, lack of health budget, and trained health officers, medicines and low awareness of the majority of Kampung people towards health.

This program would meet these needs through the provision of basic primary health services.

Project Objectives and Components

- To overcome the problems of the shortage of trained health personnel in the City Health Office at the least cost by selecting KIP Community Workers from among Kampung members, to work in upgrading the levels of both curative and preventive health services and community organization wi hin Kampung areas.

- To increase the awareness among Kampung people of health hazards, and give them increased access to services through better provision of basic health care, including such services as maternal and child care, nutrition service, family planning, preventive medicine and environmental health programs.

- To strengthen the lower echelons of health care service, by providing minimum cost primary level health facilities.

- To provide a base from which to launch programs carried out by KIP Community Workers such as family health education classes, child care centers, child immunisation centers, and environmental and sanitation and personal hygiene tuition.

- To improve the health of the Kampung community generally, thus increasing their potential productivity and income levels.

To achieve these objectives 54 KIP Community Workers would be recruited, trained and be assigned to work in the KIP areas. Each community worker will serve an average of 500 Kampung residents or about 80 families.

Supporting Policies

A "Health Insurance" Program similar to that recommended for the Jakarta Program should be initiated in Kampungs along with continued improvement and maintenance of water supply, and sanitation conditions in Kampungs.

Institutional Responsibilities

City Health Office will participate (as part of the KIP Community Development Advisory Committee) in the recruitment and training of KIP Community Workers. This will include the preparation of the health curriculum and the provision of teaching materials. This office will also be responsible for the direct supervision of those KIP Community Workers assigned specific functions within the health service system. Local community groups will assist the City Health Office and the KIP Community Development Advisory Committee with the selection of suitable trainees from the Community.

Program Costs are itemized as part of the KIP program (see Section 5.4 Vol.IV, The Housing Development Program).

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APPENDIX A-8

SECTOR : EDUCATION

A-8.1 EXPANDED NON-FORMAL EDUCATION (PENMAS) PROGRAM

RANKING : 2

Program Description

Analysis of the educational situation in Medan shows that the access of low income people to formal education, with the exception of primary education, is still poor. The causes of this situation are the limited supply of educational facilities and the iability of the majority of people to afford secondary and higher level education which have relatively high education fees. Thus there is an urgent need to expand the non-formal education program (PENMAS) which is presently small due to its limited budget. Although PENMAS has received assistance from the World Bank for strengthening its capacity ot launch its programs more effectively, there is a need to follow up the present World Bank assistance to give it more emphasis on the expansion of the program towards school dropouts, tutor recruitment and training, curriculum development linked with the Medan job market and job placement.

Program Objectives and Components

The program would increase the knowledge and skills of its participants, particularly school dropouts, subsequently increase their productivity and income, reduce youth delinquency, encourage the development of small scale industries and reduce unemployment, particularly in high density areas, and provide graduates of the program with certificates valid for entering vocational training programs. To do so, the program would have the following components:

- Expansion of the existing PENMAS program to cover 4,000 school dropouts
- Recruitment and training of tutors and to participate in the program for subsequent years
- Local technical assistance for PENMAS in tutors training programs.

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- Construction of a training center, including the provision of equipment and supplies.

Institutional and Financial Arrangements

Central PENMAS will be responsible for providing technical assistance for curriculum development, design of the training center, equipment and supplies.

The local PENAMS will be responsible for administering and coordinating the training program, local technical assistance for tutor training, selection of tutors and trainees.

The Provincial Public Works and Cipta Karya will supervise the construction of new facilities.

Financing for the program would come from the Central Government budget and possibly foreign lenders. The total cost of the program is estimated at Rp.95.7 million of which 11 percent is due to foreign costs including imported components of the equipment and imported building materials. Details of the program's costs are presented below:

• Foreign technical assistance for market analysis, designing curriculum and developing job placement programs, 6 person-months	Rp. 20.0 million
• Local technical assistance for turor training	Rp. 8.0 million
• Construction of training center	Rp. 19.3 million
• Equipment and supplies	Rp. 15.6 million
• Training program (trainee tuition)	Rp. 32.8 million
Total cost of the program	Rp. 95.7 million *

Development Time

The phasing of the main components is shown below. If the program is to be implemented during Repelita III, these components must be scheduled tightly. Therefore, throughout the program, coordination by PENMAS of the various components will be essential if the program's objectives are to be achieved.

Component	Duration	Starting Date
• Foreign technical assistance	6 months	April FY 80/81
• Selection of tutors	2 months	April FY 81/82

* Includes 28 million for technical assistance

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Component	Duration	Starting Date
• Local technical assistance and tutor training	flexible	June FY 81/82
• Construction of Training Center	6 months	April FY 81/82
• Equipment and supplies procurement	flexible	July FY 81/82
• Start of training program	flexible	Oct. FY 81/82

APPENDIX B

KOTAMADYA MEDAN
RECEIPTS, EXPENDITURES AND SAVINGS
1974/75 - 1979/80

TABLE B.1

MEDAN RECEIPTS AND EXPENDITURES, 1974/75-1979/80 [a]
(Rupiah Million in Current Prices)

	1974/75 [b] Actual	1975/76 [b] Actual	1976/77 [b] Actual	1977/78 Budget	1977/78 Actual	1978/79 Budget	1978/79 Actual	1979/80 Budget
I Total Receipts	2288.5	4362.6	4687.0	6777.1	4879.9	7654.2	5822.3	9125.9
A. Routine Receipts	1860.8	3200.3	3626.4	4433.3	3739.6	5082.4	4274.0	6203.1
1. Beginning Balance	23.2	182.7	18.3	5.7	5.7	19.2	19.2	7.2
2. Municipal Receipts	1680.2	2313.7	2757.8	3254.0	2450.1	3808.2	2915.0	4728.7
Taxes	951.0	1252.9	1354.6	1843.5	1349.9	2168.5	1612.5	2504.4
Fees and Services	395.2	580.9	641.5	877.5	642.8	974.1	823.8	1350.8
Agency Receipts	227.8	322.0	568.5	515.8	439.8	644.6	435.5	817.1
Other Receipts	106.2	157.9	193.2	17.2	17.6	21.0	43.2	56.5
3. External Receipts	157.4	703.9	850.3	1173.6	1283.8	1255.0	1343.8	1467.2
Wage, Pension and Rice Transfers [c]	157.4	591.5	765.4	1123.6	1156.4	1185.4	1299.1	1467.2
Other Grants and Loans [d]	-	112.4	84.9	50.0	127.4	69.6	44.7	-
B. Development Receipts	427.7	1162.3	1060.6	2343.7	1140.3	2571.8	1548.3	29[illegible].8
1. Beginning Balance	-	52.9	2.1	16.2	16.2	113.4	113.4	[illegible].2
2. Municipal Development Receipts	8.6	72.0	-	-	-	53.3	31.6	27.9
3. IPEDA Property Tax Receipts [e]	147.1	216.1	231.1	325.0	255.2	350.0	285.2	400.0 [j]
4. External Receipts	272.0	821.3	827.4	2002.5	868.9	2055.1	1109.2	2180.7
Development, Education, Health Transfers [f]	272.0	821.3	827.4	1092.9	746.3	1232.2	812.2	1269.4
Market (Pasar) Loan [g]	-	-	-	909.6	122.6	822.9	297.0	911.3

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TABLE B.1 -- Continued

	1974/75 [b] Actual	1975/76 [b] Actual	1976/77 [b] Actual	1977/78 Budget	1977/78 Actual	1978/79 Budget	1978/79 Actual	1979/80 Budget
II. Total Expenditures	2047.1	4342.6	4665.1	6777.2	4747.1	7654.1	5504.7	9125.8
A. Routine Expenditures	1100.6	2062.4	2269.6	2780.0	2554.2	3207.3	2913.0	4330.6
B. Development Expenditures	946.5	2280.2	2395.5	3997.2	2192.9	4446.8	2591.7	4795.2
1. From Municipal & Free External Funds [h]	702.8	1458.8	1568.1	2904.3	1447.6	3214.8	1770.6	3525.8
Economic Sector	256.7	525.4	423.4	1924.6	808.9	2031.7	1042.3	2137.4
Social Sector	225.6	243.9	190.5	297.2	203.7	397.4	163.5	446.2
General Expenditures	220.5	689.6	954.2	682.5	435.0	785.7	564.8	942.2 [k]
2. From Specific External Funds [i]	243.7	821.3	827.4	1092.9	745.3	1232.2	821.1	1269.4
Development, Education, Health	218.7	689.2	787.3	991.4	644.8	1181.6	770.5	1269.4
Others	25.0	132.1	40.1	101.5	101.5	50.6	50.6	-

a. Source: Data compiled from estimates provided by Bagian Keuangan and Beppeda, Kotamadya Medan, and by Bappenas, Government of Indonesia, Jakarta, which were adjusted for earlier years to be more complete and consistent. Totals and begining balances may not add due to rounding and adjustment of estimates.

b. Estimates for 1974/75, 1975/76 and 1976/77 are less reliable as methods of compilation and recording were less complete.

c. Includes Central Government transfers to Kotamadya Medan for approved employees' wages, pensions and rice subsidies.

d. Include Central Government transfers to Kotamadya Medan for school maintenance (SPP/SD), loans and grants from the Province of North Sumatra, and other transfers.

e. Regarded as a shared tax between Kotamadya Medan, Central and Provincial governments, but considered in text as tax collected and primarily retained within the Kotamadya.

f. Includes Central Government INPRES development transfers to Kotamadya Medan for general infrastructure, health (clinic), education (school buildings) and village support (desa) and other funds.

g. Central Government non-interest bearing loans to Kotamadya Medan for constructing market (Pasar) buildings.

h. Development and other expenditures of sectors financed by Kotamadya Medan's own funds as well as freely-useable external funds as Ipeda property tax revenues and other Central and Provincial transfers.

i. General development, education, health and other expenditures in Kotamadya financed by ear-marked Central and Provincial transfers.

j. Internal IPEDA property tax target for this year has been raised to over Rp.600 million.

k. Includes Rp.52.4 million repayment of loan.

TABLE B.2

SUMMARY: KOTAMADYA MEDAN RECEIPTS, EXPENDITURES AND SAVINGS, 1974/75-1979/80[a]
(Rupiah Million in Current and Constant 1978 Prices)

	1974/75	1975/76	1976/77	1977/78			1978/79			1979/80
	Actual	Actual	Actual	Budget	Actual	% Achieved	Budget	Actual	% Achieved	Budget
A. IN CURRENT PRICES:										
Current Receipts[b]	1860.8	3200.2	3626.4	4433.3	3739.6	84.4	5082.1	4274.0	84.1	6203.1
Current Expenditures	1106.6	2062.4	2269.6	2780.0	2554.2	91.9	3207.3	2913.0	90.8	4330.6
Current Budget Contribution to Development	760.2	1137.9	1356.8	1653.8	1185.4	71.7	1875.1	1361.0	72.6	1872.5
Kotamadya Own Development Receipts[c]	8.6	124.9	2.1	16.2	16.2	100.0	166.7	145.0	87.0	342.1
Total Kotamadya Savings[d]	768.8	1262.8	1358.9	1669.5	1201.6	72.0	2041.8	1506.0	73.8	2214.6
IPEDA Tax Receipts[e]	105.9	155.6	166.4	234.0	183.7	78.5	252.5	205.3	81.3	288.0
Total Kotamadya Savings and IPEDA[d,e]	874.7	1418.4	1525.3	1903.5	1385.3	72.8	2294.3	1711.3	74.5	2502.6
External Funds for Development	272.0	821.3	827.4	2002.5	868.9	43.4	2055.1	1109.2	54.0	2180.7
Total Funds Available for Development	1146.7	2239.7	2352.7	3906.0	2254.2	57.7	4349.4	2820.5	64.8	4683.3
(TOTAL DEVELOPMENT EXPENDITURES)[f]	(946.5)	(2280.2)	(2395.5)	(3997.2)	(2192.9)	(54.9)	(4446.8)	(2591.7)	(58.3)	(4795.2)
B. IN CONSTANT 1978 PRICES:										
Current Receipts[b]	2925.8	4360.1	4291.6	4[illegible]47.1	3919.9	84.4	5082.4	4274.0	84.1	5169.3
Current Expenditures	1730.5	2809.8	2685.9	2914.0	2677.4	91.9	3207.3	2913.0	90.8	3608.8
Current Budget Contribution to Development	1195.3	1550.3	1605.7	1733.0	1242.5	71.7	1875.1	1361.0	72.6	1560.4
Kotamadya Own Development Receipts[c]	13.5	170.2	2.5	17.0	17.0	100.0	166.7	145.0	87.0	23.3
Total Kotamadya Savings[d]	1208.8	1720.5	1608.2	1750.0	1259.5	72.0	2041.8	1506.0	73.8	1583.7

TABLE B.2-- Continued

	1974/75 Actual	1975/76 Actual	1976/77 Actual	1977/78 Budget	1977/78 Actual	1977/78 % Achieved	1978/79 Budget	1978/79 Actual	1978/79 % Achieved	1979/80 Budget
IPEDA Tax Receipts [e]	166.5	212.0	196.9	245.3	192.6	78.5	252.5	205.3	81.3	240.0
Total Kotamadya Savings and IPEDA [d,e]	1375.3	1932.5	1805.1	1995.3	1452.1	72.8	2294.3	1711.3	74.5	1823.7
External Funds for Development	427.7	1118.9	979.2	2099.0	910.8	43.4	2055.1	1109.2	54.0	1817.3
Total Funds Available for Development	1803.0	3051.4	2784.3	4094.3	2362.9	57.7	4349.4	2820.5	64.8	3641.0
(TOTAL DEVELOPMENT EXPENDITURES) [f]	(1488.2)	(3106.5)	(2832.9)	(4189.9)	(2298.6)	(54.9)	(4446.8)	(2591.7)	(58.3)	(3996.0)
Price Index (1978=100) [g]	63.6	73.4	84.5	95.4			100.0			120.0

a. Source: See Table B.1. Totals may not add due to rounding.
b. Includes begining routine budget balance at start of financial year. Also includes external Central Government payments for authorized personnel salaries, pensions and rice subsidies of Rp.157.4 million in 1974/75; 703.9 in 1975/76; 850.3 in 1976/77; 1173.6 in 1977/78 budget and 1283.8 actual; 1255.0 in 1978/79 budget and 1343.8 actual; and 1467.2 in 1979/80 budget.
c. Includes beginning development budget balance at start of financial year.
d. This estimate assumes that all current expenditures are in the Routine Budget.
e. Receipts from IPEDA property tax are officially classified national tax revenues shared with regional governments. Kotamadya Medan and other lower-level governments include these gross receipts as part of their own development revenues since the tax is collected by their officials from their residents. Our estimate differs in being "net" of 10 per cent payments to collectors, 9 per cent to the Province of North Sumatra, and 9 per cent to the Provincial Development Bank.
f. Total development expenditures may exceed total funds available for investment as a result of use of "net" rather than "gross" IPEDA receipts.
g. Cost of living index for Medan.