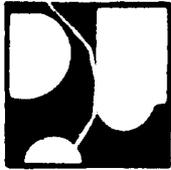


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REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF HOUSING BUILDING
PLANNING AND URBAN DEVELOPMENT (CIPTA KARYA)

MEDAN URBAN DEVELOPMENT, HOUSING, WATER SUPPLY AND SANITATION PROJECT

114p

TECHNICAL MEMORANDUM NO.33

THE EXISTING URBAN SITUATION

This is a draft of Sections 1 through 7 of the Long Term
Urban Development Plan Report

NOVEMBER 1979

ENGINEERING - SCIENCE, INC. • SINOTECH ENGINEERING CONSULTANTS, INC
A JOINT VENTURE
in Association with
PADCO and P.T. DACREA

MEDAN URBAN DEVELOPMENT, HOUSING, WATER SUPPLY AND SANITATION PROJECT

Jl. Singamangaraja 1-3, P. O. Box 26, Phone 20716, Medan-Sumatra, Indonesia

Our ref.: 79/1202/MUDS/313

9 November 1979

Director General Cipta Karya
Ministry of Public Works
Jalan Pattimura 20
Kebayoran Baru
Jakarta Selatan

Subject: Technical Memorandum No. 33,
The Existing Urban Situation

Dear Sir:

Attached are 20 copies of the subject Technical Memorandum for your information and review. The material contained in this memorandum constitutes submission of Sections 1 through 7 of the draft Long Term Urban Development Plan Report.



Yours faithfully,

John Y. McGill

Project Representative

C.C.: Ir. Ruslan Diwiryo, Director of City & Regional Planning
Ir. Susanto Mertodiningrat, Director of Sanitary Engineering
Ir. Sunaryo, Head Sub-Directorate Town Planning
Ir. K. Pohan, Project Manager, MUDS
AID - Jakarta, attn.: P. Thorn, Project Officer
ES - Arcadia
SINOTECH - Taipei
DACREA - Jakarta

JM/1

LIST OF TECHNICAL MEMORANDA PREVIOUSLY SUBMITTED

Report No.	T i t l e	Date Submitted
1.	Preliminary Site Selection Criteria for Perumnas Medan III, SSCH/LCH Project	March, 1979
2.	Work Plan for Water Supply and Sanitation Master Plans and Feasibility Studies	April, 1979
3.	Policy Issues for Project Guidance	March, 1979
4.	Drainage - Principal Rivers and Rainfall Analysis	May, 1979
5.	Preliminary Evaluation of Sunggal Water Treatment Plant	May, 1979
6.	Public Health Considerations	July, 1979
7.	The Present Drainage System	August, 1979
8.	Recommended Drilling Program	August, 1979
9.	Medan Household Income/Expenditures	August, 1979
10.	Existing Land Use in Medan	August, 1979
11.	The Regional Functions of Medan	August, 1979
12.	Existing Solid Wastes Systems and Projected Solid Wastes Characteristics	August, 1979
13.	Evaluation of Medan Master Plan	August, 1979
14.	Physical Constraints to Urbanization	August, 1979
15.	Development in Health Care in Medan	September, 1979
16.	Existing Water Supply Systems	September, 1979
17.	Developments in Education	October, 1979
18.	Existing Water Supply and Sanitation Systems	October, 1979
19.	Public Health and Environmental Aspects	October, 1979
20.	Alternative Solid Wastes Management Systems	October, 1979

LIST OF TECHNICAL MEMORANDA PREVIOUSLY SUBMITTED (CONTINUED)

Report No.	T i t l e	Date Submitted
21	The Distributed Investment Strategy Plan (DISP)	October, 1979
22	Recommended Solid Wastes Management System	October, 1979
23	Recommended Drainage Management System	October, 1979
24	Alternative Water Supply Management Systems	November, 1979
25	Water, Wastewater, Stormwater and Solid Wastes Systems	November, 1979
26	Alternative Wastewater Management Systems	November, 1979
27	Design Criteria and Bases for Cost Estimates	November, 1979
28	Recommended Water Supply Management System	November, 1979
29	Recommended Wastewater Management System	November, 1979
30	Environmental Assessment	November, 1979
31	Finance	November, 1979
32	Groundwater Resources	November, 1979

PART I: THE EXISTING SITUATION

SECTION 1

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 the region) and almost seven times larger than Pekanbaru, Riau (the third largest city).

The economy of Northern Sumatra is primarily export oriented and the Belawan Port in Medan is a major port facility (excluding oil exports from Dumai, Riau). Medan also has a major concentration of industry in the region. Medan's industries are mainly import substitution in nature as there is little processing of primary export products beyond the stage necessary to make it more marketable abroad. Medan is also the seat of the North Sumatra Provincial Government, the location of some central government offices serving North Sumatra Province and sometimes Aceh as well. It is a major regional center for university level education and major hospital and health facilities.

The economic and social sphere of influence of Medan is very strong throughout all of North Sumatra Province and Central and South-eastern Aceh and exerts some influence throughout the four Province region.

1.1 THE REGIONAL ECONOMIC BASE

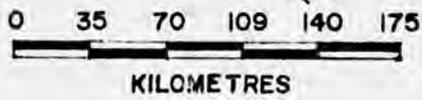
The regional gross domestic product of North Sumatra and the other three WPU-A provinces in 1976 in current prices is shown in Table 1.1. The overall dominance of the North Sumatra Province compared to the other three provinces in the region can be clearly seen. Overall the economy is export oriented, and the primary growth sectors are estate crops, livestock, forestry products, and fisheries.

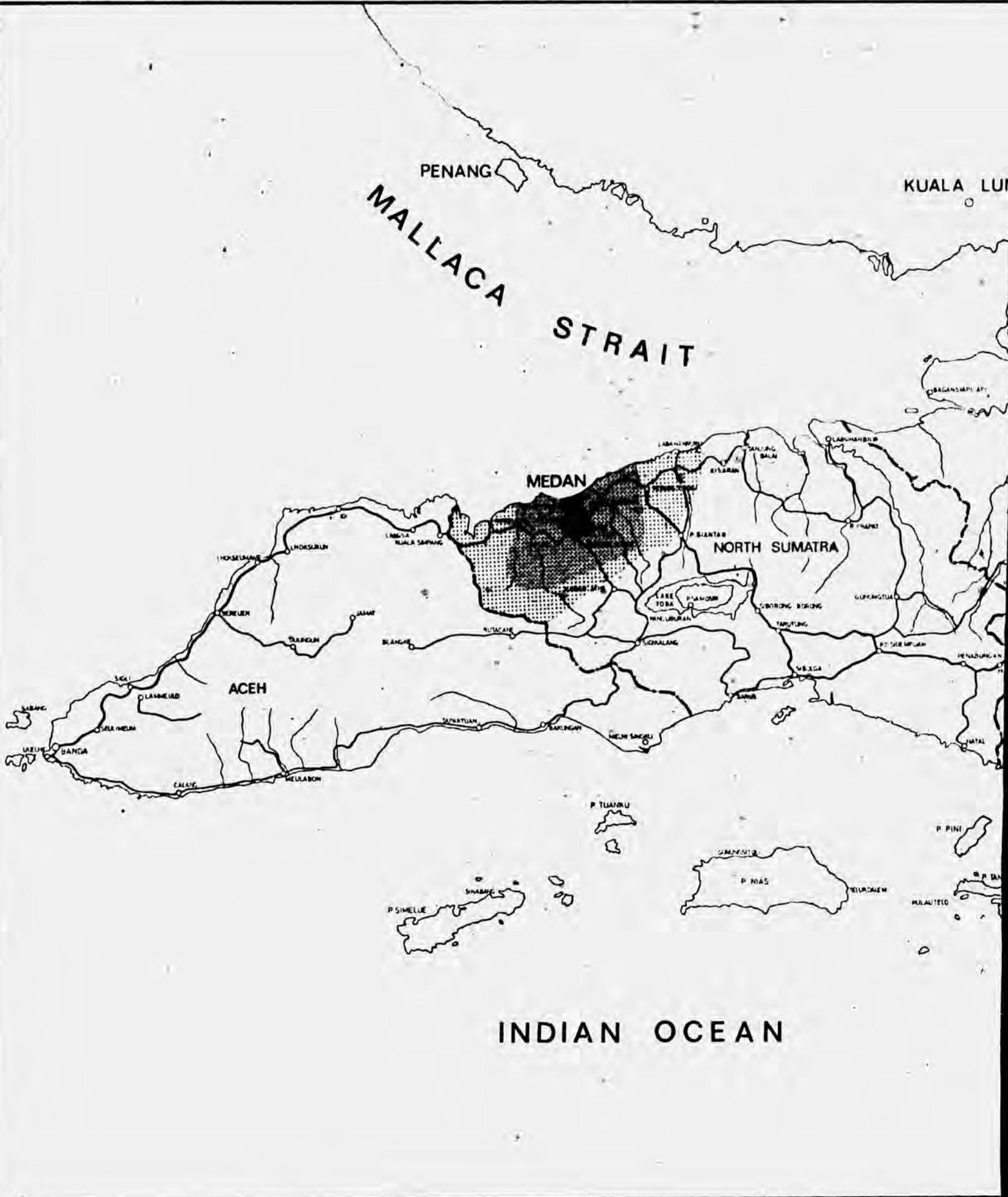
FIGURE 1.1

MEDAN IN REGIONAL CONTEXT

LEGEND

-  WPU - A BOUNDARY
-  PROVINCIAL BOUNDARY
-  SUB-REGION I, WPU - A NORTH SUMATRA
-  WPP I NORTH SUMATRA





PENANG

KUALA LUMPUR

MALLACA STRAIT

MEDAN

NORTH SUMATRA

ACEH

INDIAN OCEAN

REAS

TABLE 1.1

REGIONAL GROSS DOMESTIC PRODUCT IN
1976 IN CURRENT PRICES

Sector*	North Sumatra		D.I. Aceh, West Sumatra and Riau	
	Value (Million of Rp.)	Percentage	Value (Million of Rp.)	Percentage
Agriculture	364,819	34.9	274,986	46.0
Mining	69,384	6.6	13,645	2.3
Manufacturing	113,238	10.8	31,013	5.2
Construction	49,752	4.8	22,201	3.7
Electricity, Gas and Water Supply	4,003	0.4	1,792	0.3
Transport and Communication	55,072	5.3	44,028	7.4
Wholesale and Retail trade	232,871	22.2	108,159	18.1
Banking and other financial	10,756	1.0	9,058	1.5
Institution Ownership of dwellings	41,103	3.9	34,895	5.8
Public adminis- tration and defence	61,990	5.9	55,101	9.2
Servicers	43,656	4.2	3,426	0.6
Regional gross Domestic Product	1,046,644	100	598,305	100

* Excluding the petroleum sector.

Source: Figures taken from Perkiraan Pendapatan Regional Wilayah Pembangunan Utama "A" 1969-1976, Sekretariat Bersama BAPPEDA Tingkat I, Wilayah Pembangunan Utama "A", 1979, Medan, North Sumatra. No corrections or changes made.

Farm food crops and farm non-food crops are also very important, but have had a slow rate of growth in recent years. The sectoral growth rates are shown in Table 1.2 for the period 1972 to 1976 in 1973 constant prices.

The manufacturing sector represents 11 percent of the regional gross domestic product in North Sumatra which is more than double the corresponding percentage of the other three provinces combined. Manufacturing has enjoyed a 10 percent rate of growth in recent years. Medan is the dominant center for manufacturing in North Sumatra. Because the manufacturing sector is largely related to import substitution serving the domestic regional market it is closely tied to the growth of demand in the Northern Sumatra market.

Overall, the growth of the North Sumatra economy has seen shifts within various basic sectors, but little change in aggregate composition (agriculture 41 percent, manufacturing and construction 16 percent, and services 43 percent in 1976 which was almost exactly the same mix as in 1969). The other significant finding is that from 1969 to 1976 the regional economy seems to have grown a little less rapidly than the Indonesian economy as a whole. In current prices, a comparison of the average output for the three year periods 1969 to 1971 and 1974 to 1976 shows an average annual increase of 21.7 percent for North Sumatra and 24.5 percent for Indonesia as a whole.

Employment statistics 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.

1.2 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

TABLE 1.2
**ANNUAL SECTORAL RATES OF GROWTH
 1972 TO 1976 IN 1973 CONSTANT PRICES**
 (Percentage per Year)

Sector ^a	North Sumatra	The Major Development Region A (WPU-A)
Agriculture	3.3	3.4
Mining	-3.6	-0.7
Manufacturing	10.4	9.4
Construction	22.5	27.2
Electricity, gas and water supply	14.2	1.1
Transport and communication	8.9	12.1
Wholesale and retail trade	10.7	10.5
Banking and other financial institutions	23.2	19.3
Generation of dwellings	4.3	3.4
Public administration and defence	8.8	9.7
Services regional gross	11.4	11.6
Domestic product	7.2	7.2
The goods section ^b	4.2	4.4

a. Excluding the petroleum sector

b. Agriculture, mining and manufacturing

Source: Calculated from Table IV.2 and B.2 in Perkiraan Pendapatan Regional Wilayah Pembangunan utama "A" 1969-1976, Sekretariat Bersama BAPPEDA Tingkat I, Wilayah Pembangunan Utama "A", 1979, Medan, North Sumatra.

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. Its role in region serving manufacturing has already been discussed.

Medan is also the entry point for tourism in the region. In 1976 some 53,000 tourists entered the region through Medan. This represents 73 percent of the total foreign tourists visiting the region.

The basic urban planning strategy for Medan must recognize and accomodate 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 a 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.

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. They are discussed in more detail in subsequent sections of this report and form an integral part of the DISP for Medan.

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 km² 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 1979

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 2.2.¹⁾

1) See Section 9 in a fuller explanation of projections.

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	1,511.4	132.6
2000	1,986.0	169.8

2.1.1 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.

TABLE 2.3

MEDAN DISTRIBUTION OF POPULATION BY AGE AGROUP AND SEX 1978

Age Range	Male (Thousands)	Percentage of all Males	Female (Thousands)	Percentage of all Females	Total (Thousands)	Percentage of Total
0 - 4	73.6	13.2	68.1	11.7	141.7	12.7
5 - 9	76.4	13.7	94.3	16.2	170.7	14.9
10 - 14	85.3	15.3	83.8	14.4	169.4	14.9
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
Total	557.9	100.0	582.2	100.0	1,140.0	100.0

Note : Total may not agree due to rounding.

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

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 1989.¹⁾

2.1.2 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/km².²⁾

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.

2.2 EMPLOYMENT IN MEDAN

2.2.1 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 that under the age of 20. The number of young women working is also quite high.

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

2) Statistical yearbook of North Sumatra.

TABLE 2.4

POPULATION AND NUMBER OF HOUSEHOLDS, 1977

Medan 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 in registrations.

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

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	6.6	1.8	1.1	3.9	3.8
15 - 19	56.6	15.8	29.8	11.7	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	12.5
30 - 39	71.7	20.1	58.6	33.9	13.1	122.8
40 - 49	56.5	15.8	43.7	17.1	12.8	12.5
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 of activity.

TABLE 2.7

ESTIMATED EMPLOYEMENT BY SECTOR 1978

(Population in thousands)

Sector	Total	Percentage	Male	Percentage	Female	Percentage
Agriculture	29.1	9.2	21.2	9.1	7.9	9.6
Industry and Handicrafts	41.6	13.2	29.5	12.7	12.5	15.2
Construction ^a	16.0	5.0	16.0	6.9	-	-
Commerce, hotels and restaurants	52.2	16.6	32.2	13.8	20.0	24.4
Transport	26.2	8.3	25.0	10.7	1.2	1.5
Government	45.4	14.4	33.7	14.5	11.6	14.1
Other services ^b	74.1	23.5	55.2	23.7	18.9	23.0
Unspecified activities ^c	30.7	9.7	30.7	13.2	110.0	12.0
Total	315.1	100.0	233.3	100.0	182.1	100.0

a. Teachers, doctors, laundries, barbers, garages, accounting, repairs, etc.

b. Mining, banking insurance etc.

c. Adjusted because of sampling deficiency.

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

2.2.2 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, because of the heavy concentration of this shown in Table 2.8. Estimated unemployment 1978.

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, Fakultas Ekonomi U.S.U.

This is shown in Table 2.8. Estimated unemployment 1978. 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.

2.2.3 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	Addition- al jobs 1973-83
0 - 14	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	<u>141</u>	<u>10.9</u>	<u>56.3</u>	<u>79,400</u>	<u>12,100</u>
10 - 24 Total	854	65.9	37.7	151,500	22,100
Total Population	1,296.2	100.0	100.0	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 prevalence 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 job 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, so more people will be working longer.

Given that one of the more serious problems in Medar. 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.

2.2.4 Institutional Factors

Although a number of labor laws which regulate employment are currently, 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 or 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.

2.2.5 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

TABLE 3.1

NORTH SUMATRA - REGIONAL GROSS DOMESTIC PRODUCT (RGDP) 1971, 1974, 1977
 VALUE AT 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	44.4
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 Fakultas Ekonomi USU

services increased quickly, but general commercial activity has increased more slowly than average.

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 statistic proved inadequate. It was not possible to obtain an estimate for 1974 to compare the later seventies with the earlies 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 recovery from the conditions of the mid-1960's, and then of apparent 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 buoyed 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.

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. All of the above have a high labor coefficient and, therefore, create employment opportunities.

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.

3.2.2.3 Balance of Payments

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.

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 3.3).

TABLE 3.3

INFLATION IN MEDAN'S COST OF LIVING

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 - March	+ 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, will results in 48 percent an 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 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; an 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^a 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.

An indication of income level changes can be obtained by dividing the North Sumatra Regional Gross Domestic Product (RGDP) by population. This gives a figure of RGDP per head of population of Rp. 46,000 in 1971 rising to Rp. 158,000 in 1977 at current prices. In 1971 RGDP per head is equal to US\$ 110 which is in line with the World Bank 1970 estimate of US\$ 180 GNP per head for Indonesia), and substantiates the view that income levels were above average in North Sumatra. In real terms, there has been a RGDP per head increase of 47 percent in six years or 6.6 percent annually.

3.4.1 Household Incomes

In 1975, a survey was carried out of the income of 1005 households^b 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.

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

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

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.

TABLE 3.4
AVERAGE INCOMES BY TYPE OF DWELLING, 1975

	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	1,965	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

Somewhat better data are available for consumer expenditures than incomes. In 1968/69 a full cost of living survey for 11 large cities in Indonesia was carried out, and repeated in 1978, but only very preliminary results available. Consumer expenditure by household was obtained from the "Penelitian Pola Pembangunan Pendapatan Rumah Tangga di Kotamadya

Medan" for the year 1975, and included in the "Survey Sosial Ekonomi Daerah (SUSESDA) 1978". Household income and expenditure by type of dwelling are shown in Table 3.5.

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 saved some 12 percent, whereas the richer households in permanent housing spend 42 percent 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. 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 Kecamatan than 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 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 data available to show how income levels have changed since 1975.

TABLE 3.5

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

	Type of Dwelling						Average	
	Permanent*		Semi-Permanent*		Temporary*			
	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	404.8	33.7	259.9	44.6	205.9	57.0	257.1	42.0
Other Food	96.6	8.1	59.0	10.1	40.2	11.1	57.4	9.4
Housing	71.1	5.9	23.6	4.1	14.6	4.0	30.5	5.0
Transport	92.4	7.7	32.3	5.5	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

* Percents may not total due to rounding errors.

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

TABLE 3.6

ESTIMATE OF AVERAGE AND TOTAL HOUSEHOLD INCOMES 1975/76

Medan Kecamatan	Average Household Income 1975 (Rp. Thousands)	No of Households 1976	Total Income Household (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.

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 sassets 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 3.7

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

	Production	Export	Other	Total
<u>End of</u>				
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	164,272
1979 June	106,561	16,144	63,297	185,972

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. The following table shown its application by sector for May 1979 and December 1976.

TABLE 3.8

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	75.6	42,563	60.8	+ 20
Mining	10	-	3	-	- 60
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 Sumatra Utara
1973 - 1978 dan Mei - Juni 1979

Investment funds grew by nearly 50 percent in 18 months. 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 for 1976 to 1978.

3.5.1 Loan Conditions

Loan conditions can be hard to meet and depend on rates set in Jakarta. The interest currently 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 pector's position regarding bad debts. They lack the ability to fare, close on debts. Furthermore delays in processing loans may extend to t wo years, which frustrates the smooth running of the credit system.

3.5.2 Small Scale Enterprise Credit Porgram

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 first two programs, with a ceiling on loans of Rp.15 million. These loans are not dependent on collateral and up to 80 percent of the project can be funded. A program of technical assistance is available for the beneficiaries, in selected cities through aid financer, but Medan is not included. Interest rates on these programme 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 per cent 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 programme is less than 3 percent of the National Programme. Medan recives nearly 30 percent of KIK funds in the province and nearly 40 percent of KMKP funds. Table 3.9 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 necessary be productive, and could included doctors, lawers 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 misreading 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 are obtained:

TABLE 3.9
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 dhad 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^a, 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^b 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

- a. Since 1973/74, the various INPRES programs represented a considerable amount of the social development expenditure.
- b. Dinas Kesehatan Kotamadya Medan. Based on reports of Puskesmas, Public and Private Clinics.

reasons, has not benefitted in proportion to the increases of facilities and services over Repelita II.

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. Briefly for the all of Medan's total population of 1,116,200 in mid 1978 there are 26 hospitals with the total capacity of 2,609 beds, 62 maternity clinics, 22 Puskesmas, 29 mother child clinics, 83 polyclinics, 81 dental clinics, 42 family planning clinics and 5 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, polyclinics 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 is 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.

TABLE 4.1

DISTRIBUTION OF HEALTH FACILITIES IN MEDAN, 1978

Kecamatan	Population 1978	Gross Population Density (persons/hectare)	Public								Private				
			Hospital beds	Puskesmas	Mothers & Child Clinics	Polyclinics	Maternity Clinics	Laboratories	Family Planning Clinics	Dental Clinics	Hospital beds	Polyclinics	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	16	2	2	42	10	766	69	60	3	71

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

4.1.2 Manpower

The Health Department currently employs a total of 495 persons consisting: 57 physicians, 19 dentists, 1 pharmacist, 3 health control officers, 34 nurses, 19 midwives, 2 nutrition control officer, 36 pharmacist assistant, 13 dental nurses, 11 hygiene control officers, 51 midwives assistant, 1 laboratory worker, 69 administration/supporting staff, and 80 health workers. Health manpower data in outside of the Health Department is inaccurate. 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.

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 as 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.

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 is 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

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	(2.50)(1.65)*	(1.65)*
Literate, but has not attended school	(6.71)(9.50)	(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.

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	1,116,226	658	0.59	176	0.16	113	0.10

Source: B Kanwil P & K Propinsi Sumatra Utara.

increased by 49 percent, while subsidized schools 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 INPRES program on school provisions. The situation of the elementary education in Medan by the end of Repelita II was:

Attendance Rates	:	96% ^a	
Number of population to school	:	1,643 ^b	(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 shifts program.

Although considerable improvements have been achieved, many problems are 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 are also is a need to increase the qualities of education in SPG (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, qualified teachers in order to obtain the better qualities of education.

Land for the schools 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, schools development has had to be postponed due to the difficulties in getting land.

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

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 increase 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:

The Attendance Rates	:	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)

* Figure in the bracket indicated 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 like economic schools and junior has tended to drop. In economic schools, the major cause of the decrease is the lack of guaranteed employment 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 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 Nomensen University, the Islamic University of North Sumatra (UISU) and the University of Cut Nyat Din. U.S.U. and IKIP play a significant note 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 private universities had 5,435 students and 870 staff. During the Repelita II period, the number of students and staff in 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 facilities 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 veterirary science. There 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) program. 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

Only 22 percent of the residents of Medan 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 to lower income groups and encourage the development of alternative sources for both residential and non-residential uses.

Sixty percent of the estimated non-residential water demand is met by Tirtanadi, the remainder being obtained from privately constructed deep wells. Although adequate sources of water are available locally, the rate of development of these sources has generally lagged increase 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.

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	449	692	1,141
Institutional	135	16	151
Commercial/industrial/offices	161	190	351
Unaccounted for losses	252	296	548
Total Present Water Use *	997	1,131	2,191

* Excluding Transmission and Treatment losses.

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 group 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.

TABLE 4.6
PRESENT DOMESTIC WATER SUPPLY

Residential Category	Type of Water Supply	Present Unit Water Use (1 pcd)	Population Mid-1978
Upper and middle income, permanent dwellings	Municipal, metered connection	176	229,000
Middle income, medium density	Individual household shallow well	100	731,000
Low income, high density	Rivers, standpipes, and shallow wells serving multiple dwellings	35	156,000
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 its way directly or indirectly into the surface drains.

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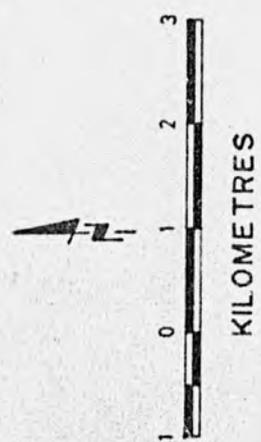
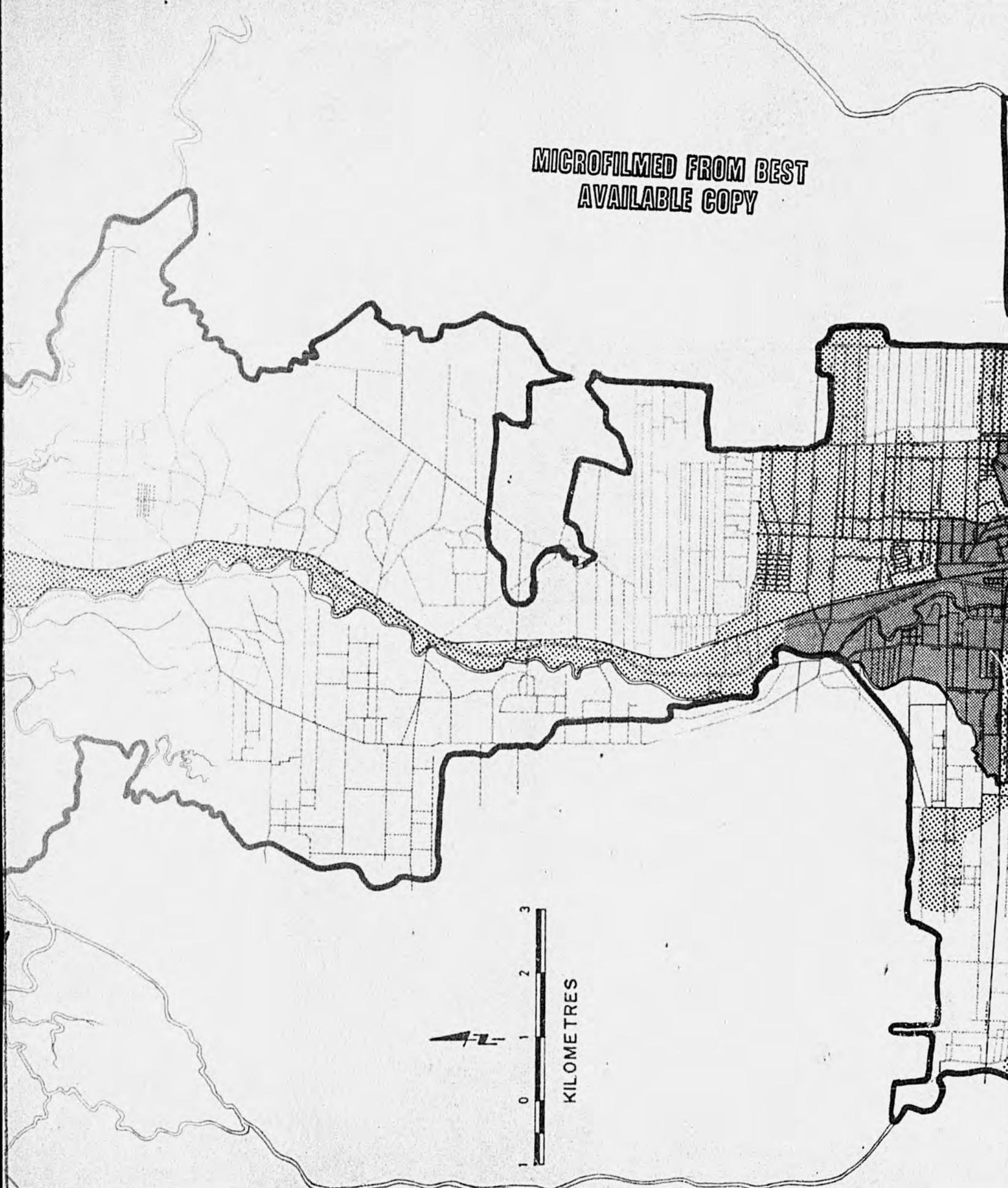
A sanitary survey field inspection carried out as part of this project, identified high density low income areas of the city in which there are virtually no household toilets and in which extensive use is made of streams, public toilets (some of which were out of service), and open latrine areas for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

4.3.3 Solid Wastes

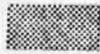
At the present time, municipal solid wastes collection and disposal facilities are provided to only heavily urbanized portions of the study area. Figure 4.1 shows the boundaries of the present solid wastes service area. This area is divided into primary and secondary areas. Dinas Kebersihan Keindahan Pertamanan (DKKP) provides all labor and

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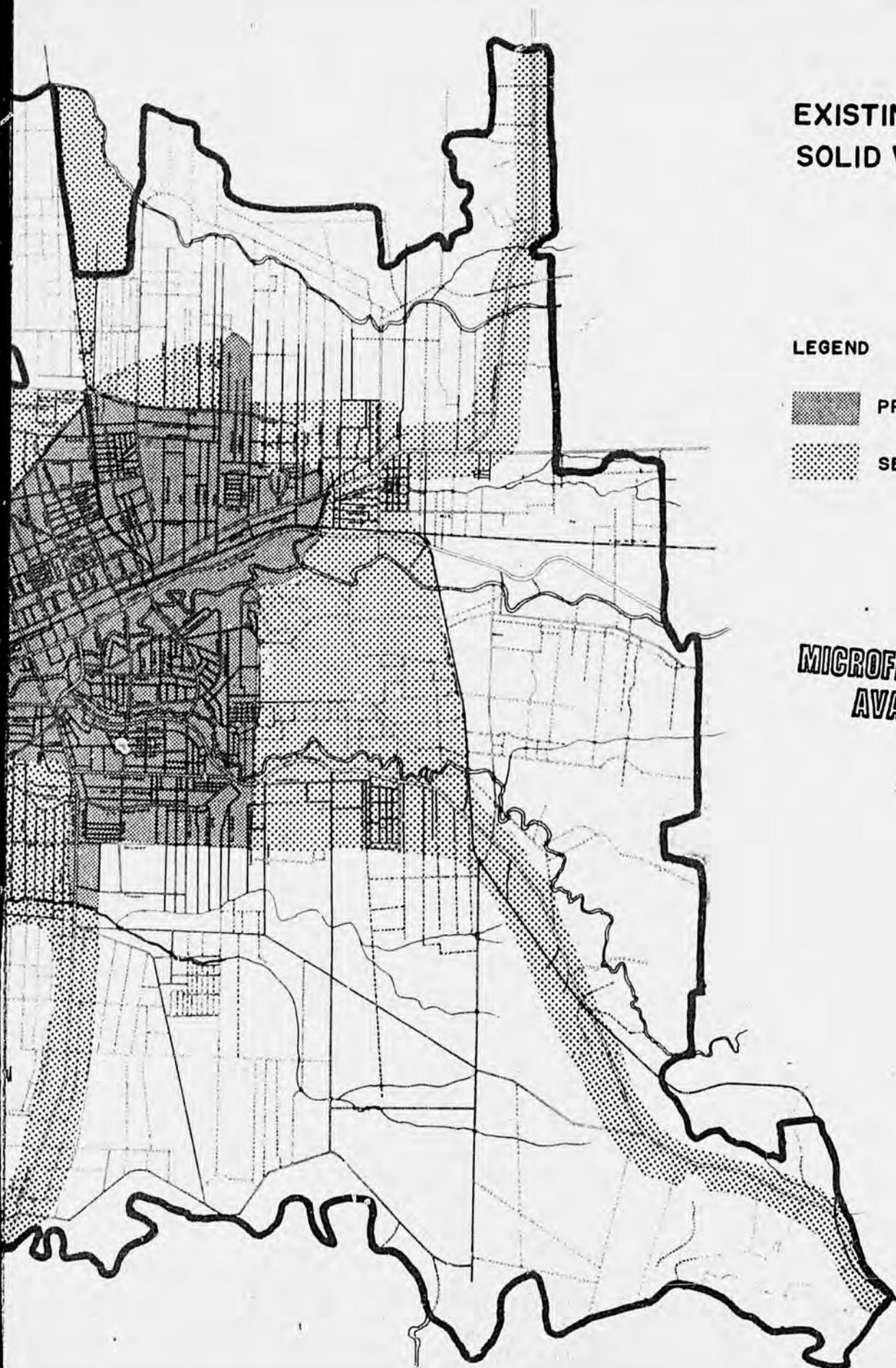


EXISTING SERVICE AREA OF SOLID WASTE COLLECTION

LEGEND

-  PRIMARY AREAS
-  SECONDARY AREAS

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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 a 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. The level of domestic service presently being 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

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.

4.3.3 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 and carried by the streams settle and reduce their discharge capacity. In some densely populated areas there are some bank improvements and dikes, however, most river reaches are unimproved.

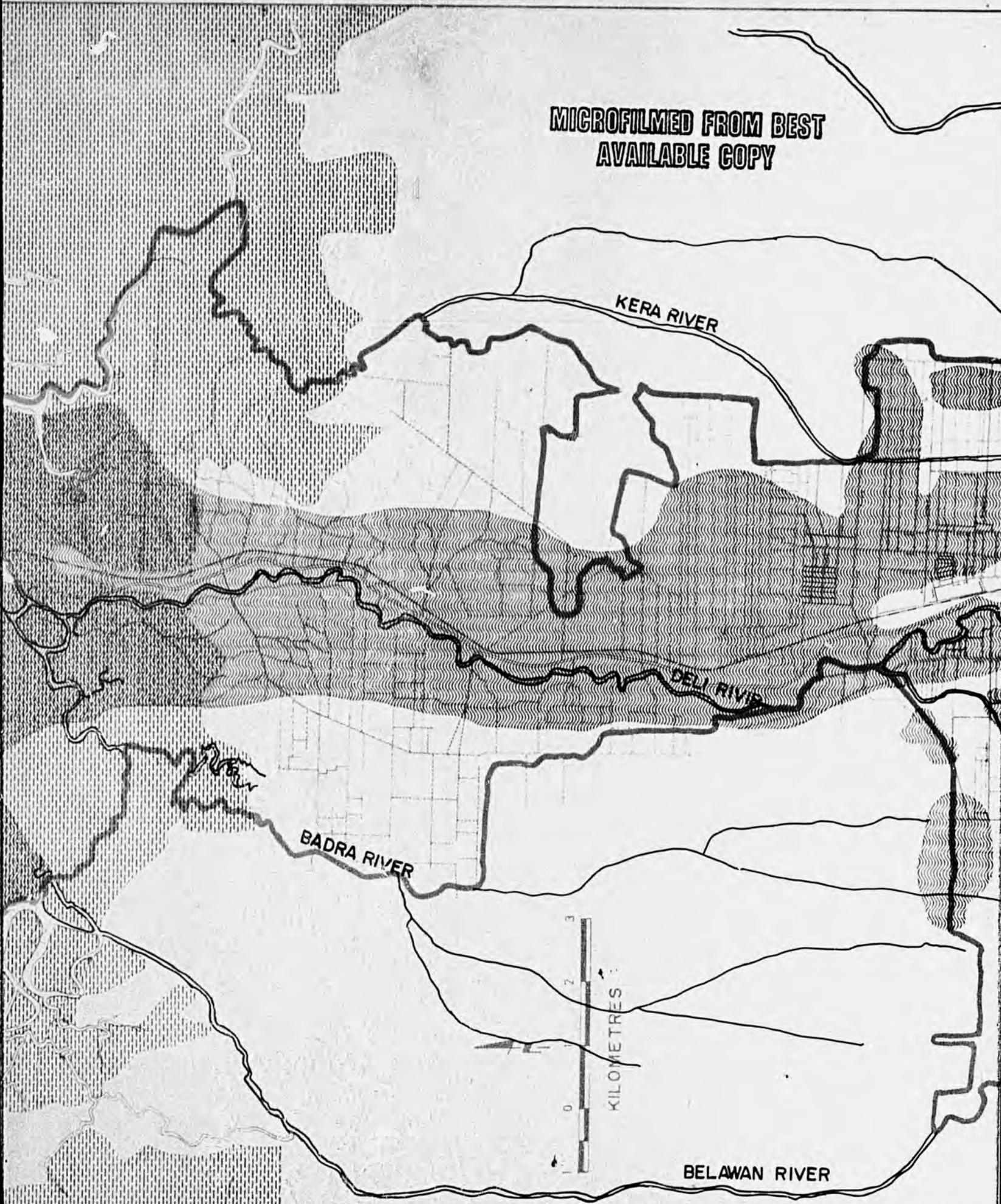
Due to the limited capacity of Medan's existing drainage system and the frequent high intensity rainfalls, many areas are prone to flooding. Property damage and traffic hindrance due to flooding are common events in the city. Almost all of the local surface drains are of the open channel type, and many are blocked with refuse. The surface drains receive much of the grey water component of the wastewaters generated in the study area, and some sanitary wastewater and 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 under-street type. These drainage channels carry commercial and domestic 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:

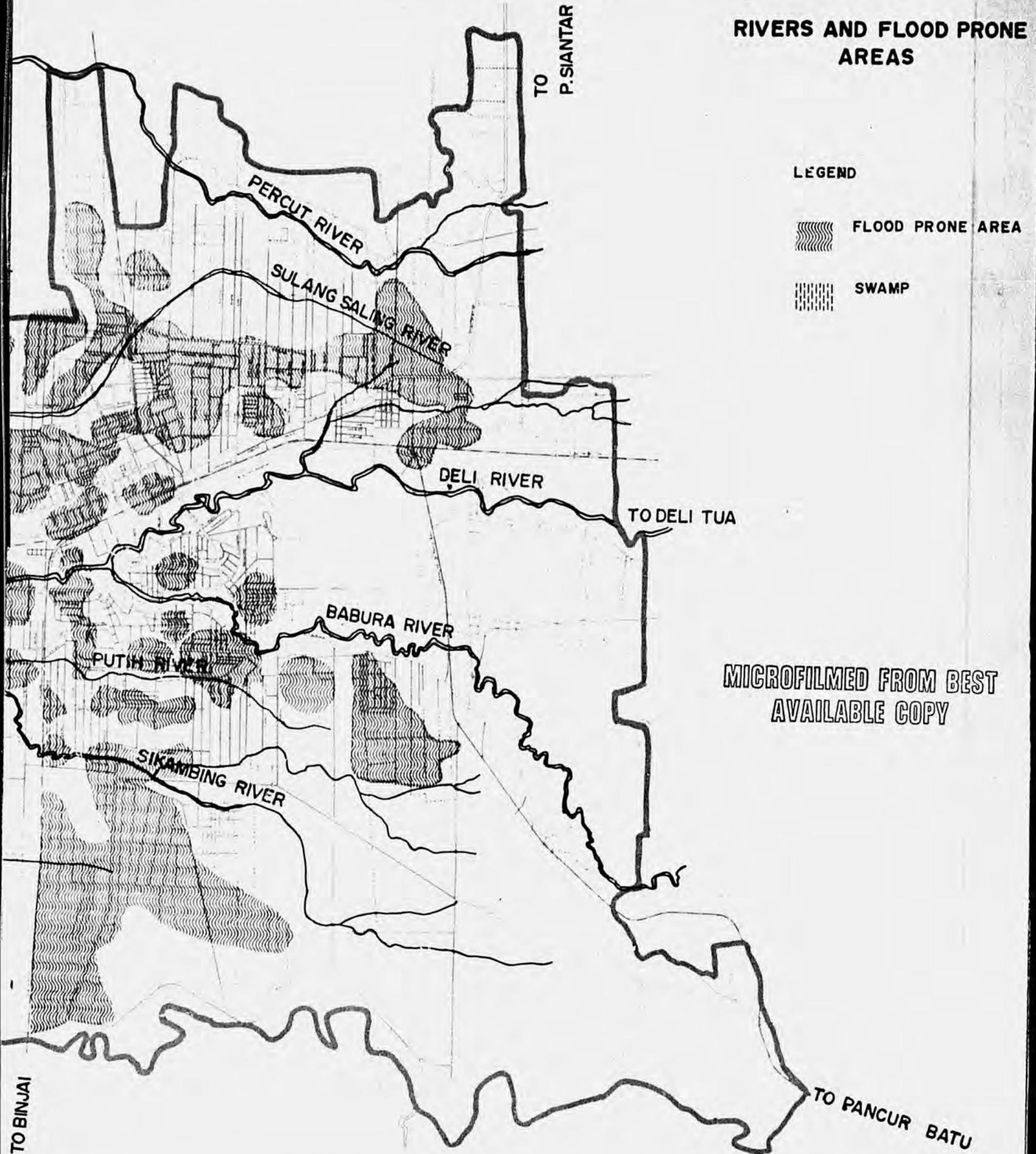
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RIVERS AND FLOOD PRONE AREAS

LEGEND

-  FLOOD PRONE AREA
-  SWAMP



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1. Only about 25 percent of solid wastes generated within the urban area are presently collected and removed. Much of the remainder is deposited in the open drainage channels.
2. Channel siltation.
3. Many of the existing drainage channels are given the existing channel slopes, inadequately sized to handle even 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 enumerated 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.

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.

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 household living in permanent housing had average monthly incomes of Rp.100,000.

TABLE 4.9

MEDAN HOUSEHOLDS BY HOUSETYPE 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 public or private action to improve the living condition of these households, conditions have probably worsened in those areas.

* 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.

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 a requirement to replace deteriorated housing, new households formed by population growth, and the need 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 worsen 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 Perummas 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.

An average dwelling unit is approximately 55 m². 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).

<u>Type of Construction</u>	<u>Percent of Total Households</u>
Permanent	22.0
Semi-permanent	42.5
Temporary	35.5
	<u>100.0</u>

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

TABLE 4.10

HOUSING NEEDS IN MEDAN, 1975-1990

Year	Population ('000) ^a	Number of New Households	Total Number of Households Needing ^b Housing	Number of Households Supplied with Housing ^c	Total Number of Households Needing Housing but not Supplied ^d with Housing
1976	1,076	4,823	26,271	5,653	20,618
1977	1,107	4,958	26,880	5,670	21,210
1978	1,138	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.

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	<u>2,610</u>	<u>23.6</u>	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 7.5 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 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.

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

TABLE 4.12

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

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Developer Number	Expiration Date of Commitment Letter ^a	Targeted Number of Units in Project	Amount Allocated for Project (Rp Million)	Number of Units Completed	Total Expenditure on Project to Date (Rp Million)	Average Amount of BTN Financing Per Unit ^b (6)/(5) - (7) (Rp'000)	Total Unit Costs for Different House Types (Rp'000) ^c	Average Plot Size m ²	Average Building Size m ²	Average Land Costs Rp/m ²	Average Unit Building Costs Minus Bank Administrative Costs (Rp/m ²)	Housing Loans as a Proportion of Total Unit Costs
1. a.	31 Oct 77	60	123	57	115.1	2,033	NA	NA	NA	NA	NA	-
b.	31 Aug 79	78	182.5	76	164	(2,153)	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	2,318	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% (hus. 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	478	1,052.1							

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.

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 commitment 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. While 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, due to recent construction cost increases, it has been only financing 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.

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 7,000 more units targeted for Medan II 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 metres plots. Total unit costs range from Rp.338,000 for the 60 square metres plots to Rp.3,033,000 for the 200 square metre plots on the Medan I site^a. 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^b. After that period, the occupants will be given

a. 1978 costs.

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

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 down-payment of five to 10 percent since BTN will probably be approach to handle the loan repayments.

Perumnas contractors, once contractors 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, 11 percent and Perumnas administrative costs, 2 percent^a. 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 to project costs. Providing 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^b. 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.

-
- a. 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 acquire land directly from owners.
 - b. 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 to total project costs.

TABLE 4.13

PERUMNAS SITES AND SERVICES LOW COST HOUSING PROGRAM MEDAN

Unit Type	Plot Size (m ²)	Unit Size (m ²)	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 ^a	160	45	1,404	1,404	1,390,382	1,290,297	36%
M70	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

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 interview 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.

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^a. 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.

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^b. 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^c. 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.

-
- a. 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.
- b. City Building Department.
- c. 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 estimates 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 increases of only 25 percent. The remainder of the increases must be borne by the contractor.

* Cost information supplied by Perumnas.

TABLE 4.15
CONSTRUCTION VALUE AND COST COMPONENTS, 1977

Item	Medan Value (Rp. millions)	Percentage
<u>Subcontracts</u>		
1. Supply of Labor	183.5	
2. Supply of Labor & Raw Materials	50.9	
3. Raw Materials Used	9,822.0	
4. Wages	2,286.7	
<u>Costs of Whole Construction</u>		
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
<u>Total Construction Value</u>		
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	-
13. Revenues (Profits)	1,590.3	7.7
14. Total	20,633.2	100.0

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 Camat'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 be 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 results, 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/m ²)
FY 75/76	Roads	N.A.	19.7	
FY 76/77	Roads	N.A.	1.8	
	Terminals	0.15	1.3	850
	Others	N.A.	1.1	
	Bridges	N.A.	2.9	
	Kantor Koramil	N.A.	5.0	
	Total		12.1	

TABLE 5.1 (CONTINUED)

Year	Purpose	Area (Ha)	Total Value (Rp Millions)	Average Land Value (Rp/m ²)
FY 77/78	N.A			
FY 78/79	Roads	N.A.	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	5.89	121.3	

SOURCE: APBD development budget.

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 m² 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 m² 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.

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.

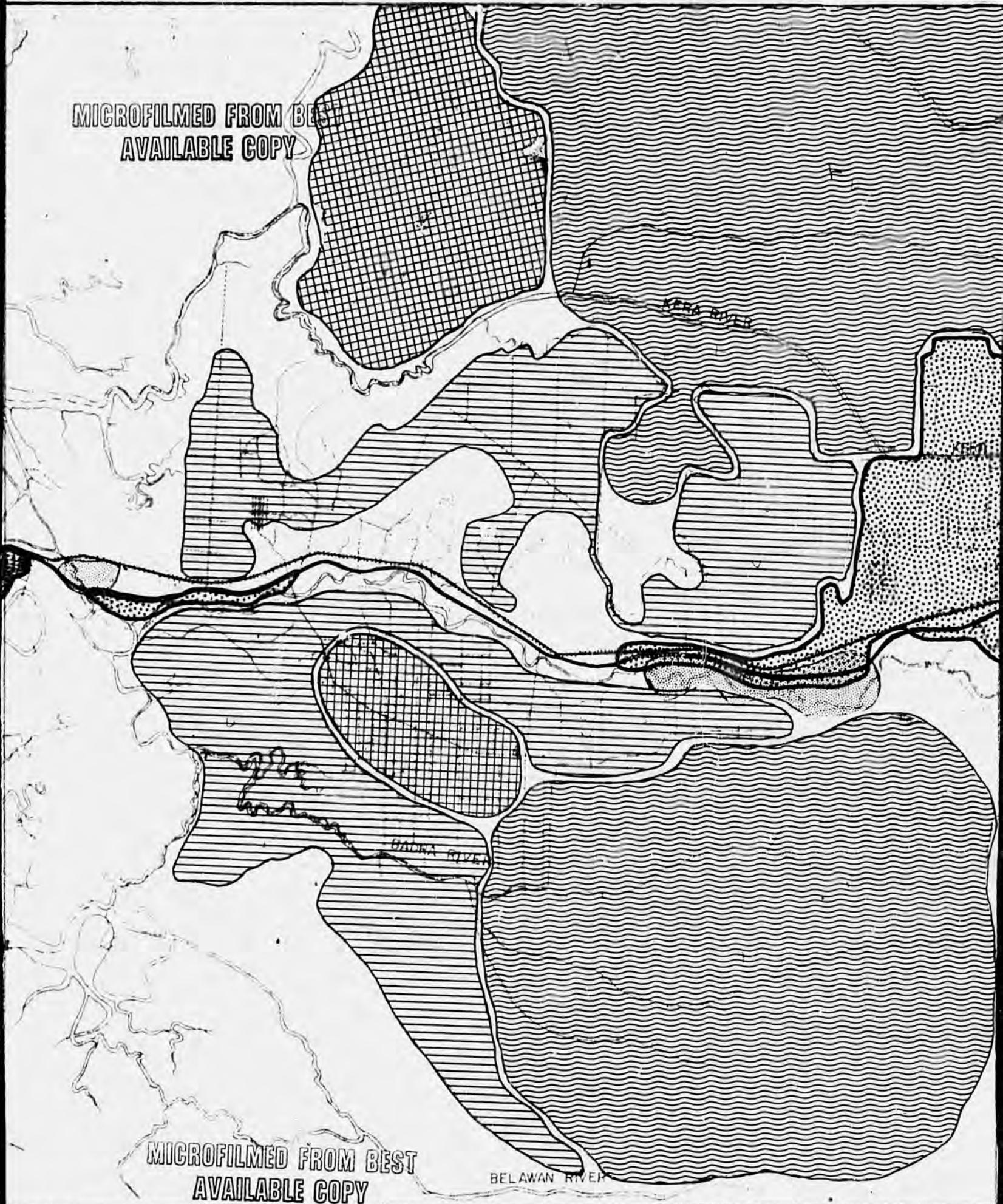
Residential areas predominate over all other uses within built up areas. These areas comprise 90 percent of the developed area. However, their use is mixed as many residential plots have small shops within their boundaries.

The land use pattern reflects four distinct areas:

1. Kotamadya Medan: The city center 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 center has a concentric urban pattern with a road system which tends to funnel traffic into the center. 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 to 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 lying undeveloped patty land and swamp land is available in large tracts for under Rp.500/m². 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.

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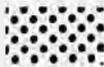


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BELAWAN RIVER

GENERAL LAND USE OF MEDAN CITY AND VICINITY

LEGEND

-  COMMERCIAL
-  RICE PADDY
-  COCONUT
-  TOBACCO
-  BUILT UP AREAS
-  INDUSTRIAL
-  RAIL WAY
-  REGIONAL ROAD



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2. The Binjai Corridor: Urban growth is already pressing out of the municipal boundaries along the road to Binjai 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 due this corridor growth increased rapidly.

TABLE 5.2

INCREASES IN LAND VALUES SURROUNDING GOVERNMENT PROJECTS

Project	Location	1977 Land Price (Rp/m ²)	1979 Land Price (Rp/m ²)	Percent Increase 1977-79
<u>1. Increase in Land Values Surrounding Existing Projects</u>				
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%
<u>2. Increase in Land Values Surrounding Government Projects: Proposed or under Construction</u>				
a. Toll Road		150	2,000	1,233%
b. Komplek 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.

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 providing to be an attractive site for industry. Land values along the road itself range from Rp. 1,500 to 2,500 per square meter. However, 500 to 1,000 metres away from the road there is still dormant agricultural land which is not urban priced and available for under Rp. 1,000/m².
4. Pancur Batu and Deli Tua: Urban development has already advanced along the roads leading to these two small centers. 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 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 m²/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 m^2 per capita of public facilities. When purely private uses such as commercial activities are subtracted from the 1976 provisions, only 2.5 m^2 /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 m^2 /person.

If the municipality of Medan were 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. $1,000/\text{m}^2$, 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 m^2 , while the largest is 500 m^2 .

Tata Kota has also established three classifications of structures permanent, semi-permanent and temporary, which refer to the building materials used in construction^a. 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 or 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 is 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

a. Details of these standards can be found in Technical Memorandum on Housing and Planning Norms and Standards.

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 thereby the costs of 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 m² 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 m² plots of 337 m² 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 hectare.

These excessive Master Plan standards not only result in high infrastructure costs, but also are land consumptive. As well as shown in Table 5.1, the costs of providing the same 75 m² 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, namely three meter wide footpaths with low traffic intensity four meter wide access roads, results in total savings of Rp. 665,000 in circulation and water supply costs of a 100 m² plot.^a

a. Details of this analysis are found in Technical Memorandum on Housing and Planning Norms and Standards.

TABLE 5.4

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

House Type	Minimum Plot Size (m ²) ^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 m ² /person ^d	Total Land Requirement per Plot (m ²)	Density (Units/ha)	Total Cost of Infrastructure per Plot (Rp) ^e	Total Connection Costs (Rp)	Cost of Undeveloped Land (Rp/m ²)	Total Cost of Land + Infrastructure (Rp)	Monthly Payment Required (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	2,500,864	25,365	253,650
B	400	15	1.78	10-14	100	27.1	18	700	14	1,171,637	249,895	1,000	2,121,080	21,513	215,130
C	200	12	1.39	10-14	100	32.9	18	461	22	990,732	237,385	1,000	1,689,571	17,137	171,370
D	100	8	1.56	10-14	100	37.7	18	337	30	849,694	273,385	1,000	1,459,676	14,805	148,050
E	75	6	2.08	10-14	100	37.7	18	297	34	748,444	237,385	1,000	1,318,316	13,371	133,710

^a Planning guidelines from City Planning Department, Medan.

^b Medan Master Plan road standards consisting of third and fourth class roads.

^c Scoffat 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.

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 m^2 /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.

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 m^2 /person. The range of plot sizes is greater than suggested by the Tata Kota standards as the Medan II site develops 60 m^2 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 m^2 plots, which is a considerable reduction when compared to the Rp. 750,000 needed to develop a 75 m^2 plot using Master Plan standards. (see Table 5.4).

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, Binjai, 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 shown a distinctly centripetal pattern. On this main skeleton, created by roads leading from the centre the principal roads within the main built 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 arterial 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 ha 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 neither the current nor the future needs of the city and its surrounding area.

TABLE 6.1
ESTIMATED AMOUNT OF VEHICLES IN MEDAN

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		1,929		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%

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

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

1. Traffic patterns which results 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 passes 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 periferal 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, Binjai and Tanjung Morawa are already overloaded and traffic jams frequently take place.

6.2 PUBLIC TRANSPORTATION

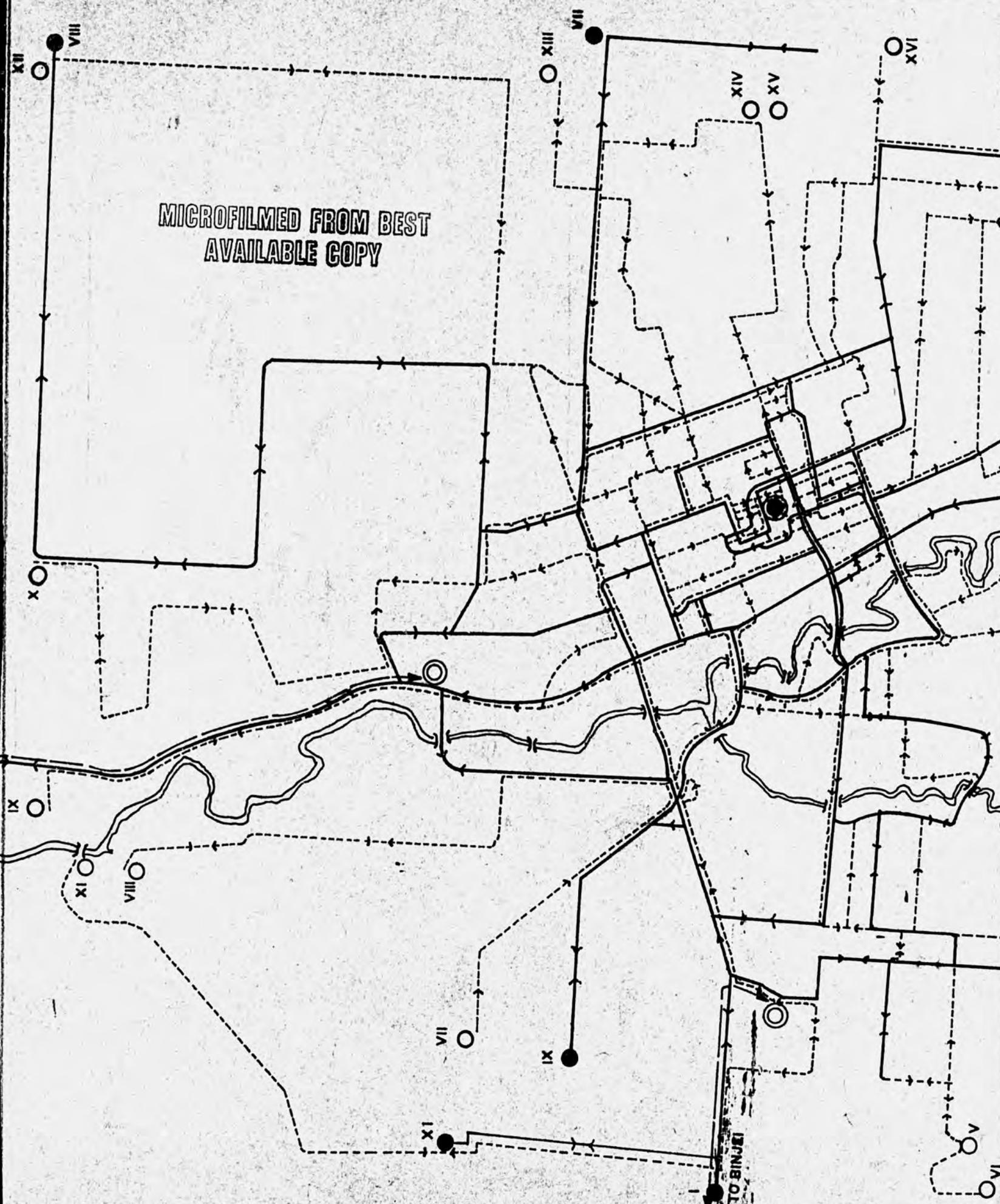
6.2.1 Buses

The city buses presently operate 11 routes as indicate in Figure 6.1. The actual situation of city bus transportation is shown in Table 6.2. Nine companies with total 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 Jln. Singamangaraja, near the stadium, for routes to the south. The second one is located on Jln. Subroto, at Jln. Wahid Hasyim, for the Binjai direction. The last one located on Jln. Yos Sudarso, near Jln. 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.

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MEDAN PUBLIC TRANSPORT NETWORK

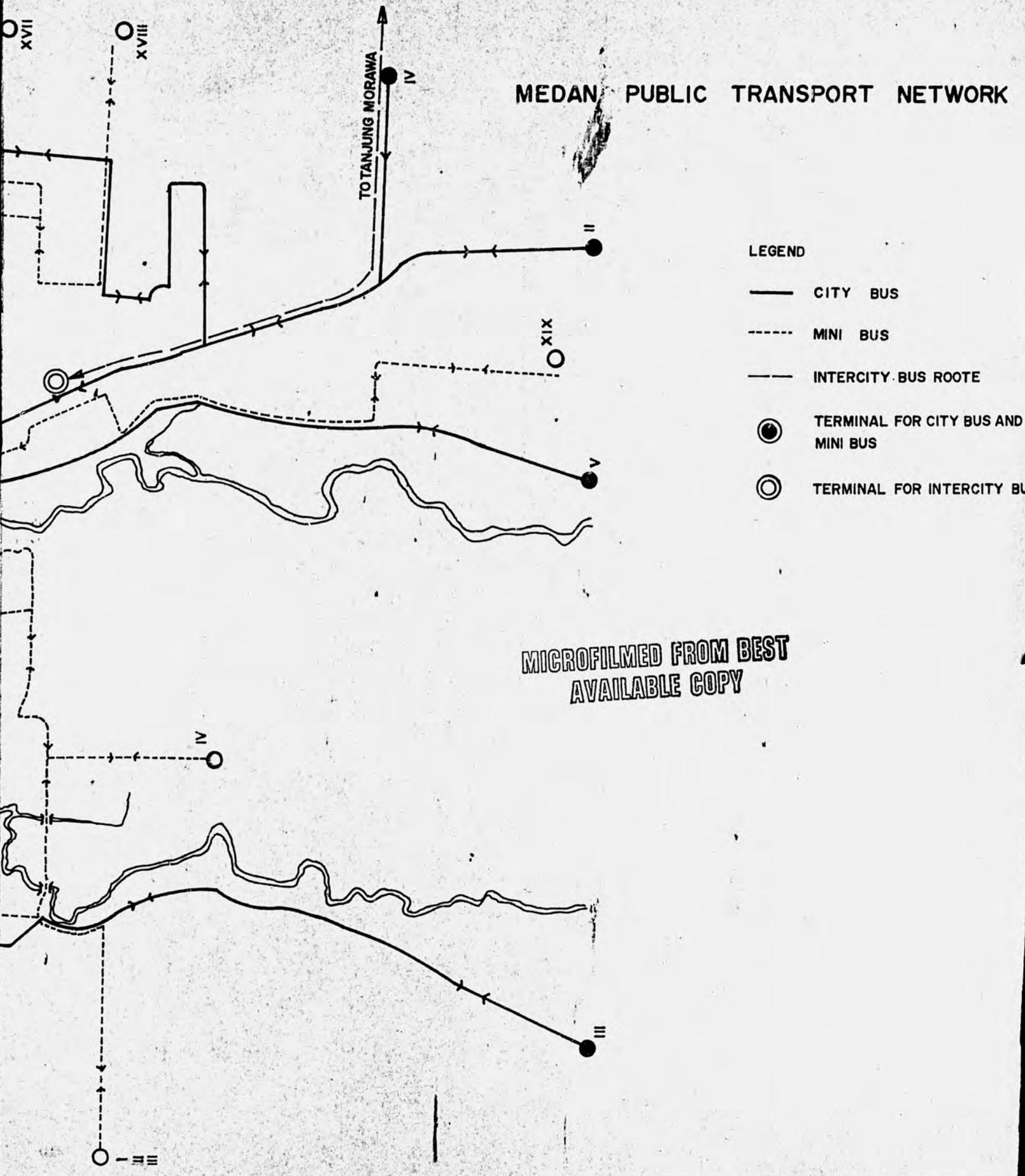


TABLE 6.2

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, mechanic 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	No. 3 (12 buses) No. 7 (21 buses)	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 MATU	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. POYRI	24	33 26	9	Rp.8,000/day/bus	Rp.100,000/mon./bus	05.30-19.00	No. 5 (26 buses)	8	8,000	50	88	75,000	45,000	Cash Collection
Total	349							Total	142,300					

6.2.2 Bemos and Mini Light Trucks

Bemos are generally three or four-wheeled minibus as 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 Jln. 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 this 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 rental range between Rp. 750 to 1,000. In general, the average earnings for a becak driver are about Rp. 1,500/day. The normal capacity of 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 held 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 Binjai, Belawan, Batang Kuis and further afield to Pangkalan Brandan and Siantar.

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.

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%		2.5%		- 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

6.3.1 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 industries area, central business and administrative areas, and residential areas, are scattered all over the city. Many conflicting land uses such as warehousing and industry 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 as little as 1.4% of the developed urban area, while the 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 the roads in 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, but 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 increasing 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 spareparts.

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 flows at intersections is also applied in this city. Some of them are operating well, while others do not meet the actual needs of traffic movements. Perfect channelizations integrated with traffic signals, signs and markings are 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 the factors causing chaotic traffic flows and endangering pedestrians. Traffic education is needed to be considered for long term plan.

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 will greatly help smooth traffic flows.

6.3.3 Goods Movement

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 in downtown area streets. The warehouses located around the railway station generates a large amount of truck traffic, stopping loading and unloading cargo or parking along roads further decreasing 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 warehouse 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 these 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 FINANCE 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 (Direktorat Tata Kota and Tata Daerah) specifically concerned with both project planning and broader planning functions.

Planning within the Central Government 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. 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 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, reforestation, 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 relaying 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 cases, 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 center 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 government and to assist 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. Provisional governments are assigned motor vehicle licenses, title, and transfer taxes and a share of revenue from sales of petroleum fuels in the province. In addition, they lever 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 policies 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 governments' 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 (Dinases) 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 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 (Dinases) which are responsible and report directly to the Mayor. Revenue assessments and collections 56 revenue sources are not guided or directed by Finance (Keuangan) 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.

Planning

The Medan government is interested in five-year planning but its main concern and focus center 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 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 center 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.

The Medan Government along these lines 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 Dinases, 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: (a) assuring adequate maintenance of priority infrastructure and the provision of priority current services, and (b) 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 direction to medium-term development requirements and the means to finance them -- rather than a more set of targets -- and, thus, raise government's sights beyond short-term financial management.

However, the government is necessarily forced with the exigencies of such 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.

7.2.1 Financial Performance and Future Requirements

Kotamadya Medan's financial performance in Repelita II reveals a mixed picture with progress in the earlier years but with signs of real problem developing in more recent years indicating real constraints in terms of future development requirements. A significant financial gap if emerges if the city is to bring up to par its present depleting

infrastructure 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 kampongs. 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 concerned urban program — Medan's progress in itself and as a key city and growth center for North Sumatra will either be less than its potential. The Third Plan of objectives of the city and province and would then only be partially achieved. The national plan, Repelita III, points towards a dualistic national strategy of assisting lower-income regions and at the same time aiding other regional growth centers 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 is setting annual Dinas budget revenue targets is one of negotiations between the Mayor and his staff, on the one hand, stressing overall revenues needs and the 14 concerned government collecting departments, whose works is mainly on operational development or service functions, emphasizing the difficulties involved in revenue collection. Neither Finance or 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, tax payers 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, 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 departments, whose main concern should be on developmental and social functions, targets results in a mixture of pressures and privileges on tax payers 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 taxes 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

TABLE 7.1

MEDAN TAX, FEE AND SERVICE INCOME, 1978/79

(In Rp. Million)

	1978/79		Percent Achieved
	Planned	Actual	
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	<u>40.0</u>	<u>13.0</u>	<u>32.5</u>
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	<u>400.0</u>	<u>302.4</u>	<u>75.6</u>
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	<u>208.5</u>	<u>204.9</u>	<u>98.3</u>
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.

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.

7.2.2 Overall Revenue, Expenditure, Saving and Investment

Revenue performance, therefore, under the present system presents a varied picture with Medan's own receipts in current price rupiahs over the Repelita II period appearing to increase satisfactorily. When deflated by the rise in prices, however, real revenues after 1975/76 fall sharply below present routine and development expenditure requirements. This area is under study. Thus, the following estimates and analysis are preliminary and subject to change of data and reinterpretation of inferences after fuller discussion with Kotamadya officials.

Table 7.2 presents this preliminary budget picture in normal (current) prices and real (constant 1978) price terms for the Repelita II period. It appears on the basis of present estimates that the pertinent receipt, expenditure and savings series performed as follows:

1. Medan's own resources in current prices increased by 37.7 percent in 1975/76 and by 19.2 percent in 1977/77, declined by 11.2 percent in 1977/78, and increased by 19.0 percent in 1978/79. Over the four years, Medan's own revenue in current prices increased by 64.7 percent or an average by 16.2 percent a year. To ascertain real growth, it is necessary to deflate the nominal, or current, price estimates by the only price series available for Medan, the Medan cost of living. Real growth of Medan's own revenue increased by 19.3 percent in 1975/76, 3.5 percent in 1976/77, fell by 21.3 percent in 1977/78, and rose by 13.5 percent in 1978/79, or by only 15 percent for the four years, or an average 3.8 percent a year. The large gain was in 1975/76. With population increasing by 3 percent a year, there was little real growth of revenue per capita to meet population needs. Beyond this, with Medan's gross domestic product undoubtedly

TABLE 7.2
REALIZED BUDGET RECEIPTS, EXPENDITURES AND SAVINGS FOR MEDAN
(In Rp. Million)

	1974/75	1975/76	1976/77	1977/78	1978/79	Percentage Increase Over 4 Years	Average Percent Increase per Year
1. Current Receipts							
a. Balance	23.2	182.7	18.3	5.7	19.2	-	-
b. From local resources (in constant 1978 prices)	<u>1,680.2</u> (2,641.5)	<u>2,313.7</u> (3,152.2)	<u>2,757.8</u> (3,263.7)	<u>2,450.1</u> (2,568.2)	<u>2,915.0</u> (2,915.0)	<u>64.7</u> (15.0)	<u>16.2</u> (3.8)
c. From External Sources	157.4	591.5	765.4	1,156.4	1,295.3	368.3	92.1
<u>Total</u> (In constant 1978 prices)	<u>1,860.8</u> (2,925.8)	<u>3,087.9</u> (4,206.9)	<u>3,541.5</u> (4,191.1)	<u>3,612.2</u> (3,786.4)	<u>4,229.5</u> (4,229.5)	<u>99.7</u> (45.4)	<u>24.9</u> (11.4)
2. Current Expenditures (In constant 1978 prices)	<u>1,050.6</u> (1,651.9)	<u>1,748.0</u> (2,381.5)	<u>2,172.5</u> (2,571.0)	<u>2,426.8</u> (2,543.8)	<u>2,909.2</u> (2,909.2)	<u>121.9</u> (65.5)	<u>30.5</u> (16.4)
3. Kotamadya Savings (In constant 1978 prices)	<u>810.2</u> (1,273.9)	<u>1,339.9</u> (1,825.5)	<u>1,369.0</u> (1,620.1)	<u>1,185.4</u> (1,242.6)	<u>1,320.3</u> (1,320.3)	<u>65.6</u> (14.0)	<u>16.4</u> (3.5)
4. Investment Expenditures (In constant 1978 prices)	<u>969.5</u> (1,524.4)	<u>2,184.8</u> (2,976.6)	<u>2,390.7</u> (2,829.2)	<u>2,480.8</u> (2,600.4)	<u>2,582.8</u> (2,582.8)	<u>142.7</u> (80.6)	<u>35.7</u> (20.2)
Price Index (1978 = 100)	63.6	73.4	84.5	95.4	100.0	48.3	12.1
Population (In millions)	1,015.5	1,047.0	1,079.4	1,104.1	1,140.1	11.8	3.0

Source: Keuangan

increasing by more than 3.8 percent a year, Medan's government revenue did not keep pace with the increase in total urban income.

2. Medan's total current receipts from all sources in 1978 real constant prices rose markedly by 43.8 percent in 1975/76 but declined by 0.4 and 9.7 percent in 1976/77 and 1977/78, rising in 1978/79 to just merely above the 1975/76 level. Our estimates include shared IPEDA tax receipts.
3. Medan's current expenditures in current prices during the Repelita II period rose by 121.9 percent or on average by 30.5 percent a year while, as noted above, current receipts increased by only 99.7 percent or by 24.9 percent a year. In real terms, Medan's current expenditures rose on average by 16.4 percent a year while current receipts from all sources rose by only 11.4 percent a year. Medan's own receipts rose by only 3.8 percent a year. The overall picture may even be less favorable since numerous maintenance and other current expenditures are actually recorded as investment expenditures and review of Medan's present infrastructure facilities indicates that they are not being adequately maintained.
4. Kotamadya real savings for development investment (Current Receipts minus Current Expenditures) — including as receipts all current external and IPEDA receipts — increased by 43.3 percent in 1975/76 but declined dramatically by 12.3 and 23.3 percent in 1976/77 and 1977/78, but recovered slightly in 1978/79 to end the plan period at a level some 28 percent below 1975/76. Again, Medan's savings would be even less if current expenditures included all maintenance and other current payments.
5. Real public investment, including that financed by the Central and Provincial Governments, rose sharply by 95.3 percent in 1975/76 but declined for each of the three remaining Plan years. While in 1974/75 some 84 percent of total public investment in Medan was financed by Medan's own savings, as defined here, in 1978/79 only 51 percent was financed by Medan's savings. Again, this percentage of self-financing is overstated for reasons noted above.

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20.1 RECOMMENDATIONS CONCERNING AGGREGATE PLANNING AND FINANCIAL PLANNING AND BUDGETING

The following recommendations for further improving Kotamadya's overall planning, financial and budgeting capabilities flow from study of the existing situation in city planning, taxation and budgeting. They increase Medan's local revenues effectively and equitably and improve notably, the orderliness and efficiency of budget allocations and operations. In the Repelita II period, the city's current income did not rise commensurately with the sharper increase in Kota current expenditures, with many of these expenditures incorporated incorrectly under development expenditures. The city's own savings contribution declined markedly as a proportion of total investment expenditures. That gap was filled by external (Central and Provincial Government) assistance. However, total urban government investment in real terms declined each year since the high of 1975/76.

The recommendations become even more essential if the Kotamadya government, with foreign aid and allied Central and Provincial Government assistance, is to mount an accelerated and concerted series of economic and social programs and projects in the Repelita III period, as proposed in the Medan Urban Development Study action program. Firstly, these projects and programs would require additional financial contributions from the presently constrained government budget initially and and subsequently over the period, funding for proper maintenance and expansion. With current revenues limited and monthly receipts fluctuating, Keuangan is concerned on a month-to-month basis with funds availability and only sanctions development and routine budget allocations (DIPs and DICs), on that basis, attempts to restrain expenditures when funds are tight. Therefore, it has to operate without much flexibility. It should be a concern in undertaking an additional set of large and fixed expenditures to an already tenuous cash management budgeting system that this does not result in overloading that system even further limiting its flexibility and causing further deletions or delays in sanctioning other priority expenditures.

Finally, it would be useless in an accelerated development program to merely include financial and technical assistance for a set of projects

without at the same time assisting the Kotamadya government on overall planning and finance which is an equally important and probably more pervasive constraint on Medan's overall growth. If the city government had sufficient finances and planning, programming and budget capabilities, it could have undoubtedly undertaken on its own additional housing, water supply, drainage and other priority development programs.

The specific recommended actions, therefore are as follows:

1. Proceed immediately towards adoption and implementation of an integrated annual planning/programming/budgeting/monitoring system which could make for effective and efficient selection of development projects and programs for the years, assure early and full year funding of these projects, and include quarterly monitoring of their physical and financial performance and requirements. This system would provide the basis for smooth and free operation of a true annual development plan.

In order to achieve such a system, it will be necessary - (as it is within the Central Government): (i) to centralize authority and responsibility for overall planning and budgeting in one senior economic official reporting to the mayor and strengthen his and allied offices with appropriate staff and facilities, and (ii) to analyze and adopt an integrated planning and budgeting system which will allow annual allocations to be made early in the fiscal year for full-year funding. The possibility of short-term borrowing (less than one full fiscal year) to cover temporary swings in government receipts should be carefully explored to assure a more even and orderly annual expenditure plan. A senior foreign advisor should assist the Kotamadya in the initial designing and operation of such a system on an intermittent basis with a middle-level foreign advisor present for the first year, at least, to assist in study and implementation.

2. Proceed immediately towards adoption and implementation of a more effective urban revenue program which could yield significantly increased near - and longer-term tax and other receipts

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based on progressive ability-to-pay taxation principles and a simplification and consolidation of the present pattern of numerous taxes and other charges.

In order to achieve a more dynamic and equitable local tax system, it will be necessary -- as it is within the Central Government -- (1) to centralize authority and responsibility in one senior financial officer reporting to the Mayor and strengthen his and allied offices with appropriate staff and facilities, (2) to assign that official overall authority for assessment of all taxes and charges for all government agencies and have collection of as many of these as feasible handled through his office, with his having responsibility for collection of all other taxes and charges, with tax assessment and tax collection functions clearly separated, and (3) to analyze present revenue bases and derive new bases for each important source of revenue and to derive more adequate collection methods and procedures such as assessment and collection systems. It would again be advisable to recruit a senior foreign advisor to assist the Kotamadya in the initial design and for a subsequent evaluation of the operation of the system and possibly, a middle-level foreign advisor for the first year to assist in placing the systems into operation.

3. Prepare and pass immediately, with Central Government approval, a set of appropriate tax enforcement laws and procedures.
4. Undertake as soon as feasible, after the above initial reviews, discussion with the Central and Provincial government's on kinds of local taxation, tax rates, assessments, and methods determined by those higher-level governments which now limit amount and type of city revenue. The senior foreign and middle-level advisors could assist in the underlying analysis.
5. Undertake as soon as feasible, after the above initial reviews, discussions with Central and Provincial governments on means of assuring earlier and more regular sanctioning of higher-level governmental grants and loans in accordance with

Medan's weather and budget cycle requirements. The senior foreign advisors could assist in the underlying analysis.

6. Analyze as soon as feasible the full financial implications of the proposed accelerated Medan Urban Development program and devise means to handle initial and subsequent city contributions within the devised new budget and tax systems. The senior foreign advisors could assist in the underlying analysis.

20.2 RECOMMENDED ACTIONS FOR THE IMPLEMENTATION OF THE DISP PRIORITY ACTION PROJECTS AND THE INSTITUTIONALIZATION OF A CONTINUOUS URBAN DEVELOPMENT PROGRAMMING PROCESS

Organizational and policy changes as well as technical assistance are required to implement and obtain higher returns from the proposed Central Government and DISP projects and programs and further and to improve urban development planning and implementation. The extent of rapid change and assistance will depend essentially upon the desires of the Kota, Provincial and Central Government, and upon the interest and assistance of foreign donors. (This Draft Report should provide the basis for necessary discussions and decisions before the end of the MUDS study and of finalization of its recommendations.)

At a minimum, besides financial assistance, it would be necessary for aid donors or the Central Government to provide at least one senior consultant (with provision for short-term consultation), to coordinate the interrelated aspects of water supply, sanitation and drainage planning and implementation preferably, at a high-level interdisciplinary office in the regional government.

It would also be useful for them to provide one city planner with considerable urban operating experience to coordinate the interrelated facets (water, sanitation, drainage, social and other community programs) of the kampung improvement and sites and services programs and to integrate the work on urban economic development and finance specified earlier; and urban planning and level development (one person with possibly one or two short-term consultants).

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 officer with appropriate provision for staffing, equipment and other requirements. These offices would be solely responsible to the Mayor.

Under these arrangements, it would be useful for the suggested senior engineering consultant and the senior urban planning consultants (along with their respective shorter-term consultants) to be attached to the appropriate BAPPEDA/Planning Development office and to the financial Planning/Budgeting of office as part of the concerted Medan Accelerated Urban Development Program for Repelita III.

If such an arrangement at the city level is not feasible for any reason, there may be good reasons to work out a similar program at the provincial level broadening the geographical project scope to also include consulting on surrounding towns. Indeed, there is justification to consider this alternative initially.

20.3 THE ESTABLISHMENT OF THE MEDAN METROPOLITAN REGION (SUB-REGION III) AS THE BASIC UNIT AND STRATEGIC AREA FOR THE PLANNING AND COORDINATION OF DEVELOPMENT

In the existing national planning system under Repelita no provision is made for the integrated description and coordination of all of the programs and projects proposed for the same city or region. Because of this it is very difficult to recognize the essential interrelationships between programs and projects in Medan and its metropolitan region and their combined impact on development. Furthermore, it is difficult to pinpoint the needs for coordination of the programs and projects in the same areas of Medan. This lack of geographic interrelation of the actual ongoing sectoral components of the national development system greatly weakens their real potential to direct and guide development of a strategic area such as Medan and consequently greatly diminishes the impact of very limited resources.

The instrument proposed as part of the DISP implementation process is consistent with the purposes of regional development and can be considered the first step to integrate Medan and its metropolitan region within the process of regional development. It is clear that Medan has been called upon to play a key role in the development of the country. Through the process of integrated planning and coordination of its own development it in turn should be progressively more closely united with the objectives of national and regional development. It is not necessary to wait until the effect of long term programs of regionalization in North Sumatra and elsewhere take effect in order to unify existing efforts before taking the priority and urgent actions necessary to order its own development.

The effective institutionalization of Medan and its metropolitan region for the integrated planning of development should be based on four components:

1. The interpretation of the National and Regional Repelita at the level of Medan and its Metropolitan region.
2. The ordering of annual operative plans of all levels of the central government based on the geographic entity of Sub-region III of North Sumatra with Medan as core.
3. The elaboration and approval of a Basic Development Structure Plan for the Development of the Medan Sub-region III.
4. The elaboration of annual operative plans and integrated Multi-sectoral budgets for the Medan Metropolitan region.

The effective implementation of such recommended actions would require the full support of the Central and Provincial Governments and the corresponding levels of sectoral development agencies. It is, however, a necessary element of any realistic implementation of both the short and long term DISP recommendations presented in this report. The Governor of North Sumatra would be responsible, through the provincial BAPPEDA, for the effective establishment of networking systems required for effecting the required changes. Additional senior technical staff would need to be allocated to the BAPPEDA for this purpose.

If such senior staff could be seconded from all relevant sectoral agencies they could work with two long term senior foreign advisors (one economist-finance planner and one urban and regional planner) in establishing the necessary mechanisms and in providing technical assistance to both sectoral agencies as well as Local Governments in the implementation process.