

FILE COPY

Report No. 469a-IND

Indonesia

The Five Cities Water Supply Projects

The Cities: Malang, Purwokerto and Banyuwangi in Java;
Jambi in Sumatera; Samarinda in Kalimantan

September 20, 1974

East Asia and Pacific Projects Department
Water Supply Division

Not for Public Use



Document of the International Bank for Reconstruction and Development
International Development Association

This report was prepared for official use only by the Bank Group. It may not be published, quoted or cited without Bank Group authorization. The Bank Group does not accept responsibility for the accuracy or completeness of the report.

CURRENCY EQUIVALENTS
(As of Sept. 20, 1974)

Currency Unit	=	Rupiah (Rp)
US\$1.00	=	Rp 415
Rp 1	=	US\$0.0024
Rp 1,000	=	US\$2.41
Rp 1 million	=	US\$2,410
US\$1 million	=	Rp 415 million

MEASURES AND EQUIVALENTS

mm	=	millimeter	=	0.04 inches
cm	=	centimeter	=	0.39 inches
m	=	meter	=	3.28 feet
km	=	kilometer	=	0.62 miles
km ²	=	square kilometer	=	0.39 square miles
ha	=	hectare	=	10,000 square meters or 2.47 acres
m ³	=	cubic meter	=	264 US gallons
m ³ /sec	=	cubic meters per second	=	22.8 million US gallons per day
l	=	liter	=	0.26 US gallons
l/sec	=	liters per second	=	22,800 US gallons per day
l/cd	=	liters per capita per day	=	0.26 US gallons per capita per day

PRINCIPAL ABBREVIATIONS AND ACRONYMS

Government	=	Government of Indonesia
BAPPENAS	=	National Development Planning Board
Cipta Karya	=	Directorate General of Housing, Building, Planning and Urban Development
DSE	=	Directorate of Sanitary Engineering
WE	=	Water Enterprise (of the City specified)
WHO	=	World Health Organization
UNICEF	=	United Nations International Children's Emergency Fund

FISCAL YEAR

April 1 - March 31
January 1 - December 31 for Samarinda

INDONESIA

APPRAISAL OF
THE FIVE CITIES WATER SUPPLY PROJECTS

TABLE OF CONTENTS

	<u>Page No.</u>
SUMMARY AND CONCLUSIONS	i-ii
I. INTRODUCTION	1
II. THE SECTOR	2
Background	2
Sector Organization and Management on National and Local Levels	3
Sector Needs and Development	3
III. THE BORROWER, THE IMPLEMENTING AGENCY AND THE BENEFICIARIES	5
The Borrower	5
The Directorate of Sanitary Engineering	5
Existing Water Works Organizations and Water Supply Facilities in the Five Cities	6
Proposed Water Enterprises	8
Required Management and Technical Assistance	9
Audit	9
IV. THE PROJECTS	10
Description	10
Cost Estimates	11
Amount of Proposed Loan	13
Design, Construction and Supervision of Construction	14
Procurement	14
Disbursement	15
Ecological Aspects	15
V. JUSTIFICATION	15
Project Objectives and Population and Demand Forecasts	15
Least Cost Solution	17
Return on Investment	17

This report was prepared by Messrs. L. Rasmusson and K.C. Smeltzer, and is based on information provided by the Government, the consulting engineers' reports and the findings of the field missions which visited Indonesia in April-May and November-December 1973.

	<u>Page No.</u>
VI. FINANCIAL ASPECTS	18
Record of Finances	18
Transfers of Assets to Water Enterprises	19
Financing Plan	19
Financial Projections	22
Water Rates and Billings	22
Future Finances	26
VII. AGREEMENTS REACHED AND RECOMMENDATION	27

LIST OF ANNEXES

ANNEXES

1. Proposed Organization Chart for the Directorate of Sanitary Engineering
2. Descriptions of Existing Water Supply Systems
3. Proposed Organization Chart for the Water Enterprises
4. Description of the Projects
5. Project Cost Estimates
6. Implementation Schedule
7. Estimated Schedule of Disbursements
8. Population and Water Demand Projections
9. Internal Financial Rates of Return
10. Malang - Income Statements, Cash Flows, and Balance Sheets 1972-83
11. Purwokerto - " " " " " " " "
12. Banyuwangi - " " " " " " " "
13. Jambi - " " " " " " " "
14. Samarinda - " " " " " " " 1971-82
15. Assumptions for Financial Projections
16. Schedules of Water Rates
17. Forecast Performance Indicators

MAPS

- IBRD 10870 - Location Map
- IBRD 10871 to
10875 - Existing Water Supply Systems and Proposed Projects

INDONESIA

APPRAISAL OF THE FIVE CITIES WATER SUPPLY PROJECTS

SUMMARY AND CONCLUSIONS

- i. This report covers the appraisal of projects to increase water supply and extend the water distribution systems in five cities in Indonesia - Malang, Purwokerto and Banyuwangi in Java; Jambi in Sumatera; and Samarinda in Kalimantan. The projects are the first stage, covering the fiscal years 1975 through 1981, of a master plan for water supply in the five cities, whose present facilities are inadequate for meeting the needs of their existing and growing populations, now approximating one million. These cities, together with the cities of Cirebon and Jogjakarta whose water supply system extensions are currently proposed to be financed with the aid of the Swiss Government, were selected by the Government of Indonesia as a package for purposes of financing. The projects in this group of seven cities represent the first step under a new program by the Government to improve and extend water supply facilities in cities throughout Indonesia.
- ii. The Government of Indonesia will be the borrower, and the beneficiaries will be water enterprises responsible for water supply in the respective cities. The Directorate of Sanitary Engineering will be the agency of the Government responsible for project implementation and construction supervision. The water supply facilities will be owned and operated by the water enterprises in the respective cities. The Directorate of Sanitary Engineering will employ consultants to assist and train its staff in the performance of its functions with respect to the projects and the national water supply program throughout Indonesia and to train the staffs of the water enterprises in operating and maintaining the extended facilities in the cities.
- iii. The objective of the projects is to provide piped water supply to the extent practicable in the first stage to areas of the cities which do not have public supplies of potable water and to provide facilities to ensure a continuous water supply and meet increasing water demands in the project areas. Present water demands are far in excess of the capacities of the existing systems, and large areas of the cities do not have public water supplies. Unless the projects are constructed, serious shortages will continue with increasing public health problems. The objective is also to develop the organizational structure and procedures of the national agency to enable it to administer effectively financial assistance to local water enterprises and a national water supply program for Indonesia.
- iv. The projects in the five cities include well drilling, construction of river intake facilities, pumping stations, treatment plants, transmission and distribution facilities, the installation of new service connections, public standpipes and bathhouses, and the improvement of

existing service. The total population of the five cities to be served with potable water as a result of the projects is estimated to increase from about 160,000 or 16% of total population, to 590,000 or 48% of total population.

v. The projects in the five cities are estimated to cost a total of about US\$22.8 million (Rp 9,442 million). The proposed loan of US\$14.5 million includes US\$12.3 million to cover about 54% of the total project cost in the five cities, which is the estimated foreign exchange component and cost of consultant services for detailed engineering and supervision. The balance of the construction costs will be financed by loans and contributions from the Government and internal cash generation. The cost of consultant services for management and technical assistance to the Directorate of Sanitary Engineering and to the water enterprises and the cost of feasibility studies for the extension of water supply to a second package of cities in Indonesia are estimated at about US\$2.6 million (Rp 1,100 million), against which US\$2.2 million of the proposed loan will be disbursed.

vi. All contracts for material and equipment needed for the projects will be awarded on the basis of international competitive bidding. Construction contracts will not be financed under the proposed loan and will be awarded on the basis of local competitive bidding. Most of the material and equipment will be imported, but some items such as small diameter pipes could be supplied by local manufacturers who will receive a preference of 15% or the prevailing tariff, whichever is lower.

vii. The major elements of the program represent the least-cost solution from among feasible alternatives at discount rates in the 10 to 12% range. The internal financial rate of return on the individual projects in the respective cities is estimated to vary from 0.4% to approximately 7%. These returns are calculated by measuring benefits by revenues without taking into consideration health and other related benefits. The wide variation in the returns is because of the large differences in existing water rates among the cities and the variations in the investment and operating costs for each city. The existing rates are expected to be increased gradually over the years in line with the ability of consumers to pay. The substantive justification for the projects does not rest primarily on the financial forecasts which do not measure their contribution to the economic and social development of Indonesia, but rather on the fact that a modest level of water consumption is provided at least cost and that the health hazards of not doing so are serious.

viii. The projects are suitable for an IBRD loan of US\$14.5 million for a period of thirty years, including a grace period of 6 years. The Government of Indonesia will relend US\$12.3 million of the proceeds of the loan to the respective beneficiaries at an interest rate of 9% per annum repayable over 30 years, including a grace period of 6 years, during which interest will be waived.

INDONESIA

APPRAISAL OF THE FIVE CITIES WATER SUPPLY PROJECTS

I. INTRODUCTION

1.01 The Government of Indonesia has requested a loan of US\$14.5 million to finance the foreign exchange costs of projects to increase the water supply and extend the water distribution systems in five cities in Indonesia (Map IBRD 10870) - Malang, Purwokerto and Banyuwangi in Java; Jambi in Sumatera; and Samarinda in Kalimantan - and to finance services relating to the national water supply program in Indonesia. The Government will relend US\$12.3 million of the proceeds of the loan to water enterprises which will own and operate the water systems in the respective cities. These projects are estimated to cost a total of US\$22.8 million equivalent. The proposed IBRD loan includes US\$2.2 million for services to, and training of, the national and local organizations by consultants in order to implement the projects and permit the Government to extend this program to other cities and to finance a feasibility study for a second package of water supply projects selected by the Government for financing.

1.02 The projects are part of a long-term plan for the development of water supply in the five cities. The projects in these cities, together with the cities of Cirebon and Jogjakarta which are proposed to be financed with the aid of the Swiss Government, were selected by the Government of Indonesia as a package for purposes of financing. This group of projects represents a first step by the Government of Indonesia in a program to improve and extend water facilities throughout Indonesia.

1.03 The Directorate of Sanitary Engineering will be the agency of the Government of Indonesia primarily responsible for the implementation of the projects. New water enterprises are being established in each of the five cities to operate and maintain the systems.

1.04 An IDA reconnaissance mission visited Indonesia in July-August 1970 and in February 1971 to identify the principal problems in the urban water supply and sewerage sector and to assess possible solutions. The report, issued on December 9, 1971 (PU-81), emphasized the need, recognized by the Government of Indonesia, to move the existing financing policy of the Government from a grant to a loan approach and to consideration of the entire water supply system requirements rather than only source and transmission facilities. The report also included recommendations for studies which would (a) identify and consider solutions to the problems involved in a change of policy from grants to loans in financing municipal water projects, (b) formulate the procedures to be followed, nationally and locally, in administering the loan program, (c) suggest the required changes in organization and staffing required to implement the loan program, and (d) lead to the selection of five or six cities where preliminary engineering and feasibility studies could be carried out and which would serve as the pilot cities for initiating and testing of the loan program.

1.05 Following the sector study, the Government of Indonesia requested IDA assistance for feasibility and organizational studies as a first step in implementing the recommendations in the sector study, and consultant services for this purpose were financed under Technical Assistance Credit No. Cr. 216. In 1972-1973 the consultants prepared master plans and feasibility studies for water supplies in seven cities (Malang, Purwokerto, Banyuwangi, Jambi, Samarinda, Cirebon and Jogjakarta) and studies for developing organizations at the national and local levels which could successfully undertake a water supply program. The studies were made by Nihon Suido Consultants Company, Ltd. of Tokyo, in association with James M. Montgomery Consulting Engineers Inc. of Pasadena; Sycip, Gorres, Velayo & Co. of Manila, management consultants; and Indonesian Contracting Engineering Service of Jakarta. The studies have been supervised and reviewed by IDA and form the basis for the projects included in this report.

1.06 A pre-appraisal mission composed of Messrs. V. Rajagopalan, L. Rasmusson and K.C. Smeltzer visited Indonesia in April-May 1973, and an appraisal mission of the latter two persons visited Indonesia in November-December 1973. In June 1973, the Swiss Government advised that it would finance the water supply projects for Cirebon and Jogjakarta and that the appraisal of these projects would be conducted by its representatives. Accordingly, the projects in the other five cities are the subject of this appraisal report.

II. THE SECTOR

Background

2.01 Indonesia, with a population of about 128 million and growing at an annual rate of more than 2%, is the world's fifth ranking country in population. It comprises over 3,000 inhabited islands which extend about 5,000 km east to west and 2,000 km north to south. The land area is about 1.9 million km² and the four major islands are Java, Sumatera, Kalimantan and Sulawesi. The population density of Indonesia is about 65 inhabitants per km². Java, which has 69% of the total population of Indonesia but only 7% of the land area, has a population density of 600 per km², one of the highest in the world. Over 20 million of the population is urban, living in cities of more than 5,000 inhabitants, and urbanization of the country is accelerating.

2.02 Indonesia's economy is generally based on agriculture (about half of the national product), which provides employment and income for more than 70% of the population. Oil and gas are Indonesia's most important natural resources. Indonesia's general economic climate has improved over the past few years with a promising start on development. The Government's current development planning is based on an estimated growth of the economy of 7.5% annually.

2.03 Indonesia is divided administratively into 23 provinces and 3 territories, which are in turn divided into regencies or districts. The cities, depending on their size, have their own municipal governments or are administered by the regency governments.

Sector Organization and Management on National and Local Levels

2.04 Two ministries are responsible for national water supply and sewerage planning -- the Ministry of Public Works and Power for urban areas, defined as Municipalities with a population larger than 5,000, and the Ministry of Health for rural areas. The Ministry of Mines through its Geological Survey is in charge of groundwater exploration and relevant data collection. Funds made available for water supply and sewerage projects in Indonesia's annual development budget are allocated by the National Development Planning Board, BAPPENAS.

2.05 The Ministry of Health is organized into two units, General and Sanitary Engineering Division, and Directorate of Hygiene and Sanitation. Their responsibilities are mainly technical advisory services on water quality control, design, construction, and related aspects on environmental sanitation. Within the Ministry of Public Works and Power, the Directorate General of Water Sources deals mainly with water rights, allocations of water resources, and the development of water resources for agricultural purposes. The Directorate General of Housing, Building, Planning and Urban Development (Cipta Karya) is in charge of urban water supply and sewerage.

2.06 Cipta Karya through its Directorate of Sanitary Engineering (DSE) is the implementing agency for water supply and sewerage projects with the functions of project planning and project selection, fund allocations, preliminary and detailed engineering, construction supervision and, occasionally, operation and maintenance of water supply systems.

2.07 The municipalities or regencies are usually responsible for operation and maintenance of the water works and for extension of the distribution systems. The water works entities are usually a part of the municipal or regency government, and their organization and degree of dependency vary from city to city. The water revenues usually barely cover operation and maintenance costs, and very few replacements or extensions of the distribution systems have been carried out during the last 30 years.

Sector Needs and Development

2.08 A considerable portion of the total urban population lives in cities with no public water supply, and where public water supply exists it is inadequate and serves only a small part of the population. Most people are dependent on dug wells, streams or rivers with attendant substantial health risks. Most existing water supply systems suffer from low pressure and intermittent supply, and safe water entering the system will not always remain uncontaminated.

2.09 The water supply needs of the rural population, living in more than 50,000 villages and comprising about 80% of the total population, present a formidable problem. Water is mainly obtained from dug wells, streams or rivers, which in most cases are contaminated. A very limited program for organized and safe water supply is assisted by UNICEF/WHO, but a negligible percentage of the rural population is involved.

2.10 The urban population served by sewerage systems is very small. Human wastes are mainly discharged into septic tanks, latrines, surface drainage ditches, or directly into streams and rivers, and constitute a hazard for non public water supplies by pollution of wells, streams and rivers.

2.11 Between 1959 and 1965 very few water supply schemes were constructed in Indonesia. Some have been constructed since 1965 or have been under construction as part of the 5-year plan for fiscal years 1970 through 1974, instituted by the Government to implement a broad program of economic development. Many of these improvements will not supply more consumers because the works financed from national funds have been almost exclusively confined to supply and transmission facilities; municipalities or regencies do not have the funds needed to extend distribution systems.

2.12 The table below shows investments during 1970-74 by DSE on water supply and sewerage projects. The funds have been provided as grants.

Investments - Five-Year Plan 1970-74

<u>Year ended March 31</u>	Rupiahs millions (US\$ millions)					<u>Total</u>
	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	
	----- Actual -----			----- Estimated -----		
Water Supply	1,528.5 (3.683)	2,310.0 (5.566)	2,405.1 (5.795)	2,846.5 (6.859)	3,460.4 (8.338)	12,550.5 (30.241)
Sewerage	50.0 (0.120)	48.6 (0.117)	100.0 (0.241)	45.0 (0.109)	143.6 (0.346)	387.2 (0.933)
Total	1,578.5 (3.803)	2,358.6 (5.683)	2,505.1 (6.036)	2,891.5 (6.968)	3,604.0 (8.684)	12,937.7 (31.174)

At the levels of investment shown above the country may well lose ground in its attempts to supply a larger percentage of the population with safe water unless major changes are made. Only 3% of the five-year plan allocation has been spent on drainage and sewerage works, which hardly covers elementary needs.

2.13 The budget allocation for rural water supply in the five-year plan (1970-74) amounted to Rp 140 million (US\$337,000). The cost of rural water supply construction in the five-year plan is estimated at less than US\$1.0 million including the UNICEF/WHO contribution. The second five-year

plan (1975-79) has greater provision for rural water supply, about US\$4 to 5 million. This rate of investment will have only a small impact on the problem. However, the organization to carry out a massive program efficiently does not yet exist, even if all the funds required were to be provided.

III. THE BORROWER, THE IMPLEMENTING AGENCY AND THE BENEFICIARIES

The Borrower

3.01 The Government of Indonesia through its Ministry of Finance will be the borrower and will relend the major part of the proceeds of the loan to the beneficiaries which will be the water enterprises (WE's) established to take over the responsibility for water supply in each of the five project cities. DSE will be the implementing agency.

The Directorate of Sanitary Engineering

3.02 DSE is responsible for the national water supply program including investigation, planning, design and construction supervision of urban water supply and sewerage projects. The responsibility for extension of distribution systems rests in the local authorities, but will be taken over by the WE's.

3.03 DSE's present organization is composed of four divisions - Planning Survey and Design, Water Supply, Sewerage, and Logistics - and three organizational units - Project Aid, Secretariat, and Project Management for construction supervision. The divisions and units are further subdivided into sections. The total number of staff in FY 1973 was 137, including 27 qualified engineers of whom 14 have overseas training. Another 33 staff members have lower engineering degrees. There are numerous vacancies in the organization due to recruitment difficulties and the necessity for use of engineers in the field for construction supervision and water system operation and maintenance. The staff members have generally good theoretical background but lack practical planning and design experience.

3.04 The consultants, financed under the Technical Assistance Credit (para 1.05), reviewed the existing organization of DSE, and recommended changes to enable it to cope with the increased work load and responsibilities under the program. The organization will be restructured substantially in accordance with the recommendations and a chart of the proposed organization is shown in Annex 1. The new organization will comprise five divisions: Planning and Evaluation, Survey and Design, Construction, Logistics, and Technical Assistance. There will also be units for Special Staff and for Finance and Administration. The Survey and Design Division will be composed of three existing divisions to achieve a concentration of the design capacity. The Construction Division will be a new division subdivided geographically into three sections. The Logistics Division will be strengthened. The Technical Assistance Division will conduct training of staff members on the national and local levels through seminars or in-service training and will

assist in the establishment of WE's. The Planning and Evaluation Division will play an important role in the development of projects for the national water supply program. The present Secretariat will be strengthened to form the Finance and Administration Unit and will include a section for financial planning and loan administration. In the past, funds for development and extensions of water supply facilities have been given as grants from the national government to the local governments, but this procedure will be changed under the new program and all money allocations will be as loans and equity payments. External loans, such as the proposed IBRD one, will also be channelled through DSE.

3.05 The restructured organization will require new working procedures for loan applications, awarding of contracts, fund releases and loan repayments. The Planning and Evaluation Division will review the water supply requirements in the cities, prepare feasibility reports and establish criteria for project selection. The Finance and Administration Unit will, inter alia, assist in the preparation of loan applications and subsidiary loan agreement documents. DSE will implement projects up to the stage of commissioning when they will be turned over to the local WE's. The Bank of Indonesia will be the channel for effecting financial transactions such as fund releases and loan repayments.

3.06 The changes in organization, working procedures and expected workload will require an increase in the number of staff and improvements in their performance. The total staff is projected to rise from the present 137 to 177 in 1980. Assistance from management and engineering consultants will be needed to implement the changes in organization and working procedures and to expand DSE's engineering capacity. Provision for necessary consultant services for this purpose is included in the proposed loan.

3.07 It was agreed during negotiations that the reorganization of DSE and the introduction of proposed working procedures will be implemented and additional staff will be recruited according to agreed time schedules.

Existing Water Works Organizations and Water Supply Facilities in the Five Cities

3.08 The water works organizations in the five cities vary in their structure and degree of dependency. They are geared to operation and maintenance only, and construction works are confined mainly to minor extensions of distribution mains, pipe replacements and consumer connections. The existing water works are described briefly below, in more detail in Annex 2, and are shown on Maps IBRD 10871 to 10875.

3.09 In MALANG the water works is operated by three departments of the municipal organization: Public Works, Finance, and Local Enterprises Departments. The number of staff is about 130. The water works supplies about 23,000 m³/day and serves about 30% of the total population of 422,000 by 13,000 service connections or by standpipes. From two springs, Binangun and Karang, the water gravitates to balancing storage tanks at Dinoyo and Betek, and then to the distribution system. The distribution system is subdivided into two pressure zones, each supplied from its storage tank.

3.10 In PURWOKERTO the Public Works Department of the Regency operates the water works through two divisions, the Technical and the Administration Divisions. The number of staff is about 25. The water works supplies about 1,400 m³/day and serves about 3% of the total population of 211,000 by 1,300 service connections. From a spring at Kawung Karang the water after treatment gravitates to a balancing storage tank and then to the distribution system.

3.11 In BANYUWANGI water supply is the responsibility of a unit within the department of local enterprises of the Regency. The water works is subdivided into a Technical Division and an Administration and Cashier Unit. The number of staff is about 20. The water works supplies about 1,200 m³/day and serves about 6% of the total population of 78,000 by 1,300 service connections. From the Gedor Spring the water gravitates to a break pressure tank and balancing storage tanks and then to the distribution system. The distribution system is subdivided into two pressure zones.

3.12 In JAMBI water supply is directly under the office of the Mayor and it is subdivided into five divisions, Administration, Collection, Technical, Pumps, and Repairs Divisions. The number of staff is about 55. The water works supplies 650 m³/day and serves about 3% of the total population of 166,000 by 1,500 service connections. From the Batang Hari River the water is pumped to a treatment plant for chemical flocculation, sedimentation and rapid sand filtration. The treated water is pumped to an elevated storage tank for distribution to the service area. The immediate improvement program, currently under way, will increase the water supply by FY 1976 to about 2,500 m³/day.

3.13 In SAMARINDA water supply is directly under the office of the Mayor, but is supervised in technical matters by the Municipal Public Works Department. The water supply unit is subdivided into two divisions, the Administration and Financial and the Technical Divisions. The number of staff is about 25. The water works supplies 915 m³/day and serves about 14% of the total population of 106,000 by 1,000 service connections and standpipes. From the Mahakam River the water is pumped to a treatment plant for chemical flocculation, sedimentation and rapid sand filtration. The treated water is collected in a clear well from where it gravitates to the service area. The immediate improvement program, currently under way will increase the water supply by FY 1975 to about 3,100 m³/day.

3.14 The existing water supply systems in the five cities suffer from low or intermittent pressure. Many meters are in need of repair or replacement, and in Jambi and Samarinda services are not metered. The operation and maintenance of facilities have suffered from shortages of trained personnel because of the lack of funds and organization. The accounting systems are inadequate to provide meaningful financial statements or information for management control. Water rates have been sufficient only to cover current cash expenses and provide small surpluses which have been devoted to general uses without sufficient attention to the existing and expanding needs of the community for water supply.

3.15 The five cities have very limited and rudimentary sewerage systems. Except for some septic tanks, there is no sewage treatment. The sewage is generally discharged into open channels, streams or rivers, polluting the water sources, including dug wells, on which most of the population depends.

Proposed Water Enterprises

3.16 The implementation of the water supply program will considerably increase the responsibilities of the existing water works organizations in the five cities. As the supply areas are expanded, revenues from water sales will increase substantially, and effective operating procedures, accounting systems and management controls will be needed. To cope with such increased responsibilities in the five cities and in other cities which will have their water supply systems expanded, changes in organization and working procedures are needed. Studies have been carried out by the management consultant, SyCip, Gorres, Velayo & Co., under the Technical Assistance Credit (para 1.05) and they have recommended reorganization of the water works as shown in Annex 3.

3.17 The organizational structures for all cities will be substantially the same with minor variations to accommodate the differences in the water supply systems. The WE will be controlled by a water board to be composed of representatives of the local and national governments. The Board will appoint a Managing Director, who, with the assistance of the Finance and Administration Director and the Chief Engineer, will be responsible for implementing board policy and for day-to-day control.

3.18 Under the proposed organization, the WE's are being set up as entities (Perusahaan Daerah) separate from the local governments, accounting separately for their operations and retaining their own revenues from which they will meet operating and capital expenditures and debt service. General regulations for regional enterprises are spelled out in Act No. 5, Year 1962, and particular regulations or charters within this framework have been issued by the local governments for water works organizations. WE's have already been established for Malang, Purwokerto and Samarinda and will be established for Banyuwangi and Jambi before the proposed loan becomes effective. During negotiations it was agreed that (i) each municipality or regency will transfer to the appropriate WE the water works and all assets used in its operations, including all receivables and accrued assets and a sufficient amount of working capital to enable it to continue its operations; and (ii) each WE will enter into a project loan agreement, acceptable to IBRD, with the National Government for the related project. A condition of effectiveness of the proposed loan is that all five project loan agreements will have been signed.

3.19 The existing water systems have been operated under the supervision of chiefs of public works departments which have functions in addition to water supply. In view of this and the need for qualified financial and technical personnel, particularly at management levels, to operate the expanded

and modernized systems, recruitment of Managing Directors and Chief Engineers, and in most cases Finance and Administration Directors, will be required. During negotiations agreement was reached that in each case a Managing Director and Chief Engineer will be appointed before the project loan agreement is signed and that the Finance and Administration Director and accountant will be appointed within six months of the signing of the project loan agreement. However, it may be necessary to fill the posts of Chief Engineer and Finance and Administration Director on a temporary basis by seconding staff from DSE or the municipality concerned, to serve also as Managing Directors and accountants, respectively.

Required Management and Technical Assistance

3.20 DSE will require assistance and advisory services of a consulting firm to ensure the effective implementation of the water supply program at both the national and local levels. Specialists will be needed in organization, management, accounting systems, finance, engineering, operation, maintenance and training in these areas. The consultant would assist with (a) organizing and training the DSE staff to implement proposed organizational changes; (b) the establishment of new working procedures, operating objectives and responsibilities, and training people to accomplish them; and (c) reorganizing municipal water works operations, and training personnel at the local level to operate and maintain effectively the individual water works system. Provision for consultant services for three years is included in the proposed loan. DSE is currently negotiating a contract with SyCip, Gorres, Velayo & Co., which prepared the previous management and organizational studies (para 1.05). The engagement of consultants will be a condition of effectiveness of the proposed loan. The progress of the consultant's work will be reviewed by DSE and IBRD periodically, and any changes or revisions needed will be introduced.

Audit

3.21 The accounts of the water works are not kept on a commercial accounting basis, and the usual financial statements for utility enterprises are not prepared. While there generally are periodic reviews of receipts and expenditures under the municipal systems by governmental authorities, audits are not made under generally accepted accounting standards. The accounts of each water enterprise will be audited annually by independent auditors acceptable to IBRD. The first audit will cover accounts for the fiscal year ending December 31, 1976, or March 31, 1977, as appropriate (See para 6.02), and the auditor's report and financial statements will be sent to IBRD not later than six months after the close of each fiscal year.

IV. THE PROJECTS

Description

4.01 The projects are the first stage, covering the years 1975 through 1981, of a master plan prepared by the consultants for water supply in the five cities (para 1.05). Only about 16% of the total population in the project areas of the five cities is now served with potable water through service connections or standpipes by the existing water supply facilities. The first stage projects will increase the percentage of population served to 48% in 1981, and the master plan program contemplates a further increase to 75% in 2001. (Population and water demand projections for each city are shown in Annex 8).

4.02 The principal elements of the project in each city and of the consultant services at the national and local levels are listed below. The proposed works are described in detail in Annex 4 and the layout of each system is shown on Maps IBRD 10871 to 10875.

Malang

1. Development of the Mendit Spring with collection structure, treatment plant, clearwell and booster pumping station;
2. about 58 km of transmission and distribution mains;
3. booster pumping station and service reservoir; and
4. test well drilling for possible ground water development for the second stage.

Purwokerto

1. Groundwater development by construction of three deep wells; and
2. about 37 km of transmission and distribution mains.

Banyuwangi

1. A break pressure tank with chlorination plant; and
2. about 19 km of transmission and distribution mains.

Jambi

1. River intake with pumping station, force main, treatment works, clear well and booster pumping station; and
2. about 64 km of distribution mains and a balancing storage tank.

Samarinda

1. River intake with pumping station, transmission mains, treatment works, clear well and booster pumping station; and

2. about 37 km of distribution mains.

General

In addition, the project in each city will include service connections, public standpipes, public bathhouses, motor vehicles, laboratory equipment and staff housing and, where required, stores and office accommodation.

Consultant Services

1. Detailed engineering design and construction supervision by foreign and local consultants for the projects;
2. management and technical assistance on the national and local levels for implementation of proposed changes in organizations and working procedures; and
3. feasibility studies for a second package of seven water supply projects.

Cost Estimates

4.03 The total estimated costs for the projects in the five cities and for consultant services are summarized in the table below. The project costs, subdivided into items and into the years in which they are projected to be spent, are shown in Annex 5.

	Rp Million			US\$ Millions			% of sub-project costs			% of Total Project Cost
	Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	
MALANG										
Civil works	440.71	-	440.71	1.06	-	1.06	13	-	13	
Material & Equipment	-	1,025.96	1,025.96	-	2.47	2.47	-	31	31	
Engineering	73.80	252.70	326.50	0.18	0.61	0.79	2	8	10	
Contingencies	636.63	876.52	1,513.15	1.54	2.11	3.65	19	27	46	
Total	<u>1,151.14</u>	<u>2,155.18</u>	<u>3,306.32</u>	<u>2.78</u>	<u>5.19</u>	<u>7.97</u>	<u>34</u>	<u>66</u>	<u>100</u>	31
PURWOKERTO										
Civil works	147.62	-	147.62	0.36	-	0.36	12	-	12	
Material & Equipment	-	402.27	402.27	-	0.97	0.97	-	33	33	
Engineering	28.90	99.20	128.10	0.07	0.24	0.31	3	8	11	
Contingencies	201.00	338.00	539.00	0.48	0.81	1.29	16	28	44	
Total	<u>377.52</u>	<u>839.47</u>	<u>1,216.99</u>	<u>0.91</u>	<u>2.02</u>	<u>2.93</u>	<u>31</u>	<u>69</u>	<u>100</u>	12
BANYUWANGI										
Civil works	79.20	-	79.20	0.19	-	0.19	22	-	22	
Material & Equipment	-	74.30	74.30	-	0.18	0.18	-	21	21	
Engineering	8.30	28.00	36.30	0.02	0.07	0.09	2	8	10	
Contingencies	106.62	61.88	168.50	0.26	0.14	0.40	30	17	47	
Total	<u>194.12</u>	<u>164.18</u>	<u>358.30</u>	<u>0.47</u>	<u>0.39</u>	<u>0.86</u>	<u>54</u>	<u>46</u>	<u>100</u>	3
JAMBI										
Civil works	612.97	-	612.97	1.48	-	1.48	25	-	25	
Material & Equipment	-	395.93	395.93	-	0.95	0.95	-	17	17	
Engineering	48.00	164.30	212.30	0.11	0.40	0.51	2	7	9	
Contingencies	826.37	342.46	1,168.83	1.99	0.83	2.82	35	14	49	
Total	<u>1,487.34</u>	<u>902.69</u>	<u>2,390.03</u>	<u>3.58</u>	<u>2.18</u>	<u>5.76</u>	<u>62</u>	<u>38</u>	<u>100</u>	23
SAMARINDA										
Civil works	466.19	-	466.19	1.12	-	1.12	21	-	21	
Material & Equipment	-	431.17	431.17	-	1.04	1.04	-	20	20	
Engineering	48.00	163.80	211.80	0.12	0.39	0.51	2	8	10	
Contingencies	682.31	379.23	1,061.54	1.64	0.92	2.56	32	17	49	
Total	<u>1,196.50</u>	<u>974.20</u>	<u>2,170.70</u>	<u>2.88</u>	<u>2.35</u>	<u>5.23</u>	<u>55</u>	<u>45</u>	<u>100</u>	21
SUMMARY FIVE CITIES										
Civil works	1,746.69	-	1,746.69	4.21	-	4.21	19	-	19	
Mat. & Equipment	-	2,329.63	2,329.63	-	5.61	5.61	-	25	25	
Engineering,										
-Detailed Design	100.00	500.00	600.00	0.24	1.21	1.45	1	5	6	
-Construction										
Supervision	107.00	208.00	315.00	0.26	0.50	0.76	1	2	3	
Contingencies										
-Physical	436.67	582.41	1,019.08	1.05	1.40	2.45	5	6	11	
-Price	2,016.26	1,415.68	3,431.94	4.86	3.41	8.27	21	15	36	
Total Construction	<u>4,406.62</u>	<u>5,035.72</u>	<u>9,442.34</u>	<u>10.62</u>	<u>12.13</u>	<u>22.75</u>	<u>47</u>	<u>53</u>	<u>100</u>	90
MANAGEMENT AND TECHNICAL ASSISTANCE										
TECHNICAL ASSISTANCE	187.75	539.50	726.25	0.45	1.30	1.75	26	74	100	7
FEASIBILITY STUDIES										
SECOND PACKAGE	145.25	228.25	373.50	0.35	0.55	0.90	39	61	100	3
TOTAL PROJECT COST	<u>4,738.62</u>	<u>5,803.47</u>	<u>10,542.09</u>	<u>11.42</u>	<u>13.98</u>	<u>25.40</u>	<u>45</u>	<u>55</u>	<u>100</u>	<u>100</u>

4.04 The costs for civil works are consultant's estimates based on preliminary design for the water works, relevant unit prices in the respective cities, and unit prices for similar projects in other places duly adjusted to the particular local conditions in the five cities. The costs for equipment and material are based on consultant's estimates which were adjusted during appraisal to July 1973 prices. The physical contingency allowance of 25% of the 1973 costs is considered appropriate because of the nature of the works in making extensions to the distribution systems which constitute a major part of the projects. Price contingencies applied to the base prices and physical contingencies from July 1973 through the construction period are: for 1973 (July-December) 10% on foreign costs and 24% on local; for 1974 14% and 18%, respectively; for 1975 11% and 15%; and for 1976 and thereafter 7.5% and 12% annually. The cost estimates do not include any duties or taxes on imported goods financed under the proposed loan, since DSE is exempted by the Government from such charges.

4.05 The costs for detailed engineering are based on a draft contract between DSE and the consultant, and the costs for construction supervision are consultant's estimates based on length of construction period and manpower requirements. The costs for management and technical assistance are based on a draft contract, and the costs for the next package feasibility studies are based on actual costs for the first package duly adjusted.

Amount of Proposed Loan

4.06 An IBRD loan of US\$14.5 million, equal to 57% of the total project cost of US\$25.4 million, is proposed and would be allocated as follows:

	<u>US\$ million</u>	<u>%</u>
(a) Equipment and material supply contracts subject to international competitive bidding	5.61	39
(b) Consultant costs for detailed engineering and construction supervision	1.90 ^{/a}	13
(c) Contingencies	<u>4.81</u>	<u>33</u>
IBRD Loan for five cities	12.32	85
(d) Consultant costs for management and technical assistance	1.43 ^{/a}	10
(e) Consultant costs for second package feasibility studies	<u>0.75^{/a}</u>	<u>5</u>
Total IBRD Loan	14.50	100

/a Foreign and local costs.

4.07 In view of the urgency to commence the projects, the detailed engineering should be started as soon as possible. It is proposed that IBRD reimburse the expenditures after July 31, 1974, for consultant services. The total retroactive financing involved will not exceed US\$0.4 million.

Design, Construction and Supervision of Construction

4.08 A project implementation schedule is in Annex 6. DSE will be responsible for the implementation of the projects in the five cities. The water works will be handed over to the WE's after commissioning. However, in Samarinda and Jambi DSE will retain responsibility for operation for such time as is needed. DSE's planning, design and construction supervisory capacity is limited and consultants are proposed to be engaged for detailed engineering, preparation of bidding documents, bid evaluation and construction supervision.

4.09 The projects prepared by the consultants were substantially changed during the appraisal as a result of technical and economic evaluations. Although final designs are unlikely to be materially different, changes in details are expected. It was agreed during negotiations that the consultants will submit to DSE and IBRD the detailed designs for project components before preparing tender documents.

4.10 DSE is negotiating a contract with Nihon Suido Consultants Company Ltd., Japan, in association with James M. Montgomery Consulting Engineers Inc., U.S.A., which prepared the feasibility studies (para 1.05). Nihon Suido intends to sublet part of the consultant works to a local consultant firm, P.T. Sangkuriang, Bandung. This arrangement is satisfactory.

4.11 For the second package of feasibility studies, IBRD has reviewed terms of reference and has approved a short list of consultants. The consultants will be employed on terms and conditions satisfactory to IBRD.

Procurement

4.12 DSE will be in charge of all procurement. The procurement items financed by the loan, except consultant services, will be obtained by international competitive bidding in accordance with the Bank's Guidelines for Procurement. Material and equipment for the five projects will be grouped conveniently to attract a wide range of manufacturers and to get the advantages of bulk deliveries. For bid comparisons, a domestic preference of 15% of the C.I.F. cost or the applicable custom duties, whichever is lower, will be allowed. Local manufacturers are expected to compete for the supply of a few items such as PVC and steel pipes for the distribution systems. The amount involved would be about US\$500,000.

4.13 It is proposed to award construction contracts on the basis of local competitive bidding according to Government regulations. These contracts will not be financed by the proposed loan. The grouping of the construction contracts could not conveniently be done for more than one city.

Contracts for pipeline laying works will likely be awarded to a number of smaller contractors in each city. Other construction works such as intake, treatment works and storage tanks could be grouped in one contract, which is not likely to be large enough to attract foreign bidders. In these circumstances, the contracting arrangement proposed for civil works is satisfactory.

Disbursement

4.14 The estimated disbursement schedule in Annex 7 indicates that the loan would be disbursed in the five fiscal years 1975-79. It is proposed that the disbursement cover (a) 100% of the C.I.F. cost of imported, or 95% of ex-factory cost of locally manufactured, equipment and materials procured after international competitive bidding; (b) 100% of foreign costs for supervision of installation of equipment and material procured under (a); (c) 100% of foreign expenditures of foreign consultants; and (d) 75% of total cost of local consultants.

Ecological Aspects

4.15 The provision of a safe water supply to a substantially greater proportion of the population and the construction of a large number of public bathhouses with facilities for washing, bathing and disposal of human wastes will reduce the dependence on contaminated water sources. Although the urgent need for reducing pollution of the streams and rivers is recognized, first priority in the allocation of scarce resources for the sector is considered to be extension of water supplies. The project does not include the provision of sewerage facilities in the five cities as these cities could not provide the necessary funds nor the trained personnel for adequate maintenance for sewerage systems in addition to those required for the expanded water supply systems. DSE is aware that the sewerage and sewage disposal situation will have to be improved with the next stage of the water supply development. The terms of reference for the consultants to be employed on the feasibility studies for the second package will include an assessment of the needs for sewerage facilities in that group of cities.

V. JUSTIFICATION

Project Objectives and Population and Demand Forecasts

5.01 The five cities form a first package of water supply projects in a long range development plan for a National Water Supply Program. The Government's selection of the five cities was based on factors such as the relative adequacy of their present water supply systems, the availability of alternative sources of water such as private wells, the importance of the city as a provincial capital, trade or tourist center or seaport, and the development and economic potential of the city.

5.02 The project objectives are (a) to reorganize and strengthen the national level organization, DSE, to provide it with the capability to implement effectively the National Water Supply Program; (b) to extend the water supply facilities of the five cities to the extent feasible in a first stage; and (c) to establish WE's and to train the staffs to operate and maintain the water systems. The long-range objective is to put the water supply program on a self-supporting basis using the projects assisted by the proposed loan as a vehicle. The funds included in the loan for feasibility studies will provide the means of bringing additional cities into the program.

5.03 Cholera, typhoid, dysentery and parasitic diseases transmitted by water are endemic to the general area. Many cases of paratyphoid and infectious hepatitis have been reported from Java and Sumatera, and cholera has been in evidence in Central Java. Medical care and public health programs are spread so thinly and are so deficient in funds and staff that meaningful data on the actual incidence of waterborne diseases are not available. It is evident, however, that diseases related to poor sanitation are among the principal causes of morbidity and mortality.

5.04 The first stage of the long-term master plan will provide, to the extent practicable, potable water supply to the cities by service connections or standpipes. The extent of the first stage program has been decided after consideration of such factors as the capacity of the implementing agency and of the construction industry, feasible phasing for extension of water production facilities, availability of alternative water sources which can be used in the absence of a public water supply, and financial constraints. In the service area, people who cannot afford service connections will be supplied from standpipes to be provided as needed.

5.05 Annex 8 shows population and water demand projections for each of the five cities through 2001. The table below shows for each city the total population and the population served from the public water supply system in 1972 and projected for 1981.

City	1972 ('000)					1981 ('000)				
	Total Popu- lation	Population Served				Total Popu- lation	Population Served			
		By Con- nections No.	%	By Stand- pipes No.	%		By Con- nections No.	%	By Stand- pipes No.	%
Malang	422	98	23	30	7	542	226	42	68	12
Purwokerto	211	6	3	-	-	258	45	17	46	18
Banyuwangi	78	5	6	-	-	94	10	10	20	21
Jambi	166	5	3	-	-	202	75	37	51	25
Samarinda	106	7	7	7	7	133	28	21	22	17
Total	<u>983</u>	<u>121</u>	<u>12</u>	<u>37</u>	<u>4</u>	<u>1,229</u>	<u>384</u>	<u>31</u>	<u>207</u>	<u>17</u>

5.06 As shown in Annex 8, the average annual historical (1961-1971) and projected (1972-1981) population increases in Indonesia are 2.12% and

2.37%, respectively. For each city, three series of projections (low, medium and high) have been made and the applied growth rates, which are in the range of 2.25% to 2.93%, are based on historical growth, present trends, and development potentials. Of the total population in the five cities, 12% is presently served by service connections and 4% by standpipes; in 1981 these figures are projected to increase to 31% and 17%; and in 2001 to 52% and 23%. If these projects are not implemented, the percentage of the total population of the five cities served from service connections and standpipes will steadily decrease from about 10% and 3% in 1981 to 6% and 2% in 2001. A considerable effort is obviously needed to keep pace with the growing population and to improve and extend the water supply service.

5.07 The projected water consumption for each city is shown in Annex 8. The present daily per capita consumption in the five cities is estimated to range from about 60 to 110 l/cd for residential service connections and 8 to 10 l/cd for public standpipes. Consumption is projected for FY 1981 at about 100 to 155 l/cd for residential and 12 l/cd for standpipes, which is comparatively low for cities in tropical areas. The present consumption figures, which are based on available records and field surveys, are estimations because of the inadequate and intermittent water supply, absence of water meters in some cases, and large numbers of faulty meters in others. The projected demand figures for residential consumption have considered such factors as the introduction of a continuous water supply, the availability of alternative water sources in dug wells, and consumers' ability to sustain the water rates. The projected demand figures in other consumer categories, such as commercial, industrial and institutional are based on surveys of these types of consumers carried out in each city. Unaccounted-for water has been assumed to go down gradually from the present 30% or more to 20% due to replacement of faulty water meters and old pipeline, the substantial addition of new distribution mains, and an active leakage detection program. The projected total water production in 1981 is subdivided among the various categories as: residential consumption 60%; commercial and industrial 8%; institutional and others 12%; and unaccounted-for water 20%.

Least Cost Solution

5.08 In each city alternative water sources have been studied. Where applicable, present worth values have been computed for alternative arrangements, at discount rates in the 10-12% range, and least-cost solutions have been selected. In Jambi and Samarinda, there are no feasible alternatives to surface water development, and the sites for intakes and treatment works have been selected as most suitable from a technical and economical point of view.

Return on Investment

5.09 The internal financial rates of return for the projects in the five cities, measuring benefits by the incremental revenues attributable to them, range from 0.4% to approximately 7%, as shown in Annex 9. The approximate rates of return for the individual projects, on the assumptions stated in the annex, are Malang 0.4%, Purwokerto 4%, Banyuwangi 1%, Jambi 7%,

and Samarinda 3%. These rates are low because of the generally low level of existing water rates. These water rates are to be increased gradually over the years under the proposed financing plan in accordance with consumers' ability to pay (para 6.17-6.20).

5.10 It is not possible to calculate a meaningful economic rate of return for the projects since the major public health benefits to be derived cannot be measured in monetary terms. The proposed program of works must be undertaken if the cities, with their increasing populations, are to alleviate even more serious water shortages and consequential health problems than those which now exist.

5.11 Important benefits will also be provided by the development of institutions to carry out sound water supply programs at both the national and local levels. The creation of organizations with the necessary powers and authority and the introduction of effective management and operating procedures are essential steps in advancing the program of water supply in Indonesia.

VI. FINANCIAL ASPECTS

Record of Finances

6.01 The accounts of the water supply units in the five cities have generally been parts of the municipal or regency systems and have been kept on a cash receipts and disbursements basis which do not account for such items as receivables, payables, inventories, fixed assets or depreciation. Review of the finances of the present systems and preparation of the normal financial statements and projections have been seriously constrained by the lack of basic data. The financial information presented is necessarily based to a considerable extent on assumptions which it will be necessary to test as the projects develop.

6.02 Income statements for the three fiscal years 1972-74 have been derived or estimated for each WE, based on statements of actual cash receipts and disbursements for the first one or two fiscal years prepared by the WE or municipality. Fixed assets were estimated for the initial balance sheets as described in para 6.03. The financial statements for the first three fiscal years were estimated on a cash basis, with allowances for depreciation, and on an accrual accounting basis thereafter. Annexes 10-14 contain for each WE for FY 1972-83 income and cash flow statements and balance sheets. Annex 15 details the basis and assumptions for these statements. (Throughout, Samarinda's fiscal years, which end on December 31, are one fiscal year earlier than those designated for the other WE's, which end on March 31. However, if a contemplated change in fiscal years is made to a December 31 basis for all WE's, certain commitments will be based on such fiscal years, as hereinafter indicated.)

6.03 In view of the lack of records of historical costs and physical data, the amount of fixed assets in the initial balance sheet of each WE, as of March 31, 1972, was estimated by the consultants from available records and physical inspections at replacement cost, less allowance for depreciation. The WE's fixed assets are old, of uncertain age, and of small value in relation to the property additions proposed.

6.04 The financial statements show that revenues under existing water rate structures have exceeded cash operating expenses by only small margins or have resulted in deficits when allowance is made for the depreciation of fixed assets. Small cash surpluses provided by water supply operations have been devoted largely to the general uses of the local governments despite the pressing needs for improved and expanded water facilities. Any construction expenditures in recent years have been made largely from grants by the National Government. This situation will be changed under the projects. The statements show an improving picture for the future, due largely to water rate increases assumed in the projections for FY 1977 and subsequent years and the use of internally generated funds for construction purposes. These are discussed below in connection with water rates.

Transfers of Assets to WE's

6.05 A WE is being established in each of the five cities to take over the assets and liabilities and the functions of the unit of the municipal or regency government in that city which relate to water supply (paras 3.16-3.19), and the initial equity will be owned by the municipality or regency. The WE, under the direction of its water board, will perform the water supply functions in the city and will account separately for its operations and finances.

6.06 Management consultants will assist each WE in preparing opening and periodic financial statements on a commercial accounting basis and in establishing and maintaining proper accounting and management systems. They will also assist in valuing and classifying the fixed assets for the opening balance sheet.

Financing Plan

6.07 Projections of annual cash flow up to FY 1983 for the WE in each of the five cities are shown in Annexes 10-B to 14-B. The financing plan for each WE and combined for the five, for the project construction period FY 1975-81, as summarized from the cash flow projections for those years, is shown in the table below.

FINANCING PLAN FY 1975-1981 ^{1/}

	MALANG			PURWOKERTO			BANYUWANGI		
	Rp.	US\$	%	Rp.	US\$	%	Rp.	US\$	%
	Millions	Millions		Millions	Millions		Millions	Millions	
<u>Applications of Funds</u>									
Construction-Stage I	3,306.3	7.97	95.9	1,217.0	2.93	95.8	358.3	0.86	93.3
Working Capital	<u>141.4</u>	<u>0.34</u>	<u>4.1</u>	<u>53.4</u>	<u>0.13</u>	<u>4.2</u>	<u>25.6</u>	<u>0.07</u>	<u>6.7</u>
Total Applications	<u>3,447.7</u>	<u>8.31</u>	<u>100.0</u>	<u>1,270.4</u>	<u>3.06</u>	<u>100.0</u>	<u>383.9</u>	<u>0.93</u>	<u>100.0</u>
<u>Sources of Funds</u>									
IBRD Loan Proceeds ^{2/}	2,199.0	5.30	63.8	830.0	2.00	65.3	166.0	0.40	43.2
National Gov't Loans ^{2/}	97.3	0.23	2.8	18.3	0.04	1.4	49.0	0.12	12.8
National Gov't Equity	984.2	2.37	28.5	368.1	0.89	29.0	143.3	0.35	37.3
Less Repayments	(771.0)	(1.85)	(22.3)	(356.3)	(0.86)	(28.0)	(108.9)	(0.27)	(28.3)
Internal Cash Generation	701.4	1.69	20.3	248.8	0.60	19.6	110.9	0.27	28.9
Consumer Contributions	<u>236.8</u>	<u>0.57</u>	<u>6.9</u>	<u>161.5</u>	<u>0.39</u>	<u>12.7</u>	<u>23.6</u>	<u>0.06</u>	<u>6.1</u>
Total Sources	<u>3,447.7</u>	<u>8.31</u>	<u>100.0</u>	<u>1,270.4</u>	<u>3.06</u>	<u>100.0</u>	<u>383.9</u>	<u>0.93</u>	<u>100.0</u>

	JAMBI			SAMARINDA			FIVE CITIES COMBINED		
	Rp.	US\$	%	Rp.	US\$	%	Rp.	US\$	%
	Millions	Millions		Millions	Millions		Millions	Millions	
<u>Applications of Funds</u>									
Construction-Stage I	2,390.0	5.76	93.0	2,170.7	5.23	92.9	9,442.3	22.75	94.3
Other Construction	50.0	0.12	1.9	50.0	0.12	2.1	100.0	0.24	1.0
Working Capital	<u>130.1</u>	<u>0.31</u>	<u>5.1</u>	<u>116.0</u>	<u>0.28</u>	<u>5.0</u>	<u>466.5</u>	<u>1.13</u>	<u>4.7</u>
Total Applications	<u>2,570.1</u>	<u>6.19</u>	<u>100.0</u>	<u>2,336.7</u>	<u>5.63</u>	<u>100.0</u>	<u>10,008.8</u>	<u>24.12</u>	<u>100.0</u>
<u>Sources of Funds</u>									
IBRD Loan Proceeds ^{2/}	913.0	2.20	35.5	996.0	2.40	42.6	5,104.0	12.30	51.0
National Gov't Loans ^{2/}	512.6	1.24	19.9	306.2	0.74	13.1	983.4	2.37	9.8
National Gov't Equity	950.3	2.29	37.0	868.2	2.09	37.2	3,314.1	7.99	33.1
Less Repayments	(509.6)	(1.23)	(19.8)	(389.1)	(0.94)	(16.7)	(2,134.9)	(5.15)	(21.3)
National Gov't Grant ^{3/}	50.0	0.12	1.9	50.0	0.12	2.1	100.0	0.24	1.0
Local Gov't Equity	8.9	0.02	0.4	19.1	0.05	0.8	28.0	0.07	0.3
Internal Cash Generation	448.2	1.08	17.4	431.1	1.04	18.5	1,940.4	4.68	19.4
Consumer Contributions	<u>196.7</u>	<u>0.47</u>	<u>7.7</u>	<u>55.2</u>	<u>0.13</u>	<u>2.4</u>	<u>673.8</u>	<u>1.62</u>	<u>6.7</u>
Total Sources	<u>2,570.1</u>	<u>6.19</u>	<u>100.0</u>	<u>2,336.7</u>	<u>5.63</u>	<u>100.0</u>	<u>10,008.8</u>	<u>24.12</u>	<u>100.0</u>

1/ FY 1974-1980 for Samarinda.

2/ Repayments of loans commence in FY 1982 after the end of the grace period.

3/ Estimated costs of immediate improvement programs in the first fiscal year are assumed to be met by grants from the National Government.

6.08 The combined figures shown for the five WE's in the financing plan indicate that the proposed IBRD loan of US\$12.3 million for the projects in the five cities is expected to provide about 54% of the project costs and 51% of total capital requirements. Government loans would provide about 10% of the project costs and total capital requirements. Internal cash generation from operations would provide about 19% of total capital requirements, and 7% would be provided by consumer contributions for service connections. While National Government equity payments are made during the project period to the extent of about 33% of total capital requirements, about 21% of total capital requirements is expected to be repaid to the Government by the use of funds generated internally by the enterprises during the project period.

6.09 Comparable figures are shown in the financing plan for each WE individually. The proposed IBRD loan would provide amounts ranging from about 38% of project costs (35% of total capital requirements) for Jambi to 68% of project costs (65% of total capital requirements) for Purwokerto. The IBRD loan and Government loans together would provide 60% of the project costs (56% of total capital requirements) for each WE, except that for Malang and Purwokerto the percentages would be 70% and 67%, respectively. Internal cash generation would provide almost 20% of total capital requirements of each WE, except Banyuwangi for which it would provide about 29%. The balance of the capital requirements would be provided by the Government net equity payments and consumer contributions. The proposed financing plan for each WE is satisfactory.

6.10 The financing plan is based on the terms agreed at negotiations. The proceeds of the IBRD loan, together with other Government funds, will be loaned by the Government to the WE's at an annual interest rate of 9% and the loans will be repayable over 30 years, including a grace period of six years for the payment of principal and interest, during which the interest will be waived. The Government will lend to each WE 60% of the project costs and will make available as equity the remaining 40% of the project costs, except that for Malang and Purwokerto such percentages will be 70% and 30%, respectively. Any surplus amounts which the WE is able to generate internally during the six-year grace period will be repaid annually to reduce the Government's equity. The Government's waiver of interest on the loans during the grace period will reduce the net equity payments which the Government would otherwise be required to make if such interest were paid in cash. The alternative of adding the interest to the principal of the loans would require increases in the water rates beyond those indicated in paras 6.16 to 6.20.

6.11 The estimates of project costs are based on the best information available at this time. However, should there be increases in project costs, the Government has agreed to provide any funds needed to complete the projects on time. The Government has also agreed to ensure that the WE's have sufficient funds to meet any of their obligations until 1981.

Financial Projections

6.12 The assumptions underlying the financial projections in Annexes 10-14 are detailed in Annex 15.

6.13 On the basis of the study of the organization of each WE made by the management consultants, increases in the number of staff are forecast over the project period to provide sufficient staff to implement the expansion and improvement program. Increases in rates of compensation designed to make them adequate under local conditions in each project area are also projected. However, in one of the cities compensation is presently based in part on a proportion of revenues. Since in the future considerable increase in revenues is expected, agreement was reached during negotiations that staff compensation of any WE will not be directly linked to the level of its revenues.

6.14 There is no insurance coverage on the properties of the water systems. Allowance has been made in the expense estimates for insurance premiums for property coverage, based on percentages of the cost of equipment and structures. Agreement was reached during negotiations that adequate provision will be made for insurance of the goods to be financed from the proceeds of the IBRD loan and to cover the water supply operations of the WE's consistent with appropriate practice.

6.15 The projected water production figures assume gradual reductions in unaccounted-for water as new facilities are placed in service and leakage detection measures are taken. The percentages for the individual WE's appear in the statements of income (Annexes 10-A to 14-A). In view of the existence in the water systems of defective meters and the lack of meters, the present loss percentages are rough estimates. The projects include provisions for bulk and customer meters, leakage detection equipment, meter repair shops, replacements of old pipeline, and on-the-job training by the consultants for a continuing program of leakage detection and repairs. Each WE will establish a leakage detection and waste control unit with the primary responsibility for detecting and repairing leaks and controlling waste and reporting to management periodically on the progress made toward the goals established in the projects for the reduction of unaccounted-for water.

Water Rates and Billings

6.16 The schedule of existing water rates and related charges of each water system is shown in Annex 16. In most cases separate rates are specified for residential service and other classes of service such as commercial, industrial, government agencies and social and religious institutions. Rates are usually lowest for residential service, except for those charged to religious institutions, and the rates generally include a minimum charge and are graduated upward for increased use in order to extend available supply

and reduce waste. The consultants have recommended a continuation and extension of these principles in their study. (See para 6.21).

6.17 It is clear from the financial statements and projections that sizeable rate increases will be required to enable the WE's to meet the needs of their proposed financing plans. The question of reasonable and sustainable future rate levels is one of the most difficult in view of the uncertainties even as to existing demand, income patterns and capabilities of paying for service. The problem is compounded in these cities by the availability to much of the population of alternative, although unsafe, sources of water from shallow wells and streams. However, the view was expressed by the Government and local managements that substantial rate increases can be sustained under a program of improved service, if introduced gradually over the period of years assumed.

6.18 The existing water rates, which will be continued through FY 1976, do little more than provide sufficient funds to pay current cash expenses including minimum maintenance. The proposed increases are designed to produce gradually the increased revenues needed to cover operating expenses and modest contributions to the construction program and to generate by FY 1982 sufficient funds to provide a 6% return on net fixed assets in service. They will also suffice to meet the debt service requirements commencing in that year. The projected increases are considered to be within the ability of the consumers to pay, as the average monthly residential billings for water would not exceed 4% of the estimated average household income. The consultants estimated the household income in the areas in which residential service is to be extended on the basis of interviews with district heads in the five cities. The proposals would increase the average rates in FY 1977 for Malang by approximately 170%, Purwokerto 140%, Banyuwangi 80%, Jambi 15%, and Samarinda 110%, with gradual increases each year thereafter. Before rate increases can be implemented they require the authorization of the municipal or regency assembly and are subject to confirmation by the governor of the province.

6.19 The major part of existing and prospective demand is for residential service, which is expected to increase to about 75% of total demand by 1981 as service is extended into additional residential areas. The average water rates per m³ shown for each year in the income statements in Annexes 10-A to 14-A are composite rates for all classes of service. The table below summarizes the existing and projected average water rates for various years for all classes of service and for residential service.

		Average Water Rates - Rp/m ³ /a				
		Existing	FY 1977	FY 1978	FY 1980	FY 1982
Malang	- All classes	5.5	15	20	28	36
	Residential	5	13	18	25	32
Purwokerto	- All classes	12.5	30	35	45	55
	Residential	12	23	27	35	42
Banyuwangi	- All classes	18.5	34	41	58	76
	Residential	15	27	33	46	61
Jambi	- All classes	50	58	67	84	101
	Residential	50	50	55	69	83
Samarinda	- All classes	20	50	68	114	140
	Residential	18	35	48	80	98

/a The rupiah price per m³ may be converted for purposes of comparison into approximate US cents per 1,000 gallons by taking 90% of the rupiah price per m³.

The fiscal years shown in the above table for Samarinda are 1976, 1977, 1979 and 1981, respectively.

6.20 The income statements in Annexes 10-A to 14-A show low rates of return on net fixed assets despite the projected water rate increases, building up to a 6% return in FY 1982. For the reasons indicated in paras 6.17 and 6.18, these returns are considered acceptable. The Government has agreed to take all measures required to ensure that the WE's will increase average water rates at the beginning of each of the fiscal years 1977 and 1978 at least to the extent set forth in the income statements and will further increase water rates thereafter to provide revenues sufficient to produce rates of return on the value of net fixed assets in service (less consumer contributions) of at least 1% in FY 1979; 2% in FY 1980; 4% in FY 1981; and 6% in FY 1982. All references to fiscal years relate to the year ending March 31 (except for Samarinda). During negotiations, however, the Indonesian officials indicated that the fiscal years of the WE's would probably be changed to a calendar year basis. If this occurs all references to fiscal years will relate to the preceding calendar year, e.g., FY 1977 will be taken as the year ending December 31, 1976, and the loan documents have been prepared on the assumption that this change will be made.

6.21 In addition to the agreement on the water rate increases summarized in para 6.20, it was agreed by the Government that before September 30, 1975, DSE, in consultation with the WE's, will assess the conclusions of the consultant's national standard water rate study in relation to each WE and will formulate recommendations which will be sent to IBRD. Thereafter the

Government will ensure the prompt implementation of such recommendations as shall have been agreed with IBRD. The rate study deals with the structure of water rates, e.g., differences in rates among various classes of consumers and for varying quantities of use, rather than levels of water rates to be charged. It will serve as a guide for formulating water rate structures in the municipalities which will participate in the national water supply program.

6.22 The cash collections of the water works from customers relative to billings made to them for water service cannot be estimated closely because the water works' records are not adequate to permit comparisons of overall billings with collections for particular periods. Working meters are read and bills are rendered and collected monthly. There is considerable estimating of water use for billing purposes because of non-working meters and the entire lack of meters in two of the cities. Estimates of use may be made on the basis of past metered use or on an assumed quantity for the type of connection or for each person in the household. The estimated bills may be subject to waiver or negotiations where there has been little or no consumption because of interruptions in service.

6.23 Consumers in the municipalities accept the principle of paying for piped water supply. From checking of customers' accounts, it appears that payments of billings are made fairly promptly, collections are pursued diligently, and the threat of cutting off service which is occasionally required usually results in payment. The exception to this collection experience are certain government institutions which often pay bills only after delays of several years from the billing dates. These billings vary from about 5% to 25% of total billings in the respective cities and average about 15% of total billings, but these percentages will decline as residential service is increased in the program. Early in 1973, such payments for the previous five years were in arrears in two of the cities, and payments of arrears had recently been made in the other three cities. The WE's must receive prompt payments from government institutions as well as from others in order to meet their obligations, including payments of debt service to the Government. Agreement was reached during negotiations that the Government will pay promptly to the WE's all arrears for water supplied to Government institutions and in the future will ensure that all amounts for services will be paid promptly when due.

6.24 The program contemplates that lower-income areas in the cities will be served by public standpipes. While about 35% of the total population to be served by 1981 in the five cities will be served by standpipes, the demand to be satisfied through standpipes is estimated at only about 4% of total demand because of much lower per-capita consumption from standpipes. The standpipes will be metered, and water works authorities contemplate that water will be drawn for a consumer by the holder of a standpipe licence or by an employee of the WE. However, the necessity of purchasing small enough

quantities of water for consumers to carry away and the profit element in the licence holder's charges would not permit charges to be made at lowest scheduled rates and could result in excessive charges to the users. A more equitable and practical arrangement to serve the poorer population needs to be followed. To achieve this, agreement was reached during negotiations that either the municipality or regency will pay for the consumption metered through standpipes, or the amounts will be collected from the people of the neighborhood by the Rukun Tetangga (the neighborhood organization) on a monthly or quarterly basis using charges at the lowest residential rates.

6.25 In addition to the annual charges, residential consumers will be charged the initial cost of new service connections. So that they will be able to afford the connections, residential applicants will be permitted to pay about one-sixth of the cost upon installation and the balance in equal monthly installments over five years. The outlays by the WE's for the service connections have been included in the estimated costs of the projects.

Future Finances

6.26 On the basis of the financial projections, the WE's will generate sufficient cash to finance about 20% of the construction program and to provide working capital and some additional cash funds at the end of the project period. These funds will provide a cushion if projections should fall short of expectations, or they could be devoted to extensions of service beyond the first stage.

6.27 The projections show that the debt of the WE's will be relatively high, ranging for the individual WE's from approximately 50% to 90%, and averaging about 66%, of combined debt and equity in FY 1982. Debt service coverage would range from about 1.2 to 2.0 and average 1.5 in FY 1982 with the commencement of full debt amortization.

6.28 In viewing the future finances, the basis for the Government's decision on a program of financing water supply projects primarily by loans rather than to a large extent by net equity investments should be noted. This decision was based on consideration of the benefits to the Government's development program of the ultimate repayment of the loans to facilitate the financing of other essential needs in Indonesia, including the pressing needs of other cities for water supply. It was also influenced by the desirability of preserving in the local governments an equity ownership in the water works and the primary responsibility for their success. These considerations are important to the development of a successful program in Indonesia. There is reasonable prospect for gradual improvement in the finances of the WE's with the measures to be taken under the program. During the project period the performance of each WE will be monitored, and the performance indicators to be reviewed will include those set forth in Annex 17.

6.29 With regard to any indebtedness which might be proposed by a WE other than under the projects, agreement was reached during negotiations that no WE will incur debts without the consent of IBRD unless net income before interest and depreciation is at least 1.5 times the maximum debt service in any future year.

VII. AGREEMENTS REACHED AND RECOMMENDATION

7.01 During negotiations, agreement was reached on the following principal points:

- (a) the reorganization of DSE and the introduction of proposed working procedures will be implemented and additional staff will be recruited according to agreed time schedules (para 3.07);
- (b) with respect to the reorganization of the water undertakings (i) each municipality or regency will transfer to the appropriate WE the water works and all assets used in its operations, including all receivables and accrued assets and a sufficient amount of working capital to enable it to continue its operations, and (ii) each WE will enter into a project loan agreement, acceptable to IBRD, with the National Government for the completion of the related project (para 3.18);
- (c) the relending terms of IBRD funds and lending terms for the Government financing will be as assumed in the Financing Plan (para 6.10);
- (d) the WE's will apply annually internally generated cash to effect the reductions of the equity investments made by the National Government to meet project costs (para 6.10);
- (e) the WE's will increase average water rates at the beginning of each of the fiscal years 1977 and 1978 at least to the extent set forth in the income statements and will further increase water rates thereafter to provide revenues sufficient to produce rates of return on the value of net fixed assets in service (less consumer contributions) of at least 1% in FY 1979, 2% in FY 1980, 4% in FY 1981, and 6% in FY 1982 (para 6.20); and
- (f) before September 30, 1975, DSE, in consultation with the WE's, will assess the recommendations of the national standard water rate study, formulate recommendations and submit the findings to IBRD. Thereafter the Government will ensure the prompt

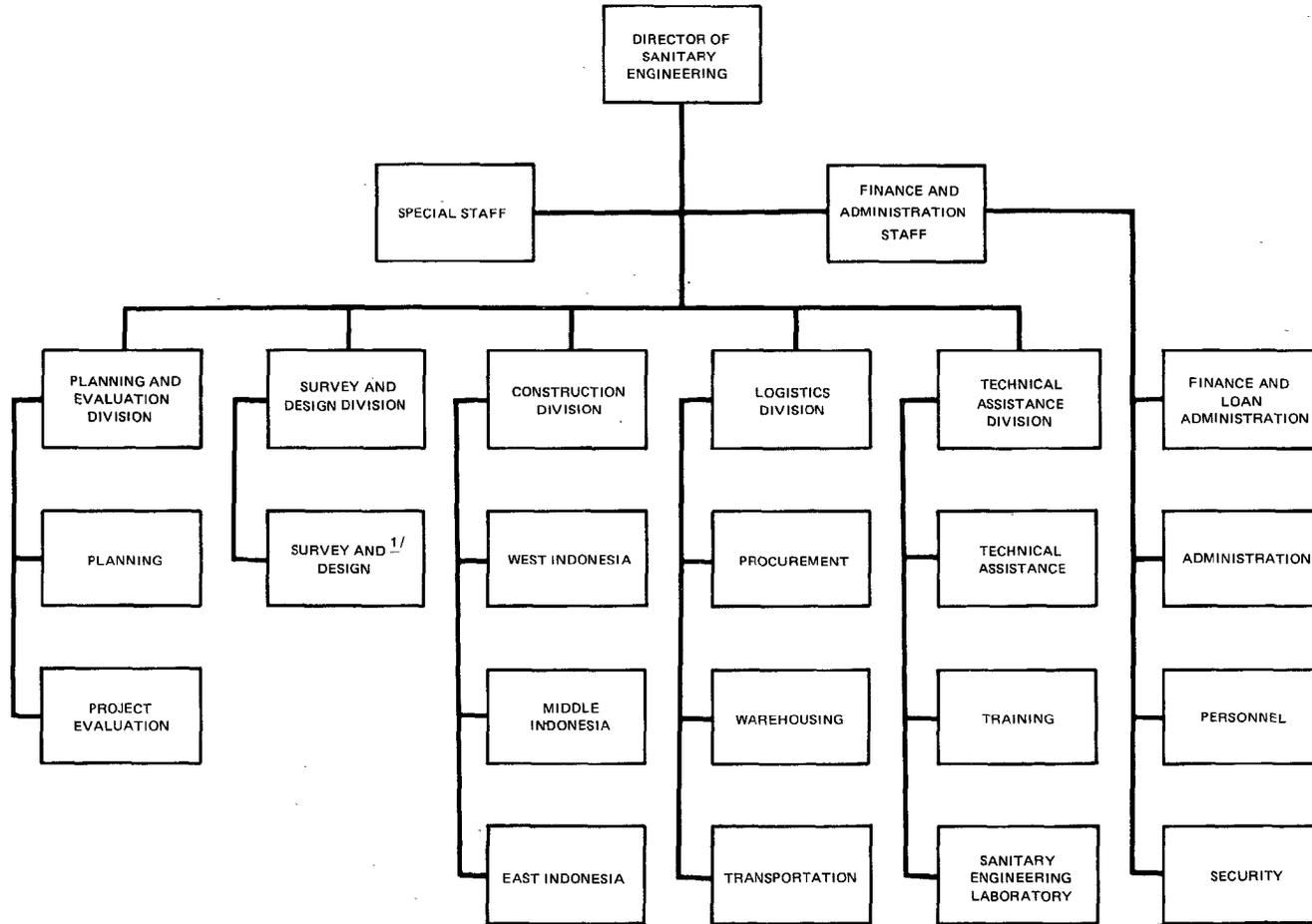
implementation of such recommendations as shall have been mutually agreed upon (para 6.21).

7.02 During negotiations it was agreed that before the loan becomes effective all the project loan agreements and the contract for the consultant services for management and technical assistance will be signed (paras 3.18 and 3.20).

7.03 The project is suitable for an IBRD loan of US\$14,5 million for a term of 30 years, including a grace period of 6 years.

September 20, 1974

**INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
PROPOSED ORGANIZATION CHART FOR DIRECTORATE
OF SANITARY ENGINEERING**



^{1/} To be geographically subdivided into a number of sections as appropriate

INDONESIAFIVE CITIES WATER SUPPLY PROJECTSDescriptions of Existing Water Supply Systems

1. General data and existing water supply systems for each of the five cities are described below in Sections 2 to 6 and shown on Maps IBRD 10871-10875.

2. MALANG (Map IBRD 10871)

2.01 Malang is located in the central part of the province of East Java, longitude 112° 38' east and latitude 7° 59' south of the equator. The Municipality of Malang is administratively autonomous with its own local government and it is also the center of the government of the Regency of Malang. The economy of the municipality is primarily based on agricultural production from small and estate farms and small scale industries. The present population is about 422,000 of which 30% is supplied from the water works system.

2.02 The water sources are the springs of Binangun and Karanganyar, located 17 and 12 km from the city, from where the water gravitates to the storage tanks at Dinoyo and Betek and to the service area. The water is of good quality. The springs have a safe yield of 310 l/s, but only 262 l/s (22,637 m³/day) reaches the service area because of overflow waste at the springs and consumption and leakage along the pipeline routes. The water supply is insufficient and intermittent. The two storage tanks, Dinoyo and Betek, each with a capacity of 2,000 m³, supply from different elevations two separated pressure zones in the service area. The total storage volume, 4,000 m³, represents 18% of the daily water supply.

2.03 The transmission mains have a total length of about 42.5 km in sizes from ϕ 200 to ϕ 350 mm. Primary and secondary mains in the distribution system have a total length of about 134 km in sizes from ϕ 50 mm to ϕ 300 mm. The distribution system is provided with 24 standpipes, 183 fire hydrants, and about 13,000 service connections, and it covers a service area of 1,440 hectares.

3. PURWOKERTO (Map IBRD 10872)

3.01 Purwokerto is located in the southwestern part of Central Java, longitude 109° 15' east and latitude 7° 25' south of the equator. Purwokerto is a subdistrict of and an administrative center for the Banyumas Regency. It is a commercial city with major railway facilities and good road connections. The present population is about 211,000 and approximately 3% is

supplied from the water works system. The service area covers Sukaraja and Kalibagor in addition to Purwokerto.

3.02 The water source is the Kawung Karang Spring, located about 6 km north of the city, from where the water gravitates to the storage tank and to the service area. The safe yield of the spring is 81 l/s (7,000 m³/day). The water is corrosive and for treatment it passes through beds of marble chips. The intake works and treatment facilities have recently been extended to accommodate the total source capacity.

3.03 A new storage tank with a volume of 1,000 m³ has recently been completed as well as a new transmission main ϕ 350 mm, length 3,600 m, between the spring and the storage tank. The water flow reaching the storage tank is 81 l/s while the capacity of the distribution system is limited to 25 l/s, with the difference overflowing at the storage tank.

3.04 The transmission mains have a total length of about 22.4 km in sizes from ϕ 100 to ϕ 350 mm. Primary and secondary mains in the distribution system have a total length of about 22.0 km in sizes from ϕ 50 to ϕ 150 mm. The distribution system has about 1,300 service connections and covers a service area of about 340 hectares.

4. BANYUWANGI (Map IBRD 10873)

4.01 Banyuwangi is located in the southwestern part of the province of Central Java, longitude 114° 20' east and latitude 8° 10' south of the equator. Banyuwangi is a subdistrict of and an administrative center for the Banyuwangi Regency. Banyuwangi is a seaport at the Bali Strait, and new port facilities for accommodating bigger vessels are under construction 9 km from the city. Business establishments in the city are paper, coconut oil and fish canning factories. The present population is about 78,000 and approximately 6% of the population is supplied from the water works system.

4.02 The water source is the Gedor Spring, from where the water gravitates to the storage tanks at Penataban and Bojolangu and to the distribution system. The water quality is good and only chlorination is required. The safe yield of the spring is 110.5 l/s of which 100.4 l/s (8,675 m³/day) is conveyed in two transmission mains, one old ϕ 125 mm and one recently completed ϕ 250 mm, to a break pressure tank at Bojolangu, elevation + 80 m and capacity 30 m³, and to storage tanks at Penataban, elevation + 50 m and capacity 1,400 m³. The break pressure tank and the storage tanks supply a high and a low zone in the service area. At Penataban an old storage tank, 500 m³, has recently been supplemented with a new tank, 900 m³.

4.03 The water flow reaching the break pressure and storage tanks is 100.4 l/s while the capacity of the distribution system is limited to 27.4 l/s with the difference overflowing at the storage tanks. The

storage capacity $1,400 \text{ m}^3$ corresponds to 60% of the present daily consumption and is quite adequate. The transmission mains and the primary and secondary mains in the distribution system have a total length of about 41.8 km in sizes from $\emptyset 50$ to $\emptyset 250$ mm. The distribution system has about 1,300 service connections.

5. JAMBI (Map IBRD 10874)

5.01 Jambi is located on Sumatera in the Province of Jambi, longitude $103^\circ 25'$ east and latitude $1^\circ 40'$ south of the equator. The Municipality of Jambi is administratively autonomous with its own local government and it is also the center for the province. The economy of Jambi is mainly dependent on its harbor, where most of the products coming from and going to Middle Sumatera are loaded and unloaded. The present population is about 166,000 and approximately 3% is supplied from the water works system.

5.02 The water source is the Batang Hari River. The water is colored, polluted, and contains high turbidity so that full treatment is required. There are two existing intakes, one pumps directly to a separated part of the distribution system, which presents a constant health hazard, and the other pumps to the treatment works.

5.03 The treatment works are about 40 years old and provide for chemical flocculation, sedimentation, and rapid sand filtration, with a production capacity of 10.5 l/s ($907 \text{ m}^3/\text{day}$). The various components are: (i) 2 primary circular settling tanks, total volume 777 m^3 , detention time 28 hours; (ii) flocculation channel, volume 18.3 m^3 , detention time 0.7 hours; (iii) 2 circular settling tanks, total volume 174 m^3 , surface area 58 m^2 , detention time 6.5 hours, settling rate 0.5 m/h; (iv) 4 sand filters, surface area 24 m^2 , filter rate 1.1 m/h; (v) 2 clear wells, total volume 336 m^3 , detention time 12 hours; and (vi) elevated storage tank, volume 294 m^3 , detention time 11 hours. The raw water is pumped to the primary settling tanks, from where it is boosted to the flocculation channel and gravitates through the settling and filter tanks to the clear wells. From the clear wells the water is boosted to the elevated tank, which is located within the treatment works compound, for gravity distribution to the service area. The treatment works are in poor condition and the operation and maintenance are deficient.

5.04 The distribution system is subdivided into two separated zones, one serving treated water and one raw water. The system serves mainly the central area of the city, and it has about 1,500 service connections, none of which are metered.

5.05 The immediate improvement program, currently under way, includes the following works: (i) new intake pumping station; (ii) replacement of existing raw water main; (iii) rehabilitation of the treatment works and certain parts of the distribution system; and (iv) drilling of a

borehole. The borehole is expected to increase the water supply by 3 l/s (260 m³/day) and it will serve the provincial government area. The new intake and proposed rehabilitation works are projected to increase the total production capacity to 29 l/s (2,500 m³/day) by FY 1976.

6. SAMARINDA (Map IBRD 10875)

6.01 Samarinda is located in the eastern part of Kalimantan, longitude 117° 0' east and latitude 0° 30' south of the equator. The Municipality of Samarinda is administratively autonomous with its own local government. Samarinda's economy is based on its harbor and its position as timber center for the province. The present population is about 106,000 and approximately 14% is supplied from the water works system.

6.02 The water source is the Mahakam River. The water is colored, polluted and contains high turbidity so that full treatment is required. There are two intakes but only one (Teluk Lerong) is in operation. The intake pumps for pumping to the treatment works will be replaced with new pumps in 1974 in order to cope with the increased treatment capacity. A new raw water main, Ø 250 mm, has recently been laid, but it has yet to be commissioned.

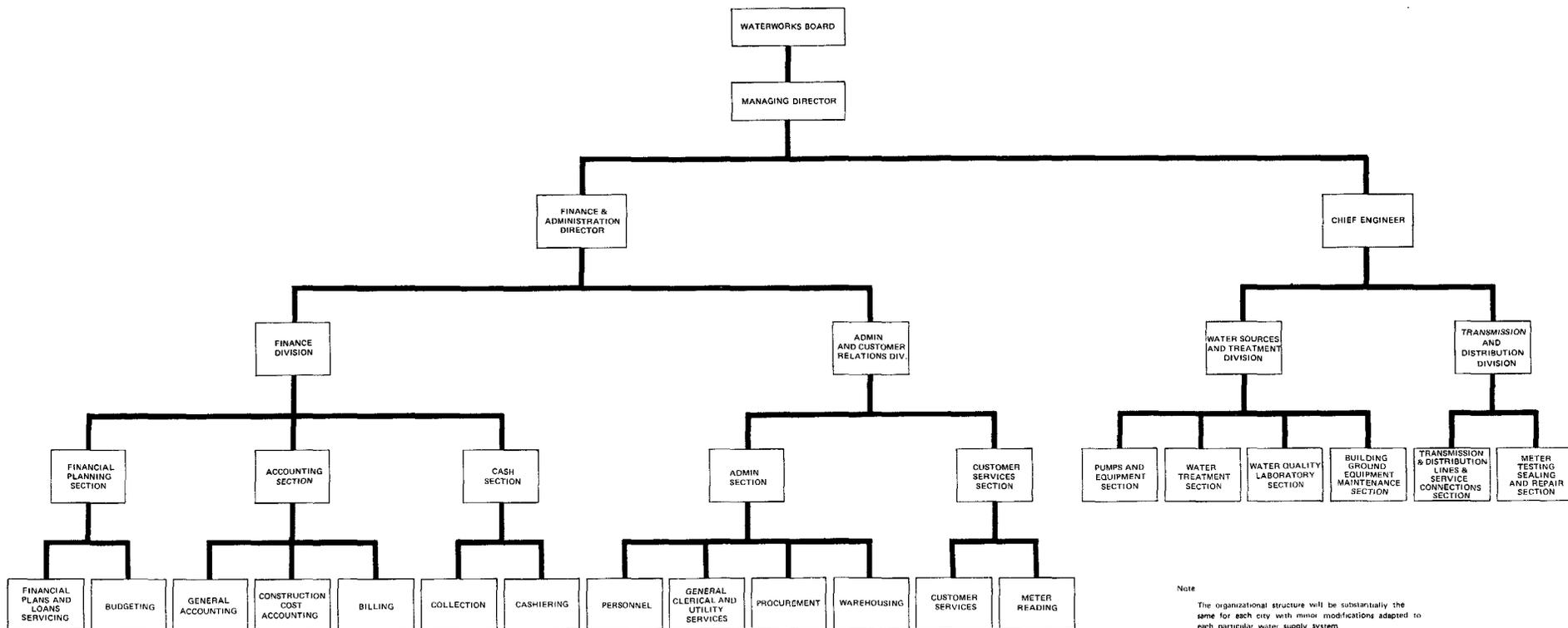
6.03 The old treatment works were constructed in 1932, and at the same site new treatment works are currently under construction, scheduled for completion in 1974. The old treatment works with a capacity of 10.6 l/s (916 m³/day) consist of: (i) 2 primary settling basins, total volume 800 m³, detention time 22 hours; (ii) dosing and flocculation tanks; (iii) 2 vertical flow settling tanks, total volume 130 m³, detention time 3.2 hours; (iv) 3 rapid sand filters, total area 12 m², filtration rate 3 m/h; and (v) clearwell, capacity 360 m³, detention time 9.4 hours. From the clearwell the water gravitates to the distribution system except for a small portion (2.2 l/s) that is boosted to Hotel Lamin Indah. The water supply is insufficient and intermittent.

6.04 The treatment works under construction are designed for a capacity of 50 l/s (4,320 m³/day) and consist of: (i) existing 2 primary settling basins also be to be used for the new plant, total volume 800 m³, detention time 5.5 hours at 60 l/s; (ii) flocculation tank, volume 47 m³, detention time 0.2 hours; (iii) 2 tube-type settling tanks, total volume 31 m³ and area 23.5 m², detention time 0.2 hours, settling rate 7.6 m/h; (iv) 5 rapid sand filter tanks, total area 37.5 m², filtration rate 4.8 m/h; and (v) a clear well, capacity 987.5 m³, detention time 5.5 hours. The tube settling tanks are yet untested in Indonesia and the detention time might be too low and the settling rate too high. The design of the filter tanks requires modifications, and flow regulating devices have to be added. The treatment works are assumed to be in operation in 1975 but due to the above uncertainties the capacity is assumed to be limited to 25 l/s (2,160 m³/day). With completion of the new treatment works the total production capacity will be increased to 35 l/s (3,020 m³/day) and the clearwell capacity to 1,347.5 m³.

6.05 The distribution system serves primarily the commercial and government establishments along the water front. The system consisting of about 17 km pipes in sizes from \emptyset 50 to \emptyset 150 mm has had little replacement or improvement since its original installation more than 40 years ago. The number of service connections is about 1,000, none of which are metered. In the immediate improvement program, replacements and extensions are proposed to the extent of about 15 km with pipes in sizes \emptyset 75 to \emptyset 300 mm.

September 9, 1974

**INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
PROPOSED ORGANIZATION CHART
FOR WATER ENTERPRISES**



Note
The organizational structure will be substantially the same for each city with minor modifications adapted to each particular water supply system

INDONESIA

FIVE CITIES WATER SUPPLY PROJECTS

Description of the Projects

1. GENERAL

1.01 The master plan covers a period through 2001 and it has been subdivided into two phases, Phase I (1975-1986) and Phase II (1987-2001). The phases have been subdivided into stages, which for Phase I are Stage I (1975-1981) and Stage II (1982-1986). The five cities water supply projects comprise extension of Stage I water supply facilities and related consultant services. The various water supply components for each of the five cities are described below in sections 2 to 6 and shown on Maps IBRD 10871 to 10875.

1.02 The designs of the water works are based on population and water demand projections shown in Annexes 8-A and B. For the water works components the following design criteria have been applied. Water production facilities are designed for maximum day demand and distribution systems for peak hour supply. Intake structures for surface water (Jambi and Samarinda) and submarine main (Samarinda) are designed for the master plan period due to their complexity. Production facilities such as treatment works, clear wells and transmission mains are designed for 1986 except in Malang where present allocation from the Mendit spring is sufficient only up to 1983. The extensions of the distribution systems are designed for the projected water demand in 1981, but individual distribution mains are designed for a water demand beyond 1981 where appropriate. Balancing storage tanks and pumping plants are generally designed for the requirements in 1986.

2. MALANG (Map IBRD 10871)

2.01 The water supply from existing spring sources, Binangun and Karanganyar (262 l/s), can only be increased by adding water currently overflowing, which is insignificant. The Sumber Sari Spring with an available yield of about 29 l/s could, after installation of equipment for chlorination, be reconnected to the city water supply system. However, that would require certain reinforcement of the transmission mains which is not economically justified at the present stage. Alternatives of groundwater and the Mendit Spring have been studied as sources of additional water.

2.02 A soil resistivity survey has indicated a groundwater potential more remote from the city area than was preliminarily assumed. The Mendit Spring, located about 5 km from the city has a safe yield of 2 to 3 m³/s.

The Spring was initially authorized for use for recreational purposes only, but the Directorate of Water Resources has recently allocated 500 l/s of its yield to the city water supply. After analysis of the two alternatives the Mendit Spring has proved to be the least cost solution.

2.03 With the development of the Mendit Spring, the distribution system will be served from two directions. The present water supply from Binangun and Karangany will feed the upper zone of the distribution system, while the Mendit Spring, due to its lower elevation and pumping requirements, will feed the lower zone. Binangun and Karangany cannot, however, satisfy the projected water demand in the upper zone, and boosting from the lower zone will be needed.

2.04 The available yield from all the springs, 762 l/s, corresponds to the projected maximum day demand in 1983. For the water source development in Stage II, groundwater versus additional extension of the Mendit Spring will be evaluated, if the Directorate of Water Resources agrees to increase the allocation from the Mendit Spring to the city water supply. A test well drilling program will be carried out in Stage I to ascertain the availability of groundwater as to quantity and quality. The Mendit Spring water is corrosive and treatment by aeration is required.

2.05 The following components are included in the Stage I project:

- (a) Water works at the Mendit Spring comprising intake structure with collection chamber; pumping station for boosting to the aeration chamber, four pumps to be installed, each with a capacity of 170 l/s; aeration chamber; clear well; and pumping station for boosting to the low zone of the distribution system with pumps as above;
- (b) transmission main ϕ 700 mm, length about 5,200 m;
- (c) pumping station with three pumps, each with the capacity of about 120 l/s, for boosting from the low to the high zone;
- (d) a 2,000 m³ capacity storage tank for the high zone;
- (e) distribution system with service connections and water meters; and
- (f) miscellaneous such as motor vehicles, public bath-houses, warehouses, maintenance shop, laboratory building, staff houses, and test well drilling for Stage II water source development.

The water supply capacity will be increased from 262 l/s to 762 l/s and the distribution capacity to 755 l/s. Stage I will increase the percentage of the population served by connections from 23% to 42% and by standpipes from 7% to 12%.

2.06 Balancing storage capacity required in 1986 is 10,000 m³, representing about 12% of the projected maximum day demand. The storage needed for the high zone is about 6,000 m³ and for the low zone 4,000 m³. Additional storage of 2,000 m³ is needed for the high zone in Stage I, while extension of the storage capacity for the low zone can be deferred to Stage II.

2.07 The Stage I project includes about 52.3 km of distribution mains in sizes varying from 75 to 500 mm diameters. Actual sizes and lengths of mains will be decided during detailed design. The distribution system will provide for 28 new or rehabilitated public bath houses, 89 additional standpipes and 50 fire hydrants, and the number of service connections will increase from about 13,000 to 26,000.

3. PURWOKERTO (Map IBRD 10872)

3.01 The present water source, the Kawung Carang Spring, will be supplemented in the Stage I project to meet the projected water demand. A soil resistivity survey indicated the availability of groundwater and the quantity and quality has recently been confirmed by drilling and pumping tests. Two additional boreholes will be added in Stage I.

3.02 Water will be supplied from two sources, the boreholes and the spring. The spring water gravitates to the distribution system while the groundwater will need pumping. The spring source will be used to its maximum capacity and supplemented with groundwater as water demand increases. The groundwater will be pumped to the existing storage tank, and if treatment is needed it will be provided near the storage tank.

3.03 The following components are included in the Stage I project:

- (a) Two boreholes;
- (b) pumping equipment for the new boreholes and the test well, each with an expected capacity of 25 l/s;
- (c) transmission mains from boreholes to the storage tank and to the distribution system;
- (d) treatment works, if needed, for the groundwater;
- (e) distribution system with service connections and water meters; and

- (f) miscellaneous such as motor vehicles, laboratory equipment and meter test bench, public bathhouses, water works office, laboratory, warehouses, and staff houses.

With the completion of the Stage I project the production capacity will increase from 81 l/s to 156 l/s (13,500 m³/day) and the distribution system capacity from 25 l/s to 196 l/s. Stage I will increase the percentage of the population served by connections from 3% to 17% and by standpipes from 0% to 18%.

3.04 Required balancing storage is 2,500 m³ in 1986 and 1,400 m³ in 1981, which corresponds to about 12% of the related maximum day demand. Present storage 1,000 m³ will be too small at the end of the Stage I period, but it is assumed to be offset by expected excess capacity from the boreholes.

3.05 The Stage I project includes about 36.6 km of transmission and distribution mains in sizes varying from 75 mm to 450 mm diameter. Actual sizes and lengths of mains will be decided during detailed design. The distribution system will provide for 3 public bathhouses, 54 standpipes and 80 fire hydrants, and the number of service connections will increase from about 1,300 to 7,400.

4. BANYUWANGI (Map IBRD 10873)

4.01 The yield of the existing Gedor Spring, will be sufficient to meet the projected water demand beyond 1990. Any extension of the water production facilities will not be needed prior to Phase II. The Stage I project will provide for additional distribution capacity and for improved water pressure in the high zone of the service area by the construction of a new break pressure tank.

4.02 The following components are included in the Stage I project:

- (a) break pressure tank 200 m³ with chlorination plant;
- (b) transmission mains, Ø 250 mm, length 2,100 m;
- (c) distribution system with service connections and water meters; and
- (d) miscellaneous such as motor vehicles, laboratory equipment and meter test bench, public bathhouses, laboratory, warehouses, and staff housing.

With completion of the Stage I project the distribution system capacity will be increased from 24.7 l/s to 61.3 l/s with a corresponding increase in the percentage of the population served by connections from 6% to 10% and by standpipes from 0% to 21%.

4.03 The high zone in the service area will be supplied from the break pressure tank. The high zone will not need any balancing storage since the total spring water supply passes the break pressure tank and exceeds the high zone peak hour demand. The storage tanks for the low zone will instead function as balancing storage for the total service area and their existing capacity of 1,600 m³ would be adequate beyond 1990.

4.04 The Stage I project includes about 16.4 km of distribution mains in sizes varying from 50 mm to 250 mm diameter. Actual sizes and lengths of mains will be decided during detailed design. The distribution system will provide for 4 public bathhouses, 25 standpipes and 65 fire hydrants, and the number of service connections will increase from about 1,300 to 2,200.

5. JAMBI (Map IBRD 10874)

5.01 A preliminary hydrogeological survey has indicated that groundwater development for the projected water demand is not feasible, and therefore the Batang Hari River will remain the water source. Existing sites for intake and treatment works are not suitable for extensions, and new sites for the Stage I project have been selected. Materials and equipment for an intake, pumping station and treatment works, which were purchased in 1970 at a cost of about US\$380,000, will be incorporated in the project but there will be no disbursement from the loan against these costs. The elevated tank at the site of the existing treatment works will be supplemented with a new elevated tank, since the old one does not provide sufficient pressure in the distribution system or adequate balancing capacity. After completion of the Stage I Project the distribution system will be separated into two zones to be supplied from the existing and the proposed production facilities. The settlements on the north side of the Batang Hari River will be supplied by groundwater, and related development works will be executed by Cipta Karya as a separate project.

5.02 The following components are included in the Stage I project:

- (a) raw water intake with pumping station, three pumps to be installed each with a capacity of 135 l/s;
- (b) raw water transmission main \emptyset 450 mm, length 1,000 m;
- (c) treatment works, capacity 270 l/s, including clear well and booster pumping station;
- (d) distribution system with service connections and water meters;
- (e) elevated storage tank, capacity 1,000 m³; and
- (f) miscellaneous such as motor vehicles, public bathhouses, warehouses, maintenance shop, water works office, laboratory building and staff housing.

The capacity of the existing works including those in the immediate improvement program is 29 l/s (2,500 m³/day). With completion of the Stage I project the total production capacity will increase to 299 l/s (25,900 m³/day) and the distribution capacity to 230 l/s (19,800 m³/day). The Stage I project will increase the percentage of population served, compared to 1976, by connections from 3% to 37% and decrease the population served by stand-pipes from 33% to 25%.

5.03 The new intake will be located further upstream than the existing one. The site is upstream from present industrial and residential settlements and is suitable for construction, but is located on an island without any land access. The construction of the intake is not expected to be significantly hampered by the lack of land access, and the water separating the island from the mainland is narrow and shallow during the dry season, which should not provide any difficulties for crossing of a raw water main.

5.04 The treatment works will provide for chemical flocculation, sedimentation and rapid sand filtration, and the various components are:

- (a) two circular clariflocculators with compartments for flocculation and settling and with mechanical equipment for stirring and scraping;
- (b) three rapid sand filters for a filtration rate of about 5 m/h;
- (c) clear well, capacity 3,000 m³;
- (d) booster pumping station with 3 pumps, one of which is standby, each with a capacity of 135 l/s, and 1 smaller pump with a capacity of 50 l/s; and
- (e) buildings for chemical handling and administration, and yard piping.

Alum will be used for flocculation, lime for pH adjustment, and chlorine or calcium hypochloride for disinfection.

5.05 Balancing storage capacity to be required in 1986 is 4,000 m³. Existing elevated storage tank has a capacity of only 294 m³. Additional storage is needed for convenient operation of the system and, because of the terrain conditions, the tank will be elevated at a location to be decided upon during the detailed design. An elevated tank represents a considerable cost, and since the site for treatment works and clear well is within the service area the clear well could feasibly contain a part of the balancing storage. To facilitate operation during hours of low consumption, the pumping equipment presently in store will be supplemented with one smaller pump with a capacity of 50 l/s.

5.06 The Stage I project includes about 64.4 km of distribution mains in sizes varying from 50 mm to 400 mm diameter. Actual sizes and lengths of mains will be decided during detailed design. The distribution system will provide for 3 public bathhouses, 18 additional standpipes and 130 fire hydrants, and the number of service connections will increase from about 1,500 to 10,800.

6. SAMARINDA (Map IBRD 10875)

6.01 A preliminary hydrogeological survey has indicated that ground-water development for the projected water demand is not feasible, and therefore the Mahakam River will remain the water source. Existing sites for intake and treatment works are not suitable for extensions, and new sites for the Stage I project have been selected. In the present system the raw water is pumped to the treatment works located on a hill, and after treatment and collection in a clear well the water gravitates to the service area. In the Stage I project the treated water will be boosted to the distribution system and the existing clear well. A submarine pipeline will cross the Mahakam River to supply the southern side, which is expected to become a developing area because of a new road connection with Balikpapan.

6.02 The following components are included in the Stage I project:

- (a) raw water intake with pumping station with installation of three new pumps each with a capacity of 80 l/s, and of two pumps to be removed from the existing intake;
- (b) raw water transmission mains, \emptyset 300 mm, length 800 m, and \emptyset 250 mm, length 750 m;
- (c) treatment works with a capacity of 157 l/s, including clear well and booster pumping station;
- (d) transmission and distribution mains with service connections and water meters; and
- (e) miscellaneous including motor vehicles, public bathhouses, warehouse, maintenance shop, laboratory building and staff houses.

The capacity of existing water works and those under extension have been assumed to be 35 l/s (3,024 m³/day). With completion of the Stage I project the water production capacity will be increased to 192 l/s (16,589 m³/day) and the distribution capacity to 134 l/s (11,578 m³/day). The Stage I project will increase the percentage of population served, compared to 1976, by connections from 7% to 21% and by standpipes from 8% to 17%.

6.03 The new intake is proposed to be located upstream from the existing one and also upstream from the oil harbor, but it will still be located in a congested area with polluted river water. Preferably the intake site should be moved another 6.0 km upstream to avoid interference with residential settlements and harbor and industrial activities, but under the circumstances the additional investment costs would not offset the possible inconvenience of the chosen site. The pumping station will accommodate, apart from three new pumps, two pumps to be removed from the existing intake to be abandoned subsequently.

6.04 The treatment works will provide for chemical flocculation, sedimentation and rapid sand filtration, and the various components are:

- (a) two flocculation and sedimentation tanks;
- (b) three rapid sand filters for a filtration rate of about 5 m/h;
- (c) clear well, capacity 1,500 m³;
- (d) booster pumping station with three pumps each with a capacity of 30 l/s; and
- (e) buildings for chemical handling and administration, and yard piping.

Alum will be used for flocculation, lime for pH adjustment and chlorine or calcium hypochloride for disinfection.

6.05 For flocculation and settling tanks, tenders will be invited for mechanical and electrical equipment and the tenders will be evaluated considering offered equipment and estimated costs for related civil works. Accordingly, the civil works construction will be adapted to suit selected equipment. Rapid sand filters with dual media are proposed for filtration.

6.06 Balancing storage capacity required in 1986 is 1,750 m³, of which 1,200 m³ is existing. Additional storage in the distribution system, will not be needed in Stage I.

6.07 The Stage I project includes about 37.2 km of distribution mains in sizes varying from 75 mm to 400 mm diameter. Actual sizes and lengths of mains will be decided during detailed design. The distribution system will provide for 2 public bathhouses, 10 additional standpipes and 70 fire hydrants. The number of service connections will increase from about 1,000 to 3,500.

September 20, 1974

INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
PROJECT COST ESTIMATES

	MALANG							PURWOKERTO							BANDYMWANGI						
	Local	Foreign	Total	Local	Foreign	Total	% of Grand Total	Local	Foreign	Total	Local	Foreign	Total	% of Grand Total	Local	Foreign	Total	Local	Foreign	Total	% of Grand Total
	Rupiahs million			US\$ million				Rupiahs million			US\$ million				Rupiahs million			US\$ million			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
A. CIVIL WORKS WITH RELATED MATERIAL AND EQUIPMENT																					
A.1 Intake	74.80	11.50	86.30	0.18	0.03	0.21				41.79	21.85	63.64	0.10	0.05	0.15						
A.2 Boreholes	14.06	37.38	51.46	0.03	0.09	0.12				5.73	6.33	12.06	0.01	0.02	0.03						
A.3 Treatment works																					
A.4 Clear wells																					
A.5 Pumping station	24.20	51.64	75.84	0.06	0.12	0.18										7.48	3.68	11.16	0.02	0.01	0.03
A.6 Storage tanks	36.28	3.77	40.05	0.09	0.01	0.10										0.99	15.18	16.17	0.03	0.04	0.04
A.7 Transmission mains	55.67	369.50	425.17	0.11	0.89	1.03				44.99	95.68	140.67	0.03	0.23	0.26						
A.8 Distribution system	116.53	311.67	428.20	0.28	0.75	1.03				9.79	171.58	216.57	0.11	0.41	0.52				32.12	38.99	71.11
A.9 Service connections with water meters	15.40	200.45	215.85	0.04	0.48	0.52				7.70	100.22	107.92	0.02	0.24	0.26				0.77	9.89	10.66
TOTAL A	339.96	985.71	1,324.67	0.82	2.37	3.19	40	110.00	395.66	505.66	0.27	0.95	1.22	41	41.36	67.74	109.10	0.10	0.16	0.26	31
B. MISCELLANEOUS																					
B.1 Motor vehicles		10.35	10.35	0.02	0.02	0.02				4.88	4.88	9.76	0.01	0.01	0.02				5.98	5.98	11.96
B.2 Laboratory equipment and meter test bench	1.69	1.15	2.84	0.00	0.01	0.01				1.87	1.73	3.60	0.01	0.01	0.02				1.65	0.58	2.23
B.3 Public bath houses	4.40		4.40	0.01	0.01	0.02				3.30	3.30	6.60	0.01	0.01	0.02				5.28	5.28	10.56
B.4 Water works office, laboratory, warehouses	16.50		16.50	0.04	0.04	0.08				5.50	5.50	11.00	0.01	0.01	0.02				3.96	3.96	7.92
B.5 Staff housing	40.70		40.70	0.10	0.10	0.20				26.95	26.95	53.90	0.06	0.06	0.12				26.95	26.95	53.90
B.6 Others	36.50	28.75	65.25	0.09	0.07	0.16															
TOTAL B	101.75	40.25	142.00	0.24	0.10	0.34	4	37.62	6.61	44.23	0.09	0.02	0.11	4	37.54	6.56	44.10	0.09	0.02	0.11	12
TOTAL A + B	440.71	1,025.96	1,466.67	1.06	2.47	3.53	44	147.62	402.27	549.86	0.36	0.97	1.33	45	79.20	74.30	153.50	0.19	0.18	0.37	43
C. ENGINEERING																					
C.1 Detailed engineering	35.70	178.50	214.20	0.09	0.43	0.52				13.90	70.10	84.00	0.03	0.17	0.20				4.00	19.80	23.80
C.2 Construction Supervision	38.10	74.20	112.30	0.09	0.18	0.27				15.00	29.10	44.10	0.04	0.07	0.11				4.30	8.20	12.50
TOTAL C	73.80	252.70	326.50	0.18	0.61	0.79	10	28.90	99.20	128.10	0.07	0.24	0.31	11	8.30	28.00	36.30	0.02	0.07	0.09	10
TOTAL A + B + C	514.51	1,278.66	1,793.17	1.24	3.08	4.32	54	176.52	501.47	677.99	0.43	1.21	1.64	56	87.50	102.30	189.80	0.21	0.25	0.46	53
D. CONTINGENCIES																					
D.1 Physical	110.18	256.49	366.67	0.27	0.62	0.89				36.90	100.57	137.47	0.08	0.24	0.32				19.30	18.58	37.88
D.2 Price	526.45	620.03	1,146.48	1.27	1.49	2.76				164.10	237.13	401.23	0.40	0.27	0.67				86.82	43.30	130.12
TOTAL D	636.63	876.52	1,513.15	1.54	2.11	3.65	46	201.00	337.70	538.70	0.48	0.51	0.99	44	106.62	61.88	168.50	0.26	0.14	0.40	47
GRAND TOTAL A + B + C + D	1,151.14	2,155.18	3,306.32	2.78	5.19	7.97	100	377.52	839.17	1,216.69	0.91	2.02	2.93	100	294.12	164.18	458.30	0.47	0.39	0.86	100

	JAMBI							SAMARINDA							SUMMARY						
	Local	Foreign	Total	Local	Foreign	Total	% of Grand Total	Local	Foreign	Total	Local	Foreign	Total	% of Grand Total	Local	Foreign	Total	Local	Foreign	Total	% of Grand Total
	Rupiahs million			US\$ million				Rupiahs million			US\$ million				Rupiahs million			US\$ million			
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
A. CIVIL WORKS WITH RELATED MATERIAL AND EQUIPMENT																					
A.1 Intake	49.83	9.78	59.61	0.12	0.02	0.14				40.15	19.55	59.70	0.09	0.05	0.14				164.78	4.83	209.61
A.2 Boreholes	167.75	27.60	195.35	0.40	0.07	0.47				112.75	189.61	302.36	0.27	0.31	0.58				41.79	21.85	63.64
A.3 Treatment works	39.30		39.30	0.09	0.00	0.09				47.85	10.35	58.20	0.12	0.02	0.14				300.31	200.92	501.23
A.4 Clear wells	7.70	19.55	27.25	0.02	0.05	0.07				7.48	31.74	39.22	0.02	0.06	0.10				146.85	10.35	157.20
A.5 Pumping station	110.00		110.00	0.27	0.00	0.27										39.38	100.93	140.31	0.10	0.25	0.35
A.6 Storage tanks	1.84	10.98	12.82	0.01	0.05	0.06				75.75	84.00	159.75	0.18	0.20	0.38				155.76	7.25	163.01
A.7 Transmission mains	108.76	166.75	275.51	0.26	0.40	0.66				128.14	120.88	249.02	0.31	0.29	0.60				147.04	283.34	430.38
A.8 Distribution system																			430.34	869.87	1,240.21
A.9 Service connections with water meters	11.02	143.46	154.48	0.03	0.34	0.37				8.20	26.64	34.84	0.01	0.07	0.08				37.09	482.66	519.75
TOTAL A	558.90	386.12	945.02	1.35	0.93	2.28	39	414.32	424.77	839.09	1.00	1.02	2.02	39	1,463.54	2,260.00	3,723.54	3.54	5.43	8.97	39
B. MISCELLANEOUS																					
B.1 Motor vehicles		0.26	0.26	0.01	0.01	0.02				5.08	5.08	10.16	0.02	0.02	0.04				34.95	34.95	69.90
B.2 Laboratory equipment and meter test bench	1.27	1.55	2.82	0.00	0.01	0.01				2.37	1.32	3.69	0.01	0.01	0.02				8.81	6.33	15.14
B.3 Public bath houses	3.30		3.30	0.01	0.01	0.02				3.30	3.30	6.60	0.01	0.01	0.02				19.58	19.58	39.16
B.4 Water works office, laboratory, warehouses	8.80		8.80	0.02	0.02	0.04				5.50	5.50	11.00	0.01	0.01	0.02				40.26	40.26	80.52
B.5 Staff housing	40.70		40.70	0.10	0.10	0.20				40.70	40.70	81.40	0.09	0.09	0.18				176.00	176.00	352.00
B.6 Others																			38.50	28.75	67.25
TOTAL B	54.07	9.81	63.88	0.13	0.12	0.25	3	51.87	6.40	58.27	0.12	0.02	0.14	3	283.15	69.63	352.78	0.67	0.13	0.80	4
TOTAL A + B	612.97	395.93	1,008.90	1.48	0.95	2.43	42	466.19	431.17	897.36	1.12	1.04	2.16	41	1,746.69	2,329.63	4,076.32	4.21	5.61	9.82	43
C. ENGINEERING																					
C.1 Detailed engineering	23.20	116.00	139.20	0.05	0.28	0.33				23.20	115.60	138.80	0.06	0.28	0.34				100.00	500.00	600.00
C.2 Construction Supervision	24.80	48.40	73.20	0.06	0.12	0.18				24.80	48.40	73.20	0.06	0.11	0.17				107.00	208.00	315.00
TOTAL C	48.00	164.40	212.60	0.11	0.40	0.51	9	48.00	164.00	212.00	0.12	0.39	0.51	10	207.00	708.00	915.00	0.50	1.71	2.21	10
TOTAL A + B + C	660.97	560.23	1,221.20	1.59	1.35	2.94	51	514.19	594.97	1,109.16	1.24	1.43	2.67	51	1,953.69	3,037.63	4,991.32	4.71	7.32	12.03	53
D. CONTINGENCIES																					
D.1 Physical	153.24	98.06	251.30	0.37	0.24	0.61				115.55	107.79	223.34	0.28	0.26	0.54				436.67	562.41	1,019.06
D.2 Price	673.13	242.46	915.59	1.62	0.59	2.21				265.76	271.44	537.20	1.36	0.66	2.02				2,016.26	1,445.68	3,461.94
TOTAL D	826.37	340.52	1,166.89	1.99	0.83	2.82	49	681.31	379.23	1,060.54	1.64	0.92	2.56	49	2,452.92	1,988.09	4,441.02	5.21	4.81	10.02	47
GRAND TOTAL A + B + C + D	1,487.34	900.69	2,388.03	3.58	2.18	5.76	100	1,195.50	974.20	2,170.70	2.88	2.35	5.23	100	4,406.61	5,025.72	9,432.33	10.62	12.13	22.75	100

INDONESIA
FIVE CITIES WATER SUPPLY PROJECT
PROJECT COST ESTIMATES
JALANG

Fiscal Year Ending March 31	Rupiah x 1,000,000										US\$ x 1,000,000					Total	Percentage of Grand Total
	1975	1976	1977	1978	1979	1980	1981	Total	1975	1976	1977	1978	1979	1980	1981		
A. CIVIL WORKS AND RELATED MATERIAL AND EQUIPMENT																	
A.1 Intake	Local	7.00	52.80	15.00				74.80	0.02	0.12	0.04					0.18	
	Foreign	-	11.50	-				11.50	-	0.03	-					0.03	
	Total	7.00	64.30	15.00				86.30	0.02	0.15	0.04					0.21	
.2 Boreholes	Local																
	Foreign																
	Total																
.3 Treatment works	Local	1.32	9.90	2.86				14.08	0.00	0.02	0.01					0.03	
	Foreign	-	37.38	-				37.38	-	0.09	-					0.09	
	Total	1.32	47.28	2.86				51.46	0.00	0.11	0.01					0.12	
.4 Clear wells	Local																
	Foreign																
	Total																
.5 Pumping station	Local		7.90	16.30				24.20		0.02	0.04					0.06	
	Foreign		51.64	-				51.64		0.12	-					0.12	
	Total		59.54	16.30				75.84		0.14	0.04					0.18	
.6 Storage tanks	Local		16.28	22.00				38.28		0.04	0.05					0.09	
	Foreign		3.57	-				3.57		0.01	-					0.01	
	Total		19.85	22.00				41.85		0.05	0.05					0.10	
.7 Transmission mains	Local		17.60	38.07				55.67		0.04	0.10					0.14	
	Foreign		345.00	24.50				369.50		0.83	0.06					0.89	
	Total		362.60	62.57				425.17		0.87	0.16					1.03	
.8 Distribution system	Local		44.00	72.53				116.53		0.11	0.17					0.28	
	Foreign		230.00	81.67				311.67		0.55	0.20					0.75	
	Total		274.00	154.20				428.20		0.66	0.37					1.03	
.9 Service connections with water meters	Local	1.32	2.42	3.30	3.30	3.08	1.98	15.40	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.04	
	Foreign	100.22	-	100.23	-	-	-	200.45	0.24	-	-	-	-	-	-	0.40	
	Total	101.54	2.42	103.53	3.30	3.08	1.98	215.85	0.24	0.01	0.01	0.01	0.01	0.01	0.00	0.44	
TOTAL A	Local	9.64	150.50	170.26	3.30	3.08	1.98	339.96	0.02	0.36	0.42	0.01	0.01	0.00	0.00	0.32	
	Foreign	100.22	579.09	206.40	-	-	-	885.71	0.24	1.63	0.50	-	-	-	-	2.37	
	Total	109.86	829.59	376.66	3.30	3.08	1.98	1,224.67	0.26	1.99	0.92	0.01	0.01	0.00	0.00	3.19	
B. MISCELLANEOUS																	
B.1 Motor vehicles	Local	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Foreign	10.35	-	-	-	-	-	10.35	0.02	-	-	-	-	-	-	0.02	
	Total	10.35	-	-	-	-	-	10.35	0.02	-	-	-	-	-	-	0.02	
.2 Laboratory equipment and meter test bench	Local	-	0.55	1.10				1.65		-	0.00	0.00				0.00	
	Foreign	1.15	-	-				1.15	0.01	-	-	-				0.01	
	Total	1.15	0.55	1.10				2.80	0.01	0.00	0.00					0.01	
.3 Public bath houses	Local		2.20	2.20				4.40		0.00	0.01					0.01	
	Foreign		-	-				-		-	-					-	
	Total		2.20	2.20				4.40		0.00	0.01					0.01	
.4 Water works office, laboratory, warehouses	Local	2.20	11.00	3.30				16.50	0.01	0.02	0.01					0.04	
	Foreign	-	-	-				-	-	-	-					-	
	Total	2.20	11.00	3.30				16.50	0.01	0.02	0.01					0.04	
.5 Staff housing	Local	11.47	19.93	9.30				40.70	0.03	0.04	0.03					0.10	
	Foreign	-	-	-				-	-	-	-					-	
	Total	11.47	19.93	9.30				40.70	0.03	0.04	0.03					0.10	
.6 Others	Local			38.50				38.50			0.09					0.09	
	Foreign			28.72				28.72			0.07					0.07	
	Total			67.22				67.22			0.16					0.16	
TOTAL B	Local	13.67	33.68	54.40				101.75	0.04	0.06	0.12					0.24	
	Foreign	11.80	-	28.72				40.25	0.03	-	0.07					0.10	
	Total	25.47	33.68	83.12				142.00	0.07	0.06	0.21					0.34	
TOTAL A + B	Local	23.31	184.58	224.46	3.30	3.08	1.98	440.71	0.06	0.42	0.56	0.01	0.01	0.00	0.00	1.06	
	Foreign	111.72	679.09	235.15	-	-	-	1,025.96	0.27	1.63	0.57	-	-	-	-	2.47	
	Total	135.03	863.67	459.61	3.30	3.08	1.98	1,466.67	0.33	2.05	1.13	0.01	0.01	0.00	0.00	3.53	
C. ENGINEERING																	
C.1 Detailed engineering	Local	30.35	5.35					35.70	0.08	0.01						0.09	
	Foreign	142.80	32.70					178.50	0.34	0.09						0.43	
	Total	173.15	41.05					214.20	0.42	0.10						0.52	
.2 Construction Supervision	Local	3.54	14.25	20.31				38.10	0.01	0.03	0.03					0.09	
	Foreign	7.49	32.13	24.28				74.20	0.02	0.06	0.08					0.12	
	Total	11.03	46.38	44.59				112.30	0.03	0.11	0.13					0.21	
TOTAL C	Local	30.35	8.68	14.25	20.31			73.80	0.08	0.04	0.03	0.05				0.18	
	Foreign	142.80	43.15	32.13	24.28			252.70	0.34	0.11	0.08	0.08				0.61	
	Total	173.15	52.08	46.38	44.59			326.50	0.42	0.13	0.11	0.13				0.79	
TOTAL A + B + C	Local	30.35	32.20	198.83	244.77	3.30	3.08	514.51	0.06	0.46	0.61	0.01	0.01	0.00	0.00	1.24	
	Foreign	142.80	154.91	711.22	269.73	-	-	1,278.66	0.34	0.38	1.71	0.65	-	-	-	2.68	
	Total	173.15	187.11	910.05	514.50	3.30	3.08	1,793.17	0.42	0.84	2.36	0.66	0.01	0.01	0.00	4.32	
D. CONTINGENCIES																	
D.1 Physical	Local	5.83	46.15	56.11	0.82	0.77	0.50	110.18	0.02	0.11	0.14	0.00	0.00	0.00	0.00	0.27	
	Foreign	27.93	169.77	38.79	-	-	-	256.49	0.07	0.41	0.14	-	-	-	-	0.62	
	Total	33.76	215.92	94.90	0.82	0.77	0.50	366.67	0.09	0.52	0.28	0.00	0.00	0.00	0.00	0.89	
.2 Price	Local	12.73	199.26	300.28	5.10	5.30	4.18	526.45	0.05	0.46	0.73	0.01	0.01	0.01	0.01	1.27	
	Foreign	47.53	391.16	181.34	-	-	-	620.03	0.12	0.24	0.43	-	-	-	-	1.49	
	Total	60.26	590.42	481.62	5.10	5.30	4.18	1,146.48	0.17	0.70	1.16	0.01	0.01	0.01	0.01	2.76	
TOTAL D	Local	24.56	238.21	356.39	5.92	6.57	4.90	636.63	0.07	0.57	0.87	0.01	0.01	0.01	0.01	1.54	
	Foreign	72.46	560.93	340.13	-	-	-	876.52	0.19	1.35	0.27	-	-	-	-	2.11	
	Total	100.02	799.14	696.52	5.92	6.57	4.90	1,513.15	0.26	1.92	1.14	0.01	0.01	0.01	0.01	3.65	
GRAND TOTAL A+B+C+D	Local	30.35	56.76	437.04	601.16	9.22	9.65	6.96	1,151.14	0.08	0.15	1.02	1.42	0.02	0.01	2.78	
	Foreign	142.80	230.37	1,272.13	809.86	-	-	2,152.88	0.38	0.57	3.06	1.22	-	-	-	3.19	
	Total	173.15	287.13	1,709.19	1,411.02	9.22	9.65	3,304.02	0.42	0.72	4.08	2.70	0.02	0.02	0.01	7.97	

INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
PROJECT COST ESTIMATE
PURWOREJO

Fiscal Year Ending March 31	Rupiah x 1,000,000											US\$ x 1,000,000				Total	Percentage of Grand Total
	1975	1976	1977	1978	1979	1980	1981	Total	1975	1976	1977	1978	1979	1980	1981		
A. CIVIL WORKS AND RELATED MATERIAL AND EQUIPMENT																	
A.1 Intake																	
	Local																
	Foreign																
	Total																
.2 Boreholes	Local	28.25	7.15	6.39				41.79	0.07	0.05	0.01				0.10		
	Foreign		21.85					21.85		0.05					0.05		
	Total	28.25	29.00	6.39				63.64	0.07	0.07	0.01				0.15		
.3 Treatment works	Local		0.78	4.95				5.73		0.00	0.01				0.01		
	Foreign	2.88		3.42				6.33	0.01		0.02				0.02		
	Total	2.88	0.78	8.40				12.06	0.01	0.00	0.02				0.03		
.4 Clear wells	Local																
	Foreign																
	Total																
.5 Pumping station	Local																
	Foreign																
	Total																
.6 Storage tanks	Local																
	Foreign																
	Total																
.7 Transmission mains	Local		1.29	9.50				9.79		0.01	0.02				0.02		
	Foreign		26.00	3.68				31.68		0.22	0.01				0.23		
	Total		27.29	13.18				41.47		0.23	0.03				0.25		
.8 Distribution system	Local		17.49	27.50				44.99		0.04	0.07				0.11		
	Foreign		161.00	16.53				177.53		0.29	0.02				0.31		
	Total		178.49	44.03				222.52		0.33	0.09				0.42		
.9 Service connections with water meters	Local	1.10	1.92	2.86	1.10	0.66		7.70	0.00	0.01	0.01	0.00	0.00		0.02		
	Foreign	50.11		50.11				100.22	0.24		0.12				0.24		
	Total	51.21	1.92	52.97	1.10	0.66		107.92	0.24	0.01	0.13	0.00	0.00		0.26		
TOTAL A	Local	29.35	31.69	47.20	1.10	0.66		110.00	0.07	0.06	0.12	0.00	0.00		0.27		
	Foreign	52.22	274.85	67.82				395.89	0.23	0.66	0.16				0.82		
	Total	81.57	306.54	115.02	1.10	0.66		505.89	0.30	0.74	0.28	0.00	0.00		1.09		
B. MISCELLANEOUS																	
B.1 Motor vehicles																	
	Local	4.88						4.88									
	Foreign								0.01						0.01		
	Total	4.88						4.88	0.01						0.01		
.2 Laboratory and water meter testing equipment	Local		0.77	1.10				1.87		0.00	0.01				0.01		
	Foreign	1.73						1.73	0.01						0.01		
	Total	1.73	0.77	1.10				3.60	0.01	0.00	0.01				0.02		
.3 Public bath houses	Local		2.20	1.10				3.30		0.01	0.00				0.01		
	Foreign																
	Total		2.20	1.10				3.30		0.01	0.00				0.01		
.4 Water works office, laboratory, warehouses	Local	1.10	3.30	1.10				5.50	0.00	0.01	0.00				0.01		
	Foreign																
	Total	1.10	3.30	1.10				5.50	0.00	0.01	0.00				0.01		
.5 Staff housing	Local	9.50	8.50	8.25				26.25	0.02	0.02	0.02				0.06		
	Foreign																
	Total	9.50	8.50	8.25				26.25	0.02	0.02	0.02				0.06		
.6 Others	Local																
	Foreign																
	Total																
TOTAL B	Local	11.00	15.07	11.55				37.62	0.02	0.04	0.03				0.09		
	Foreign	6.61						6.61	0.02						0.02		
	Total	17.61	15.07	11.55				44.23	0.04	0.04	0.03				0.11		
TOTAL A + B	Local	40.35	46.76	58.75	1.10	0.66		147.62	0.09	0.12	0.15	0.00	0.00		0.36		
	Foreign	59.60	274.85	67.82				406.27	0.23	0.66	0.16				0.87		
	Total	99.95	321.61	126.57	1.10	0.66		553.89	0.32	0.78	0.31	0.00	0.00		1.23		
C. ENGINEERING																	
C.1 Detailed engineering																	
	Local	11.82	2.08					13.90	0.02	0.01					0.03		
	Foreign	56.00	14.02					70.02	0.14	0.03					0.17		
	Total	67.82	16.10					83.92	0.16	0.04					0.20		
.2 Construction supervision	Local	1.40	5.61	7.99				15.00	0.00	0.02	0.02				0.04		
	Foreign	2.94	12.60	13.56				29.10	0.01	0.02	0.03				0.07		
	Total	4.34	18.21	21.55				44.10	0.01	0.05	0.05				0.11		
TOTAL C	Local	11.82	3.48	7.99				28.90	0.02	0.01	0.02	0.00			0.07		
	Foreign	56.00	16.96	13.56				89.52	0.14	0.04	0.03	0.00			0.21		
	Total	67.82	20.44	21.55				118.42	0.16	0.05	0.05	0.00			0.28		
TOTAL A+B+C	Local	11.82	43.83	52.37	1.10	0.66		166.52	0.09	0.10	0.14	0.00	0.00		0.43		
	Foreign	56.00	274.85	67.82				406.67	0.23	0.66	0.16				0.97		
	Total	67.82	318.68	120.19	1.10	0.66		573.19	0.32	0.76	0.30	0.00	0.00		1.40		
D. CONTINGENCIES																	
D.1 Physical																	
	Local	10.89	11.69	14.69	0.27	0.16		36.90	0.02	0.03	0.03	0.00	0.00		0.06		
	Foreign	14.90	68.71	16.26				100.37	0.04	0.16	0.04				0.24		
	Total	24.99	80.40	30.95	0.27	0.16		137.27	0.06	0.19	0.07	0.00	0.00		0.30		
.2 Price	Local	29.70	50.22	81.26	1.69	1.73		164.10	0.07	0.12	0.20	0.01	0.00		0.40		
	Foreign	25.00	158.11	24.28				237.39	0.06	0.30	0.13				0.27		
	Total	54.70	208.33	105.54	1.69	1.73		401.49	0.13	0.42	0.33	0.01	0.00		0.67		
TOTAL D	Local	39.79	61.91	95.95	1.96	1.39		201.00	0.09	0.15	0.23	0.01	0.00		0.46		
	Foreign	39.91	226.96	71.24				338.11	0.10	0.54	0.17				0.61		
	Total	79.70	288.87	167.19	1.96	1.39		539.11	0.19	0.69	0.40	0.01	0.00		1.07		
GRAND TOTAL A+B+C+D	Local	11.82	81.62	114.28	3.06	2.05		377.52	0.02	0.19	0.40	0.01	0.00		0.91		
	Foreign	56.00	116.47	314.30				899.47	0.23	0.89	0.26				1.38		
	Total	67.82	198.09	428.58	3.06	2.05		1,276.99	0.25	1.08	0.66	0.01	0.00		2.29		

INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
PROJECT COST ESTIMATES
BANTUANGI

Fiscal Year Ending March 31	Rupiah x 1,000,000										US\$ x 1,000,000						Percentage of Grand Total
	1975	1976	1977	1978	1979	1980	1981	Total	1975	1976	1977	1978	1979	1980	1981	Total	

A. CIVIL WORKS AND RELATED MATERIAL AND EQUIPMENT																	
4.1 Intake	Local																
	Foreign																
	Total																
4.2 Boreholes	Local																
	Foreign																
	Total																
4.3 Treatment works	Local																
	Foreign																
	Total																
4.4 Clear wells	Local																
	Foreign																
	Total																
4.5 Pumping station	Local																
	Foreign																
	Total																
4.6 Storage tanks	Local	1.10	6.38				7.48		0.00	0.02						0.02	
	Foreign		3.68				3.68			0.02						0.01	
	Total	1.10	10.06				11.16		0.00	0.03						0.03	
4.7 Transmission mains	Local		0.33	0.66			0.99			0.00	0.00					0.00	
	Foreign		15.18				15.18			0.04						0.04	
	Total		15.51	0.66			16.17			0.04	0.00					0.04	
4.8 Distribution system	Local		11.00	21.12			32.12			0.03	0.05					0.08	
	Foreign		34.50	4.49			38.99			0.08	0.01					0.09	
	Total		45.50	25.61			71.11			0.11	0.06					0.17	
4.9 Service connections with water meters	Local	0.23	0.33	0.22			0.77		0.00	0.00	0.00					0.00	
	Foreign	2.89					2.89		0.02							0.02	
	Total	10.11	0.33	0.22			10.66		0.02	0.00	0.00					0.02	
TOTAL A	Local	1.32	18.04	22.00			41.36		0.00	0.05	0.05					0.10	
	Foreign	2.89	53.36	4.49			67.74		0.02	0.13	0.01					0.16	
	Total	11.21	71.40	26.49			109.10		0.02	0.18	0.06					0.26	

B. MISCELLANEOUS																	
3.1 Motor vehicles	Local																
	Foreign	5.98					5.98		0.01							0.01	
	Total	5.98					5.98		0.01							0.01	
3.2 Laboratory equipment and meter test bench	Local		1.65				1.65				0.01					0.01	
	Foreign	0.58					0.58		0.01							0.01	
	Total	0.58	1.65				2.23		0.01	0.01						0.02	
3.3 Public bath houses	Local		3.30	1.98			5.28			0.01	0.00					0.01	
	Foreign																
	Total		3.30	1.98			5.28			0.01	0.00					0.01	
3.4 Water works office, laboratory, warehouses	Local	0.88	3.08				3.96		0.00	0.01						0.01	
	Foreign																
	Total	0.88	3.08				3.96		0.00	0.01						0.01	
3.5 Staff housing	Local	9.90	8.80	8.25			26.95		0.02	0.02	0.02					0.06	
	Foreign																
	Total	9.90	8.80	8.25			26.95		0.02	0.02	0.02					0.06	
3.6 Others	Local																
	Foreign																
	Total																
TOTAL B	Local	10.78	16.83	10.23			37.84		0.02	0.05	0.02					0.09	
	Foreign	6.56					6.56		0.02							0.02	
	Total	17.34	16.83	10.23			44.40		0.04	0.05	0.02					0.11	

TOTAL A + B	Local	12.10	34.87	32.23			79.20		0.02	0.10	0.07					0.19	
	Foreign	16.45	53.36	4.49			74.30		0.04	0.13	0.01					0.18	
	Total	28.55	88.23	36.72			153.50		0.06	0.23	0.08					0.37	

C. ENGINEERING																	
0.1 Detailed engineering	Local	3.40	0.60				4.00		0.01	0.00						0.01	
	Foreign	15.84	3.96				19.80		0.04	0.01						0.05	
	Total	19.24	4.56				23.80		0.05	0.01						0.06	
0.2 Construction Supervision	Local	0.40	1.61	2.29			4.30		0.00	0.00	0.01					0.01	
	Foreign	0.83	3.22	3.68			7.73		0.02	0.02	0.01					0.02	
	Total	1.23	5.16	6.11			12.50		0.02	0.01	0.02					0.03	
TOTAL C	Local	3.40	1.00	1.61	2.29		8.30		0.01	0.00	0.01	0.01				0.02	
	Foreign	15.84	4.72	3.22	3.68		28.00		0.04	0.01	0.01	0.01				0.07	
	Total	19.24	5.79	5.16	6.11		36.30		0.05	0.01	0.01	0.02				0.09	

TOTAL A+B+C	Local	3.40	23.10	36.48	34.52		87.50		0.01	0.02	0.10	0.08				0.21	
	Foreign	15.84	21.24	26.91	5.31		102.30		0.04	0.05	0.11	0.02				0.25	
	Total	19.24	34.34	63.39	39.83		189.80		0.05	0.07	0.21	0.10				0.46	

D. CONTINGENCIES																	
0.1 Physical	Local	3.02	8.72	8.06			19.80		0.01	0.02	0.02					0.05	
	Foreign	4.11	13.34	1.13			18.58		0.01	0.03	0.00					0.04	
	Total	7.13	22.06	9.19			38.38		0.02	0.05	0.02					0.09	
0.2 Price	Local	8.89	35.44	48.49			86.82		0.02	0.09	0.10					0.21	
	Foreign	6.91	21.19	5.20			43.30		0.02	0.07	0.01					0.10	
	Total	15.80	66.63	47.69			130.12		0.04	0.16	0.11					0.31	
TOTAL D	Local	11.91	44.16	56.55			106.62		0.03	0.11	0.12					0.26	
	Foreign	11.02	44.53	6.33			61.88		0.03	0.10	0.01					0.14	
	Total	22.93	88.69	62.88			168.50		0.06	0.21	0.13					0.40	

GRAND TOTAL A+B+C+D	Local	3.40	25.01	60.64	85.07		194.12		0.01	0.05	0.21	0.20				0.47	
	Foreign	15.84	32.26	101.44	14.64		164.18		0.04	0.08	0.24	0.03				0.38	
	Total	19.24	57.27	162.08	99.71		358.30		0.05	0.13	0.45	0.23				0.86	

INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
PROJECT COST ESTIMATES

JAMBI

Fiscal Year Ending March 31	1975	1976	1977	1978	1979	1980	1981	Total	1975	1976	1977	1978	1979	1980	1981	Total	Percentage of Grand Total
	Rupiah x 1,000,000							US\$ x 1,000,000									
A. CIVIL WORKS AND RELATED MATERIAL AND EQUIPMENT																	
A.1 Intake	Local	16.83	22.00	11.00				49.83		0.04	0.06	0.03					0.12
	Foreign	-	9.72	-				9.72		-	0.02	-					0.02
	Total	16.83	31.72	11.00				59.55		0.04	0.07	0.03					0.14
A.2 Boreholes	Local																
	Foreign																
	Total																
A.3 Treatment works	Local	46.75	52.50	33.50				132.75		0.11	0.20	0.09					0.40
	Foreign	-	27.60	-				27.60		-	0.07	-					0.07
	Total	46.75	80.10	33.50				160.35		0.11	0.27	0.09					0.47
A.4 Clear wells	Local		49.50	49.50				99.00			0.12	0.12					0.24
	Foreign		-	-				-			-	-					-
	Total		49.50	49.50				99.00			0.12	0.12					0.24
A.5 Pumping station	Local	2.20	3.30	2.20				7.70		0.01	0.01	0.00					0.02
	Foreign	-	19.52	-				19.52		-	0.02	-					0.02
	Total	2.20	22.82	2.20				27.22		0.01	0.03	0.00					0.04
A.6 Storage tanks	Local		44.00	66.00				110.00			0.11	0.16					0.27
	Foreign		-	-				-			-	-					-
	Total		44.00	66.00				110.00			0.11	0.16					0.27
A.7 Transmission mains	Local	1.54	3.30					4.84			0.00	0.01					0.01
	Foreign	-	18.28	-				18.28		-	0.02	-					0.02
	Total	1.54	21.58					23.12			0.02	0.01					0.03
A.8 Distribution system	Local	41.80	66.06					107.86			0.10	0.16					0.26
	Foreign	143.72	23.02					166.74		0.34	0.06						0.40
	Total	185.52	89.08					274.60		0.34	0.22						0.66
A.9 Service connections with water meters	Local	1.32	2.22	2.64	3.06	1.76		11.00		0.00	0.01	0.01	0.01	0.00			0.03
	Foreign	71.73	-	71.73	-	-		143.46		0.17	-	0.17	-	-			0.34
	Total	73.05	2.22	74.37	3.06	1.76		154.46		0.17	0.01	0.18	0.01	0.00			0.37
TOTAL A	Local	67.10	246.86	240.10	3.06	1.76		558.80		0.16	0.60	0.23	0.01	0.00			1.35
	Foreign	71.73	212.66	24.73	-	-		313.12		0.17	0.23	0.23	-	-			0.38
	Total	138.83	459.52	264.83	3.06	1.76		871.92		0.33	1.13	0.46	0.01	0.00			1.73
B. MISCELLANEOUS																	
B.1 Motor vehicles	Local	-	-	-	-	-		-		-	-	-	-	-	-		-
	Foreign	8.26	-	-	-	-		8.26		0.01	-	-	-	-	-		0.01
	Total	8.26	-	-	-	-		8.26		0.01	-	-	-	-	-		0.01
B.2 Laboratory equipment and meter test bench	Local	-	1.27					1.27		-	0.00						0.00
	Foreign	1.55	-	-				1.55		0.01	-	-					0.01
	Total	1.55	1.27					2.82		0.01	0.00						0.01
B.3 Public bath houses	Local		1.10	2.20				3.30			0.01	0.00					0.01
	Foreign		-	-				-			-	-					-
	Total		1.10	2.20				3.30			0.01	0.00					0.01
B.4 Water works office, laboratory, warehouses	Local		5.50	3.30				8.80			0.01	0.01					0.02
	Foreign		-	-				-			-	-					-
	Total		5.50	3.30				8.80			0.01	0.01					0.02
B.5 Staff housing	Local	13.20	17.05	10.45				40.70		0.03	0.04	0.03					0.10
	Foreign	-	-	-				-		-	-	-					-
	Total	13.20	17.05	10.45				40.70		0.03	0.04	0.03					0.10
B.6 Others	Local																
	Foreign																
	Total																
TOTAL B	Local	13.20	24.32	15.95				54.07		0.03	0.06	0.04					0.13
	Foreign	9.81	-	-				9.81		0.02	-	-					0.02
	Total	23.01	24.32	15.95				63.88		0.05	0.06	0.04					0.15
TOTAL A + B	Local	80.30	271.18	256.05	3.06	1.76		620.97		0.19	0.66	0.27	0.01	0.00			1.48
	Foreign	81.54	212.66	24.73	-	-		313.93		0.19	0.23	0.23	-	-			0.38
	Total	161.84	483.84	280.78	3.06	1.76		934.90		0.38	1.19	0.50	0.01	0.00			1.86
C. ENGINEERING																	
C.1 Detailed engineering	Local	19.72	1.43					21.15		0.04	0.01						0.05
	Foreign	92.80	23.20					116.00		0.23	0.05						0.28
	Total	112.52	24.63					137.15		0.27	0.06						0.33
C.2 Construction Supervision	Local	2.31	9.27	13.22				24.80		0.01	0.02	0.03					0.06
	Foreign	1.46	20.91	22.21				44.58		0.02	0.05	0.05					0.12
	Total	3.77	30.18	35.43				69.38		0.03	0.07	0.08					0.18
TOTAL C	Local	19.72	10.70	13.22				45.95		0.04	0.03	0.03					0.11
	Foreign	94.26	24.11	24.92				143.29		0.25	0.07	0.08					0.40
	Total	113.98	34.81	38.14				189.24		0.29	0.10	0.11					0.51
TOTAL A+B+C	Local	103.22	378.08	269.27	3.06	1.76		666.97		0.23	0.71	0.30	0.01	0.00			1.59
	Foreign	92.80	212.66	24.73	-	-		313.18		0.23	0.28	0.23	-	-			1.32
	Total	196.02	590.74	294.00	3.06	1.76		980.15		0.46	0.99	0.53	0.01	0.00			2.91
D. CONTINGENCIES																	
D.1 Physical	Local	20.00	67.94	64.01	0.77	0.44		153.16		0.05	0.17	0.15	0.00	0.00			0.37
	Foreign	23.32	21.21	23.68	-	-		68.21		0.02	0.13	0.06	-	-			0.21
	Total	43.32	89.15	87.69	0.77	0.44		221.37		0.07	0.30	0.21	0.00	0.00			0.58
D.2 Price	Local	58.84	273.61	332.64	4.76	3.11		672.96		0.14	0.66	0.80	0.01	0.01			1.62
	Foreign	31.50	121.19	77.29	-	-		230.98		0.08	0.32	0.12	-	-			0.52
	Total	90.34	394.80	409.93	4.76	3.11		903.94		0.22	0.98	0.92	0.01	0.01			2.14
TOTAL D	Local	79.14	341.55	396.65	5.53	3.55		846.12		0.19	0.83	0.95	0.01	0.01			1.79
	Foreign	54.82	132.80	100.91	-	-		288.53		0.12	0.45	0.18	-	-			0.73
	Total	133.96	474.35	497.56	5.53	3.55		1,134.65		0.31	1.28	1.13	0.01	0.01			2.52
GRAND TOTAL A+B+C+D	Local	199.72	811.31	802.60	8.61	5.31		1,806.69		0.44	1.51	1.60	0.02	0.01			3.55
	Foreign	92.80	212.66	24.73	-	-		313.18		0.23	0.28	0.23	-	-			1.18
	Total	292.52	1,023.97	827.33	8.61	5.31		2,119.87		0.67	1.79	1.83	0.02	0.01			4.73

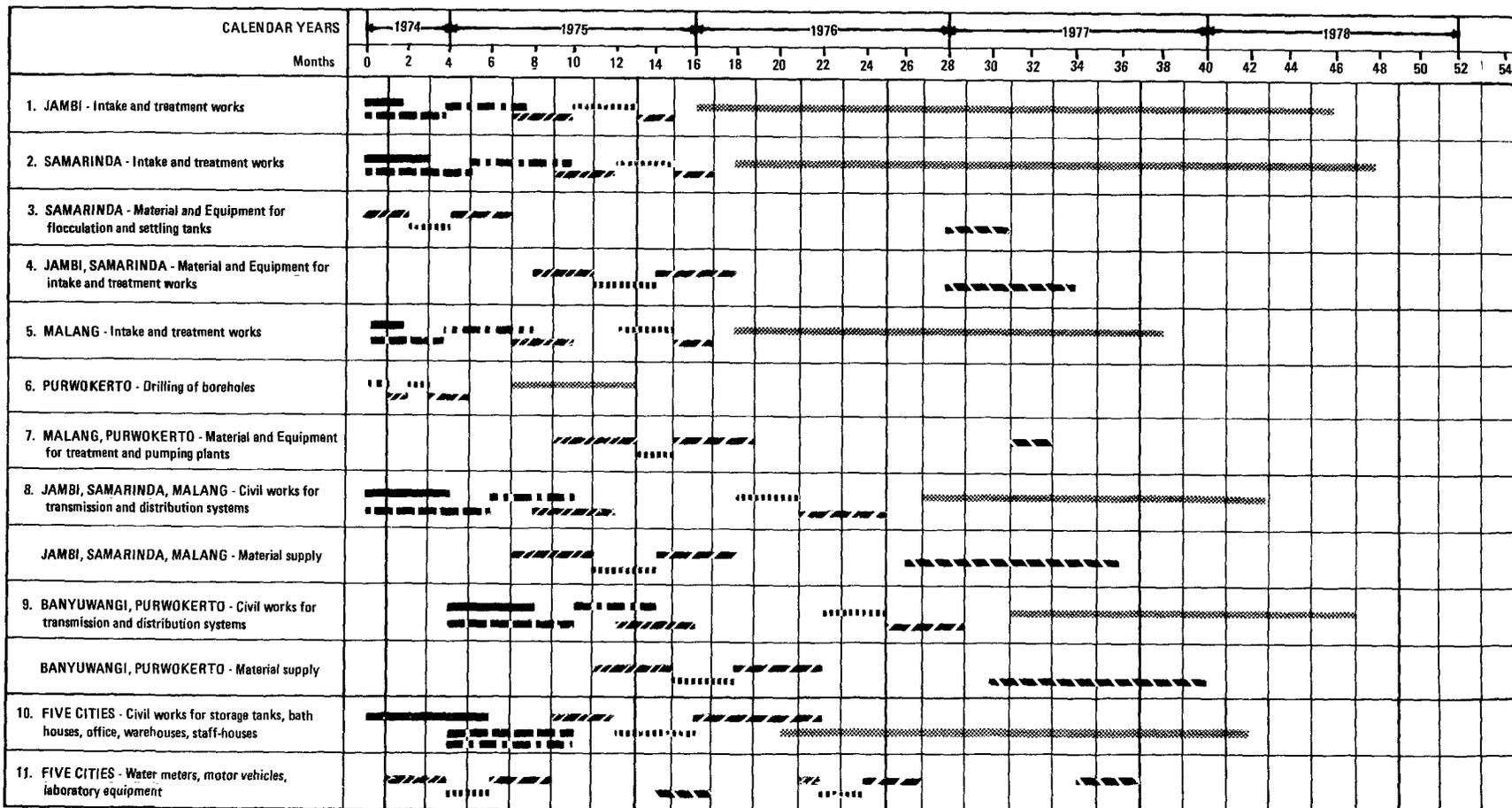
INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
PROJECT COST ESTIMATES
SAMARINDA

Fiscal Year Ending December 31	Rupiah x 1,000,000										US\$ x 1,000,000					Total Grand Total	Percentage of Grand Total
	1974	1975	1976	1977	1978	1979	1980	Total	1974	1975	1976	1977	1978	1979	1980		
A. CIVIL WORKS AND RELATED MATERIAL AND EQUIPMENT																	
A.1 Intake	Local	3.30	11.55	17.60	7.70			40.15	0.01	0.03	0.04	0.01				0.09	
	Foreign	-	19.55	-	-	-	-	19.55	-	0.05	-	-	-	-	-	0.05	
	Total	3.30	31.10	17.60	7.70		59.70	0.01	0.08	0.04	0.01				0.14		
.2 Boreholes	Local																
	Foreign																
	Total																
.3 Treatment works	Local		35.75	55.00	22.00			112.75		0.09	0.13	0.05				0.27	
	Foreign		75.11	57.90	-			133.01		0.17	0.14	-				0.31	
	Total		107.86	112.90	22.00		245.76		0.26	0.27	0.05				0.58		
.4 Clear wells	Local		13.20	27.50	7.15			47.85		0.03	0.07	0.02				0.12	
	Foreign		10.35	-	-			10.35		0.02	-	-				0.02	
	Total		23.55	27.50	7.15		58.20		0.05	0.07	0.02				0.14		
.5 Pumping station	Local		1.96	3.30	2.20			7.46		0.00	0.01	0.01				0.02	
	Foreign		31.74	-	-			31.74		0.05	-	-				0.05	
	Total		33.72	3.30	2.20		39.20		0.05	0.01	0.01				0.10		
.6 Storage tanks	Local																
	Foreign																
	Total																
.7 Transmission mains	Local		28.45	47.30				75.75		0.07	0.11					0.18	
	Foreign		84.00	-	-			84.00		0.20	-	-				0.20	
	Total		112.45	47.30			159.75		0.27	0.11					0.38		
.8 Distribution system	Local		44.54	53.60				98.14		0.11	0.20					0.31	
	Foreign		103.50	17.35				120.85		0.25	0.04					0.29	
	Total		148.04	70.95			219.02		0.36	0.24					0.60		
.9 Service connections with water meters	Local	0.33	0.66	0.88	0.22	0.11		2.20		0.00	0.00	0.01	0.00	0.00		0.01	
	Foreign	14.32	-	14.32	-	-		28.64		0.04	-	0.02	-	-		0.07	
	Total	14.65	0.66	15.20	0.22	0.11	30.84		0.04	0.00	0.01	0.00	0.00		0.08		
	TOTAL A	Local	3.63	136.13	235.18	39.27	0.11	441.32	0.01	0.13	0.17	0.02	0.01	0.00	0.00	1.00	
	Foreign	14.32	321.25	89.20	-	-	-	424.77	0.04	0.27	0.21	-	-	-	-	1.02	
	Total	17.95	457.38	324.38	39.27	0.11	866.09	0.05	0.40	0.38	0.02	0.01	0.00	0.00	2.02	39	
B. MISCELLANEOUS																	
B.1 Motor vehicles	Local																
	Foreign		5.08	-	-			5.08		0.02	-	-				0.02	
	Total		5.08	-	-		5.08		0.02	-	-				0.02		
.2 Laboratory equipment and meter test bench	Local		0.17	2.20				2.37		-	0.00	0.01				0.01	
	Foreign	1.32	-	-	-			1.32		0.00	-	-				0.02	
	Total	1.32	0.17	2.20			3.69		0.00	0.00	0.01				0.01		
.3 Public bath houses	Local		1.10	2.20				3.30		0.00	0.01					0.01	
	Foreign		-	-	-			-		-	-					-	
	Total		1.10	2.20			3.30		0.00	0.01					0.01		
.4 Water works office, laboratory, warehouses	Local		2.20	3.30				5.50		0.01	0.00					0.01	
	Foreign		-	-	-			-		-	-					-	
	Total		2.20	3.30			5.50		0.01	0.00					0.01		
.5 Staff housing	Local	11.00	15.95	13.75				40.70		0.02	0.04	0.03				0.09	
	Foreign	-	-	-	-			-		-	-	-				-	
	Total	11.00	15.95	13.75			40.70		0.02	0.04	0.03				0.09		
.6 Others	Local																
	Foreign																
	Total																
	TOTAL B	Local	11.00	19.42	21.45			51.87	0.02	0.05	0.05					0.12	
	Foreign	6.40	-	-	-			6.40	0.02	-	-					0.02	
	Total	17.40	19.42	21.45			58.27	0.04	0.05	0.05					0.14	2	
	TOTAL A + B	Local	14.63	155.55	256.63	39.27	0.11	466.19	0.03	0.18	0.17	0.02	0.01	0.00	0.00	1.12	
	Foreign	20.72	321.25	89.20	-	-	-	431.17	0.06	0.27	0.21	-	-	-	-	1.04	
	Total	35.35	476.80	345.83	39.27	0.11	897.36	0.09	0.45	0.38	0.02	0.01	0.00	0.00	2.16	41	
C. ENGINEERING																	
C.1 Detailed engineering	Local	19.72	3.48					23.20	0.05	0.01						0.06	
	Foreign	92.48	33.12					125.60	0.22	0.06						0.28	
	Total	112.20	36.60				148.80	0.27	0.07						0.34		
.2 Construction Supervision	Local	2.31	9.27	13.22				24.80		0.01	0.02	0.03				0.06	
	Foreign	4.57	20.87	22.46				47.90		0.01	0.05	0.02				0.11	
	Total	6.88	30.14	35.68			72.70		0.02	0.07	0.05				0.17		
	TOTAL C	Local	19.72	5.79	9.27	13.22		48.00	0.06	0.02	0.02	0.03				0.12	
	Foreign	92.48	37.99	22.27	22.46			162.80	0.22	0.07	0.05	0.05				0.39	
	Total	112.20	43.78	31.54	35.68		210.80	0.27	0.09	0.07	0.08				0.51	10	
	TOTAL A+B+C	Local	19.72	20.42	164.82	269.85	39.27	0.11	514.19	0.05	0.05	0.10	0.05	0.09	0.00	1.24	
	Foreign	92.48	48.71	32.27	111.66			294.97	0.22	0.13	0.22	0.06	-	-	-	1.43	
	Total	112.20	69.13	206.09	381.51	39.27	0.11	1,109.16	0.27	0.18	0.32	0.09	0.09	0.00	2.67	51	
D. CONTINGENCIES																	
D.1 Physical	Local	3.66	38.88	64.16	9.82	0.03		116.55		0.01	0.09	0.15	0.03	0.00		0.28	
	Foreign	5.18	80.31	22.30				107.79		0.01	0.22	-	-			0.24	
	Total	8.84	119.19	86.46	9.82	0.03		224.34		0.02	0.29	0.15	0.03	0.00		0.54	
.2 Price	Local	1.80	159.69	333.34	60.72	0.22		565.75		0.03	0.38	0.80	0.15	0.00		1.36	
	Foreign	3.94	187.55	72.52				274.01		0.03	0.43	0.18	-	-		0.66	
	Total	5.74	347.24	405.86	60.72	0.22		839.76		0.06	0.81	0.98	0.15	0.00		2.02	
	TOTAL D	Local	15.46	199.57	237.50	70.54	0.24	682.31	0.04	0.12	0.17	0.18	0.00	0.00		1.64	
	Foreign	15.12	267.86	94.82				377.80	0.04	0.65	0.23	-	-	-		0.92	
	Total	30.58	467.43	332.32	70.54	0.24		1,060.11	0.08	0.77	0.40	0.18	0.00	0.00		2.56	49
	GRAND TOTAL A+B+C+D	Local	19.72	35.88	363.39	667.35	109.81	0.35	1,136.50	0.05	0.15	0.37	0.20	0.07	0.00	2.88	
	Foreign	92.48	63.23	639.38	227.51			1,512.60	0.22	0.17	0.47	0.19	-	-	-	2.32	
	Total	112.20	99.11	1,002.77	894.86	109.81	0.35	2,649.10	0.27	0.32	0.84	0.39	0.27	0.00	5.20	100	

INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
PROJECT COST ESTIMATE
SUMMARY

Fiscal Year ending March 31		1975	1976	1977	1978	1979	1980	1981	Total	1975	1976	1977	1978	1979	1980	1981	Total	Percentage of Grand Total
		Rp/1,000,000									US\$ x 1,000,000							
A. CIVIL WORKS WITH RELATED MATERIAL AND EQUIPMENT																		
A.1 Intake	Local	27.13	86.35	43.60	7.70				164.78	0.07	0.20	0.11	0.01					0.35
	Foreign		40.83						40.83		0.10							0.10
	Total	27.13	127.18	43.60	7.70				205.61	0.07	0.30	0.11	0.01					0.43
.2 Boreholes	Local	26.25	7.15	6.39					41.79	0.07	0.02	0.01						0.10
	Foreign		21.05						21.05		0.05							0.05
	Total	26.25	28.20	6.39					63.64	0.07	0.07	0.01						0.15
.3 Treatment works	Local	46.07	128.93	101.31	22.00				300.31	0.11	0.31	0.24	0.05					0.71
	Foreign	2.88	137.09	60.95					200.92	0.01	0.33	0.15						0.49
	Total	50.55	266.02	162.26	22.00				501.23	0.12	0.64	0.39	0.05					1.20
.4 Clear wells	Local		62.70	77.00	7.15				146.85		0.15	0.19	0.02					0.36
	Foreign		10.35						10.35		0.02							0.02
	Total		73.05	77.00	7.15				157.20		0.17	0.19	0.02					0.38
.5 Pumping station	Local	2.20	13.18	21.80	2.20				39.38	0.01	0.03	0.05	0.01					0.10
	Foreign		102.93						102.93		0.25							0.25
	Total	2.20	116.11	21.80	2.20				142.31	0.01	0.28	0.05	0.01					0.35
.6 Storage tanks	Local	1.10	66.66	88.00					155.76	0.00	0.17	0.21						0.38
	Foreign		7.25						7.25		0.02							0.02
	Total	1.10	73.91	88.00					163.01	0.00	0.19	0.21						0.40
.7 Transmission mains	Local		52.21	54.83					107.04		0.12	0.24						0.36
	Foreign		255.16	23.18					278.34		1.34	0.07						1.41
	Total		307.37	78.01					385.38		1.46	0.31						1.77
.8 Distribution system	Local		158.83	274.71					433.54		0.39	0.65						1.04
	Foreign		672.75	137.12					809.87		1.61	0.33						1.94
	Total		831.58	411.83					1,243.41		2.00	0.98						2.98
.9 Service connections with water meters	Local	4.29	7.61	9.90	7.70	5.61	1.98		37.09	0.00	0.03	0.04	0.02	0.01	0.00			0.10
	Foreign	245.27		236.39					481.66	0.99		0.56						1.55
	Total	250.56	7.61	246.29	7.70	5.61	1.98		518.75	0.99	0.03	0.60	0.02	0.01	0.00			1.65
TOTAL A	Local	111.04	583.62	714.94	46.75	5.61	1.98		1,463.54	0.26	1.12	1.74	0.11	0.01	0.00			3.54
	Foreign	242.15	1,245.21	1,62.64					2,260.00	0.60	3.72	1.11						5.43
	Total	353.19	1,828.83	1,177.58	46.75	5.61	1.98		3,723.54	0.86	5.24	2.85	0.11	0.01	0.00			8.97
B. MISCELLANEOUS																		
B.1 Motor vehicles	Local																	
	Foreign		34.55						34.55		0.07							0.07
	Total		34.55						34.55		0.07							0.07
.2 Laboratory equipment and motor test bench	Local		4.41	4.40					8.81		0.01	0.02						0.03
	Foreign		6.33						6.33		0.04							0.04
	Total		6.33	4.40					15.14		0.04	0.02						0.07
.3 Public bath houses	Local		9.90	9.68					19.58		0.03	0.02						0.05
	Foreign																	
	Total		9.90	9.68					19.58		0.03	0.02						0.05
.4 Water works office, laboratory, warehouses	Local	4.18	25.00	11.00					40.18	0.01	0.05	0.03						0.09
	Foreign																	
	Total	4.18	25.00	11.00					40.18	0.01	0.05	0.03						0.09
.5 Staff housing	Local	55.47	70.53	50.00					176.00	0.12	0.16	0.13						0.41
	Foreign																	
	Total	55.47	70.53	50.00					176.00	0.12	0.16	0.13						0.41
.6 Others	Local			36.50					36.50									0.09
	Foreign			22.75					22.75									0.07
	Total			67.25					67.25									0.16
TOTAL B	Local	59.65	109.92	113.58					283.15	0.13	0.25	0.29						0.67
	Foreign	40.88		28.75					69.63	0.11		0.07						0.28
	Total	100.53	109.92	142.33					352.78	0.24	0.25	0.36						0.95
TOTAL A + B	Local	170.69	693.54	828.52	46.75	5.61	1.98		1,746.69	0.39	1.67	2.03	0.11	0.01	0.00			4.21
	Foreign	290.23	1,245.21	1,62.64					2,260.00	0.71	3.72	1.18						5.61
	Total	460.92	1,938.75	1,391.16	46.75	5.61	1.98		3,006.69	1.10	5.39	3.21	0.11	0.01	0.00			9.82
C. ENGINEERING																		
C.1 Detailed engineering	Local	85.01	14.99						100.00	0.20	0.04							0.24
	Foreign	400.00	100.30						500.30	0.97	0.24							1.21
	Total	485.01	115.29						600.30	1.17	0.28							1.45
.2 Construction supervision	Local	9.36	40.01	57.03					106.40	0.23	0.09	0.14						0.46
	Foreign	21.71	82.06	96.33					200.10	0.06	0.22	0.24						0.50
	Total	30.97	122.07	153.36					306.50	0.09	0.31	0.38						0.96
TOTAL C	Local	85.01	24.99	40.01	57.03				206.40	0.20	0.07	0.09	0.14					0.50
	Foreign	400.00	121.01	90.06	96.33				708.00	0.97	0.30	0.28	0.24					1.71
	Total	485.01	145.99	130.07	153.36				914.40	1.17	0.37	0.31	0.38					2.21
TOTAL A + B + C	Local	255.84	818.46	968.53	46.75	5.61	1.98		1,993.69	0.20	0.46	0.76	0.11	0.01	0.00			4.72
	Foreign	400.00	1,245.21	1,62.64					2,260.00	0.97	3.72	1.40						7.32
	Total	655.84	2,063.67	1,591.17	46.75	5.61	1.98		4,253.69	1.17	4.17	2.16	0.11	0.01	0.00			12.04
D. CONSTRUCTION																		
D.1 Physical	Local	42.55	173.38	207.03	11.68	1.40	0.50		436.67	0.11	0.42	0.49	0.03	0.00	0.00			1.05
	Foreign	72.51	327.04	222.26					321.81	0.15	0.79	0.59						1.40
	Total	115.06	500.42	429.29	11.68	1.40	0.50		758.48	0.26	1.21	1.08	0.03	0.00	0.00			2.45
.2 Price	Local	127.96	71.02	1,089.98	72.27	10.55	4.48		2,075.26	0.34	1.71	2.63	0.17	0.02	0.01			4.86
	Foreign	123.89	229.23	372.56					725.68	0.31	2.10	0.24						3.14
	Total	251.85	940.25	1,462.54	72.27	10.55	4.48		2,800.94	0.65	3.81	2.87	0.17	0.02	0.01			8.00
TOTAL D	Local	170.64	244.40	1,257.01	33.96	11.99	1.98		2,452.99	0.45	2.13	3.12	0.20	0.02	0.01			5.91
	Foreign	186.40	1,256.27	515.42					1,958.09	0.49	3.09	1.23						5.81
	Total	357.04	1,500.67	1,772.43	33.96	11.99	1.98		4,411.08	0.94	5.22	4.35	0.20	0.02	0.01			11.72
GRAND TOTAL A + B + C + D	Local	85.01	968.88	1,617.99	2,158.16	130.70	17.36	6.96	4,436.65	0.20	0.88	0.89	0.31	0.03	0.01			10.68
	Foreign	400.00	2,063.67	1,62.64	1,103.74				3,190.05	0.97	3.73	2.63						12.13
	Total	485.01	2,932.55	1,780.63	3,261.90	130.70	17.36	6.96	7,626.70	1.17	4.61	3.52	0.31	0.03	0.01			22.81

INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
IMPLEMENTATION SCHEDULE



LEGEND

[Solid Black Bar]	Survey	[Dotted Bar]	Preliminary Design	[Dotted Bar]	Detailed Design	[Diagonal Lines]	Tender Documents
[Dotted Bar]	Tendering	[Diagonal Lines]	Evaluation, Approval & Award	[Diagonal Lines]	Delivery of Equipment & Materials	[Cross-hatched Bar]	Construction & Installation

INDONESIAFIVE CITIES WATER SUPPLY PROJECTSEstimated Schedule of Disbursements

<u>IBRD</u> <u>Fiscal Year</u> <u>and Quarter Ending</u>	<u>Cumulative Disbursements</u> <u>at end of Quarter</u> <u>US\$ Million</u>
<u>1975</u>	
March 31, 1975	0.40
June 30, 1975	0.60
<u>1976</u>	
September 30, 1975	1.00
December 31, 1975	1.50
March 31, 1976	2.50
June 30, 1976	3.60
<u>1977</u>	
September 30, 1976	3.95
December 31, 1976	4.20
March 31, 1977	5.35
June 30, 1977	7.30
<u>1978</u>	
September 30, 1977	10.15
December 31, 1977	12.70
March 31, 1978	13.95
June 30, 1978	14.30
<u>1979</u>	
September 30, 1978	14.35
December 31, 1978	14.40
March 31, 1979	14.45
June 30, 1979	14.50

September 9, 1974

INDONESIAFIVE CITIES WATER SUPPLY PROJECTSPopulation and Water Demand Projections1. Population Projections

1.01 For the population in Indonesia and its main islands, the Government's Central Bureau of Statistics, Jakarta, has provided information on actual and projected growth rates for the years 1961-1971 and 1972-1981. The actual and projected average annual population growth rates are shown in the table below.

	<u>Average Annual Growth Rates</u>	
	<u>Actual</u>	<u>Projected</u>
	<u>1961-1971</u>	<u>1972-1981</u>
	<u>%</u>	<u>%</u>
<u>INDONESIA</u>	2.12	2.37
Java-Madura	1.94	2.14
Sumatera	2.90	2.94
Kalimantan	2.34	2.67
Sulawesi	1.91	2.65
Other islands	2.02	2.53

1.02 For the population in the five cities and their provinces, sources of information on actual and projected growth rates were the Government's Central Bureau of Statistics, the provincial and local governments, urban development plans, where available, and a Regional Transport Survey conducted by the Asian Development Bank. The consultant has made three sets of projections for the population growth of each of the five cities, as described below.

- (a) Low series - The projections are based on the historical relationship (1961-1971) between the changes in the population in the city and in its province, i.e., the city would maintain the same percentage of the increases in population of its province as it did historically.
- (b) High series - The projections are based on the assumption that the population in the city in relation to the population in its province would increase faster than in the past. The increase

reflects the growth potential of the city based on present trends, improvement of communication facilities, and expected industrial development.

- (c) Medium series - The projections are the arithmetic mean of the low and high series.

1.03 The table shows the projected average annual population growth rates for each city and its province for the period 1972-1981.

	<u>Province</u>	<u>Low Series</u>	<u>Medium Series</u>	<u>High Series</u>
<u>MALANG</u>		2.81 <u>/a</u>	3.59	4.36
East Java	2.62			
<u>PURWOKERTO</u>		1.55	2.25 <u>/a</u>	2.95
Middle Java	2.59			
<u>BANYUWANGI</u>		2.41	2.54 <u>/a</u>	2.66
East Java	2.62			
<u>JAMBI</u>		2.51	2.62 <u>/a</u>	2.73
Middle Sumatera	2.63			
<u>SAMARINDA</u>		2.41	2.93 <u>/a</u>	3.45
East Kalimantan	2.31			

/a Indicates the selected growth rate.

The consultant has, in agreement with the local and national governments, selected the growth rates indicated above for purposes of the water demand projections. The growth rates are assumed to follow the same pattern for the whole master plan period. Annex 8-B shows for the study area in each city the projected population during the master plan period, and it also shows the projected population in numbers and percentages to be served by service connections and standpipes.

2. Water Demand Projections

2.01 The consultant experienced difficulties in establishing reliable data for past and present water consumption in the five cities, due to insufficient and intermittent water supply, lack of water meters (Jambi

and Samarinda), water meters out of order or inaccurate, and incomplete records. The study of existing records has been supplemented by field surveys which have covered relevant consumer classifications. For the field surveys a representative number of connections with working water meters and continuous water supply have been selected, and the results have given an indication of the average water consumption for the various consumer classifications. In cities without water meters the estimated consumption has been based on production, number of connections, number of people per household, and comparable data from other cities. The estimates of water consumption for people who are not connected to the water supply system have been based on collected data as to daily quantities of water purchased by vendors or hauled from dug wells or other water sources.

2.02 Annex 8-B shows projected residential consumption in liters per capita per day (l/cd) for service connections and standpipes, average day consumption for various consumer classifications, unaccounted-for water, maximum day production and peak hour demand. Projected residential consumption in l/cd for service connections varies from city to city and has been based on such factors as existing estimated consumption, availability of alternative water sources from dug wells, and the ability of the customers to sustain the water rates. The l/cd consumption from standpipes projected in the feasibility reports varies for the cities, but since the variations could not be justified, the consumption is assumed to be the same in the five cities. For each of the other consumer classifications the unit demand has been studied and the projected daily consumption has been based on considerations of existing and future industrial, commercial and related activities, including a survey of each type of consumer carried out in each city. In the feasibility studies, unaccounted-for water as a percentage of the water production varies from city to city but in view of the uncertainties it has been proposed to apply uniformly 30% for FY 1975 and 1976, 25% for 1977 and 1978 and 20% for the succeeding years. The decrease to 25% in 1977 should reflect the initial results from ongoing rehabilitation and leak detection works.

2.03 Maximum day consumption and peak hour supply are the bases for the design of the waterproduction facilities and the distribution system, respectively. The factors applied for computing maximum day consumption (Max. day: average day) and peak hour supply (peak hour: average hour) have been arrived at from field studies for Cirebon (to be included in the Swiss project). These factors were then adjusted to the particular conditions in each of the five cities, considering the variations in the consumption pattern and the relationship between different consumer classifications such as industrial and commercial versus residential.

June 3, 1974

INDONESIA

FIVE CITIES WATER SUPPLY PROJECTS
POPULATION AND WATER DEMAND PROJECTIONS

City	Year	Total Population	Population Served By						Residential per Head Consumption		Water Consumption and Production																				
			Connections		Standpipes		Connections and Standpipes		Conne- ctions	Stand- pipes	Residential				Commercial and Industrial		Others		Total Consumption		Unaccounted for		Production		Factor		Peak Hour				
			Nos	% of total	Nos	% of total	Nos	% of total	l/c/d	l/c/d	Connections	Standpipes	Commercial and Industrial	Others	Total Consumption	Unaccounted for	Production	Factor	Max Day	Peak Hour	Supply										
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
MALANG	1972	422,000	98,100	23	30,000	7	128,100	30	110	10	10,792	47	300	2	930	4	2,993	13	15,014	66	7,623	34	22,637	262.0	1.11						
	76	472,000	96,100	21	37,700	8	135,600	29	115	10	11,281	50	377	2	949	4	3,239	14	15,846	70	6,791	30	22,637	262.0	1.13	54,610	632.0	1.30	340.6		
	81	542,000	225,700	42	67,500	12	293,200	54	135	12	30,471	63	610	2	1,606	3	5,777	12	38,664	80	9,666	20	48,330	559.0	1.15	78,190	905.0	1.45	1,637.0		
	86	622,000	258,600	48	106,400	17	405,500	65	150	14	44,788	66	1,490	2	1,713	3	6,409	9	54,400	80	13,600	20	68,000	787.0	1.18	115,100	1,332.0	1.50	2,193.0		
	2001	935,000	617,200	66	187,000	20	804,200	86	175	20	108,017	68	3,740	2	2,528	2	13,395	8	127,680	80	31,970	20	159,650	1,647.0	1.20	191,920	2,217.0	1.55	2,863.0		
PURNOKERAM	1972	211,000	6,000	3	-	-	6,000	3	60	-	360	28	-	-	325	25	110	9	795	62	693	38	1,288	15.0							
	76	228,000	10,300	5	13,100	6	23,400	11	80	10	825	38	131	6	431	20	125	6	1,512	70	648	30	2,160	25.0	1.15	11,720	139.0	1.30	32.5		
	81	258,000	44,900	17	45,800	18	90,700	35	100	12	4,493	47	550	6	2,360	24	325	3	7,728	80	1,932	20	9,660	112.0	1.20	20,010	244.0	1.50	306.0		
	86	294,000	72,600	25	67,900	23	140,500	48	115	14	8,350	48	950	5	4,279	24	445	3	14,024	80	3,506	20	17,530	203.0	1.20	29,690	344.0	1.50	429.0		
	2001	435,000	129,700	30	118,000	27	247,700	57	155	20	20,100	49	2,360	6	9,387	23	841	2	32,688	80	8,172	20	40,860	474.0	1.20	49,100	567.0	1.50	711.0		
BANYUWANGI	1972	78,000	5,000	6	-	-	5,000	6	67	-	335	27	-	-	162	13	243	20	740	60	492	40	1,232	14.3							
	76	82,900	5,100	6	5,800	6	10,300	12	133	10	684	29	52	2	397	15	564	24	1,657	70	710	30	2,367	27.4	1.15	4,528	52.4	1.37	61.3		
	81	93,900	9,800	10	19,600	21	29,400	31	136	12	1,325	34	235	6	617	16	916	24	3,096	80	774	20	3,870	44.7	1.17	6,271	72.5	1.44	87.8		
	86	106,600	13,900	13	26,600	25	40,500	38	140	14	1,946	37	373	7	772	15	1,125	21	4,216	80	1,054	20	5,270	61.0	1.21	8,623	99.5	1.51	124.2		
	2001	155,700	37,300	24	59,800	38	97,100	62	155	20	5,786	46	1,196	9	1,221	10	1,325	15	10,128	80	2,532	20	12,660	146.5	1.25	11,799	136.1	1.58	174.8		
JAMBI	1972	156,000	4,500	3	-	-	4,500	3	75	-	336	-	-	-	90	-	86	-	520	-	-	-	-	-	-	-	-	-	-	-	
	76	177,000	5,600	3	58,400	33	64,000	36	95	10	536	41	584	23	340	14	294	12	1,754	70	751	30	2,505	29.0	1.10	15,864	183.6	1.30	37.7		
	81	202,000	74,600	37	90,800	45	125,400	62	100	12	7,497	56	610	5	1,375	10	1,134	9	10,576	80	2,644	20	13,220	153.0	1.20	25,860	300.0	1.50	374.0		
	86	230,000	104,600	45	65,100	28	169,700	74	115	14	12,027	96	912	4	2,787	13	1,511	7	17,240	80	4,320	20	21,560	249.0	1.20	37,200	431.0	1.50	538.0		
	2001	380,000	203,100	60	143,500	37	287,000	76	155	20	31,432	54	1,086	2	11,377	20	2,455	4	46,400	80	11,500	20	58,000	671.0	1.20	69,600	805.0	1.50	1,027.0		
SAMARINDA	1972	106,000	7,000	7	-	-	7,000	7	114,000	24	76	8	-	-	78	-	355	-	1,000	-	-	-	-	-	-	-	-	-	-	-	-
	76	116,000	8,100	7	9,800	8	17,900	15	50	10	1,218	40	98	3	1,577	5	680	22	2,153	70	923	30	3,076	39.6	1.16	9,330	114.8	1.36	133.7		
	80	133,000	27,500	21	22,000	17	49,500	38	154	12	4,231	50	264	3	825	10	1,472	17	6,792	80	1,698	20	8,490	95.3	1.17	16,590	192.0	1.42	229.1		
	85	152,000	45,100	30	28,600	19	74,000	49	160	14	7,269	52	401	3	1,620	12	1,862	13	11,152	80	2,788	20	13,940	161.3	1.19	23,950	277.2	1.49	314.3		
	2001	226,000	108,400	48	54,200	24	162,600	72	175	20	18,970	53	1,084	3	4,985	14	3,366	10	28,408	80	7,102	20	35,510	411.0	1.25	41,480	513.8	1.68	678.1		
TOTAL	1972	983,000	120,600	12	37,000	4	157,600	16	-	-	12,353	-	356	-	1,993	-	3,787	-	16,069	-	-	-	-	-	-	-	-	-	-	-	
	76	1,075,900	127,200	12	124,200	12	251,400	23	-	-	14,544	44	1,242	4	2,234	7	4,922	15	22,922	70	9,823	30	32,745	379.0		96,652	1,119.0	1.37	1,376.0		
	81	1,208,900	382,500	31	205,700	17	588,200	48	-	-	47,580	57	2,469	3	6,783	8	9,624	12	66,856	80	16,714	20	83,570	967.0		146,921	1,700.0	1.50	2,099.0		
	86	1,404,600	535,100	38	294,600	21	829,700	59	-	-	74,380	59	4,126	3	11,171	9	13,355	9	101,032	80	25,258	20	126,290	1,462.0		214,453	2,482.0	1.50	3,070.0		
	2001	2,091,700	1,095,700	52	473,300	23	1,569,000	75	-	-	184,322	60	2,466	3	29,502	10	22,902	7	745,904	80	61,326	20	306,630	3,549.0		370,435	4,287.0	1.50	5,501.0		

1/ Year ending March 31 except year ending December 31 for Samarinda.

2/ Represent the population of the study area only.

INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
INTERNAL FINANCIAL RATES OF RETURN

(in million Rupiahs)

	FY	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987- 2004
MALANG - Return 0.4%														
Project Cost		173.2	220.9	1,126.0	629.4	4.1	3.9	2.5	-	-	-	-	-	-
Incremental Revenue		-	-	-	-	90.4	112.5	133.1	133.8	133.8	133.8	133.8	133.8	133.8
Incremental Expense		-	2.9	4.3	9.9	37.6	45.3	55.8	55.8	55.8	55.8	55.8	55.8	55.8
Net Incremental Revenue		-	(2.9)	(4.3)	(9.9)	52.8	67.2	77.3	78.0	78.0	78.0	78.0	78.0	78.0
Consumer Contributions		0.9	2.8	8.8	18.8	30.0	40.8	47.5	39.3	39.3	28.8	17.4	6.8	-
NET BENEFIT		(172.3)	(221.0)	(1,121.5)	(620.5)	82.8	108.0	124.8	117.3	117.3	106.8	95.4	84.8	78.0
PURWOKERTO - Return 4.4%														
Project Cost		67.9	145.3	420.2	179.8	1.4	0.8	-	-	-	-	-	-	-
Incremental Revenue		-	-	6.1	28.3	40.9	51.3	61.4	61.4	61.4	61.4	61.4	61.4	61.4
Incremental Expense		-	1.6	3.0	6.8	9.5	11.8	14.3	14.4	14.4	14.4	14.4	14.4	14.4
Net Incremental Revenue		-	(1.6)	3.1	21.5	31.4	39.5	47.1	47.0	47.0	47.0	47.0	47.0	47.0
Consumer Contributions		0.7	4.6	10.5	29.6	19.4	19.4	17.9	15.4	11.9	5.1	2.3	0.6	-
NET BENEFIT		(67.2)	(142.3)	(406.6)	(128.7)	49.4	58.1	65.0	62.4	58.9	52.1	49.3	47.6	47.0
BANYUWANGI - Return 1.3%														
Project Cost		19.2	41.5	115.5	52.0	-	-	-	-	-	-	-	-	-
Incremental Revenue		-	-	-	7.0	10.6	13.3	16.4	16.4	16.4	16.4	16.4	16.4	16.4
Incremental Expense		0.4	1.2	1.7	3.4	4.5	5.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Net Incremental Revenue		(0.4)	(1.2)	(1.7)	3.6	6.1	8.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Consumer Contributions		-	1.1	2.3	2.8	2.3	2.2	2.3	1.7	0.6	-	-	-	-
NET BENEFIT		(19.6)	(41.6)	(114.9)	(45.6)	8.4	10.5	12.3	11.7	10.6	10.0	10.0	10.0	10.0
JAMBI - Return 6.9%														
Project Cost		112.5	236.2	644.5	474.2	3.9	2.2	-	-	-	-	-	-	-
Incremental Revenue		-	-	-	-	111.4	140.7	164.1	164.1	164.1	164.1	164.1	164.1	164.1
Incremental Expense		-	0.2	3.2	8.5	29.7	37.1	41.7	41.7	41.7	41.7	41.7	41.7	41.7
Net Incremental Revenue		-	(0.2)	(3.2)	(8.5)	81.7	103.6	122.4	122.4	122.4	122.4	122.4	122.4	122.4
Consumer Contributions		-	3.5	8.8	19.6	30.0	31.8	30.5	27.0	23.2	15.6	6.9	1.9	-
NET BENEFIT		(112.5)	(232.9)	(638.9)	(463.1)	107.8	133.2	152.9	149.4	145.6	138.0	129.3	124.3	122.4
SAMARINDA - Return 3.5%														
Project Cost		112.2	78.0	626.1	468.0	49.1	0.1	-	-	-	-	-	-	-
Incremental Revenue		-	-	-	-	63.8	85.5	107.4	110.2	110.2	110.2	110.2	110.2	110.2
Incremental Expense		-	0.3	1.8	6.2	19.4	25.2	28.1	28.1	28.1	28.1	28.1	28.1	28.1
Net Incremental Revenue		-	(0.3)	(1.8)	(6.2)	44.4	60.3	79.3	82.1	82.1	82.1	82.1	82.1	82.1
Consumer Contributions		-	1.7	5.7	8.2	6.6	6.3	6.3	5.4	2.8	0.3	-	-	-
NET BENEFIT		(112.2)	(76.6)	(622.2)	(466.0)	1.9	66.5	85.6	87.5	84.9	82.4	82.1	82.1	82.1

June 3, 1974

INDONESIAFIVE CITIES WATER SUPPLY PROJECTSAssumptions for Estimating the Internal Financial Rates of Return

1. The rate of return calculations take as benefits the incremental revenues earned by the projects and the consumer contributions for service connections. They take as costs the project costs and the incremental operating expenses net of depreciation and not including taxes. Benefits and costs are taken at 1973 price levels with the exceptions noted below to increase water rates and staff compensation rates net of the annual inflation factor (Annex 15, para 8), which is excluded.

2. The following assumptions have been made in the calculations shown on page 1 of this Annex:

- (a) Incremental revenues are based on the projections in Annexes 10-A to 14-A and are the additional revenues resulting from the projects taken at the projected increases in water rates after discounting such rates by the inflation factor applicable to the years in which the increases are effective.
- (b) Incremental operating expenses are based on the projections in Annexes 10-A to 14-A and are the additional expenses resulting from the project, excluding the inflation factor. They include the projected increases in rates of compensation made to upgrade the staffs of the water enterprises, to the extent such increases exceed the annual inflation factor.
- (c) Consumer contributions for service connections are based on the projections in Annexes 10-B to 14-B, reduced to 1973 prices by the elimination from connection costs of the allowance for price contingencies.
- (d) The project costs are as shown in Annex 5, less price contingencies.

3. The rate of return for each water enterprise on the basis of the above assumptions is set forth on Page 1 of this Annex opposite its name. These approximate returns are: Malang 0.4%; Purwokerto 4.4%; Banyuwangi 1.3%; Jambi 6.9%; and Samarinda 3.5%.

4. A significant factor in the low rates of return under the above assumptions is the generally low level of existing water rates and the

substantial discounting of the projected increased water rates by the annual compounded inflation factor.

5. Tests of the sensitivity of the rates of return to variations in the project cost and operating expense show that a 10% increase or decrease in the project cost would lower or raise the returns by percentages which are within a range of plus or minus 0.7% to 1.0%. A 10% increase or decrease in operating expense would lower or raise the returns by percentages which are within a range of plus or minus 0.2% to 0.5%.

June 3, 1974

INDONESIA
MALANG WATER ENTERPRISE
INCOME STATEMENTS 1972-1983
(in million Rupiahs)

Year ending March 31	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
	Actual/ Estimate						Estimate					
Water Produced (M ³ 000)	8,260	8,260	8,260	8,260	8,260	8,260	8,260	15,000	16,320	17,640	17,640	17,640
Water Sold (M ³ 000)	5,480	5,880	5,800	5,800	5,800	6,200	6,200	12,000	13,000	14,100	14,100	14,100
% Sales to Production	66	71	70	70	70	75	75	80	80	80	80	80
Number of Connections	12,190	12,500	13,300	13,500	14,100	15,900	18,700	21,700	24,500	26,300	26,300	26,300
Average Water Rate Rp/M ³	5.5	5.5	5.5	5.5	5.5	15.0	20.0	24.0	28.0	34.0	36.0	37.0
<u>OPERATING REVENUE</u>												
Water Sales	30.3	32.2	32.0	31.9	31.9	93.0	124.0	288.0	364.0	479.4	507.4	521.7
Other Fees	<u>5.8</u>	<u>1.3</u>	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>	-	-	-	-	-	-	-
Total Billings	36.1	33.5	33.5	33.4	33.4	93.0	124.0	288.0	364.0	479.4	507.4	521.7
Less Provision for Bad Debts	-	-	-	<u>0.7</u>	<u>0.7</u>	<u>1.9</u>	<u>2.5</u>	<u>5.8</u>	<u>7.3</u>	<u>9.6</u>	<u>10.1</u>	<u>10.4</u>
Total Operating Revenue	36.1	33.5	33.5	32.7	32.7	91.1	121.5	282.2	356.7	469.8	497.3	511.3
<u>OPERATING EXPENSE</u>												
Personnel	9.4	7.8	8.8	13.6	19.8	23.4	26.9	32.9	37.9	47.9	53.6	60.0
Electricity and Fuel	-	-	-	8.8	-	-	-	25.4	36.0	55.0	61.6	69.0
Chemicals	-	-	-	-	10.3	11.6	13.0	26.7	32.5	39.4	44.1	49.4
Repairs and Maintenance	6.1	3.5	3.6	4.1	4.6	6.4	13.3	23.4	29.1	31.3	33.6	36.1
Office Supplies	0.8	0.9	0.7	1.1	1.5	1.9	2.4	2.9	3.6	4.3	4.8	5.4
Insurance	-	-	-	0.1	0.1	0.4	1.8	2.3	2.6	2.9	3.3	3.7
Taxes	-	-	-	-	-	5.5	0.9	15.1	22.1	40.5	-	-
Other	1.2	0.7	0.7	-	-	-	-	-	-	-	-	-
Depreciation	<u>16.0</u>	<u>16.0</u>	<u>16.0</u>	<u>16.0</u>	<u>16.0</u>	<u>23.6</u>	<u>59.4</u>	<u>106.1</u>	<u>124.7</u>	<u>125.0</u>	<u>125.1</u>	<u>125.1</u>
Total Operating Expense	<u>33.5</u>	<u>28.9</u>	<u>29.8</u>	<u>43.7</u>	<u>52.3</u>	<u>72.8</u>	<u>117.7</u>	<u>234.8</u>	<u>288.5</u>	<u>346.3</u>	<u>326.1</u>	<u>348.7</u>
Income Before Interest	2.6	4.6	3.7	(11.0)	(19.6)	18.3	3.8	47.4	68.2	123.5	171.2	162.6
Interest	-	-	-	-	-	-	-	-	-	-	206.0	203.3
Net Income (Loss)	<u>2.6</u>	<u>4.6</u>	<u>3.7</u>	<u>(11.0)</u>	<u>(19.6)</u>	<u>18.3</u>	<u>3.8</u>	<u>47.4</u>	<u>68.2</u>	<u>123.5</u>	<u>(34.8)</u>	<u>(40.7)</u>
Operating Expense as Percent of Operating Revenue	93	86	89	134	160	80	97	83	81	74	66	68
Average Net Fixed Assets in Service (Less Consumer Contributions)	388	372	356	339	320	521	1,543	2,836	3,230	3,043	2,853	2,666
Rate of Return (Percent)	0.7	1.2	1.0	-	-	3.5	0.2	1.7	2.1	4.1	6.0	6.1

August 20, 1974

INDONESIA
MALANG WATER ENTERPRISE
CASH FLOW PROJECTIONS 1972-1983

(in million Rupiahs)

Year ending March 31	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
<u>SOURCES OF CASH</u>												
Internal Cash Generation												
Net Income Before Interest	2.6	4.6	3.7	(11.0)	(19.6)	18.3	3.8	47.4	68.2	123.5	171.2	162.6
Depreciation	16.0	16.0	16.0	16.0	16.0	23.6	59.4	106.1	124.7	125.0	125.1	125.1
Increase in Accounts Payable	-	-	-	1.2	0.3	0.3	0.6	2.3	1.2	1.6	0.9	0.9
Consumer Contributions	-	-	-	1.4	4.5	14.0	29.8	47.5	64.5	75.1	62.3	62.3
Total	18.6	20.6	19.7	7.6	1.2	56.2	93.6	203.3	258.6	325.2	359.5	350.9
Loans from National Government (70%)	-	-	-	121.2	201.0	1,196.4	777.7	-	-	-	-	-
National Government Equity (30%)	-	-	-	52.0	86.1	512.8	333.3	-	-	-	-	-
Total Sources	<u>18.6</u>	<u>20.6</u>	<u>19.7</u>	<u>180.8</u>	<u>288.3</u>	<u>1,765.4</u>	<u>1,204.6</u>	<u>203.3</u>	<u>258.6</u>	<u>325.2</u>	<u>359.5</u>	<u>350.9</u>
<u>APPLICATIONS OF CASH</u>												
Capital Expenditures												
Stage 1 Program	-	-	-	173.2	287.1	1,709.2	1,111.0	9.2	9.6	7.0	-	-
Payments to National Government on Equity	-	-	-	21.1	0.5	34.5	52.0	134.2	231.3	297.4	-	-
Debt Service												
Interest	-	-	-	-	-	-	-	-	-	-	206.0	203.3
Principal	-	-	-	-	-	-	-	-	-	-	29.0	31.7
Total Debt Service	-	-	-	-	-	-	-	-	-	-	235.0	235.0
Increase in Accounts Receivable	-	-	-	6.7	-	11.9	6.2	32.8	15.2	17.4	11.3	2.8
Increase in Inventories	1.0	1.0	0.4	2.8	-	9.2	34.2	22.4	0.2	0.1	-	-
Local Government Withdrawals	11.6	15.2	14.9	-	-	-	-	-	-	-	-	-
Total Applications	<u>12.6</u>	<u>16.2</u>	<u>15.3</u>	<u>203.8</u>	<u>287.6</u>	<u>1,764.8</u>	<u>1,203.4</u>	<u>198.6</u>	<u>256.3</u>	<u>321.9</u>	<u>246.3</u>	<u>237.8</u>
Increase (Decrease) in Cash	6.0	4.4	4.4	(23.0)	0.7	0.6	1.2	4.7	2.3	3.3	113.2	113.1
Cash at Beginning	10.5	16.5	20.9	25.3	2.3	3.0	3.6	4.8	9.5	11.8	15.1	128.3
Cash at End	16.5	20.9	25.3	2.3	3.0	3.6	4.8	9.5	11.8	15.1	128.3	241.4
Debt Service Coverage	-	-	-	-	-	-	-	-	-	-	1.26	1.22

August 20, 1974

INDONESIA
MALANG WATER ENTERPRISE
BALANCE SHEET PROJECTIONS 1972-1983

(in million Rupiahs)

As of March 31	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
ASSETS												
Fixed Assets												
Buildings, Plant and Equipment	380.0	380.0	380.0	380.0	380.0	840.3	2,549.5	3,669.7	3,679.3	3,686.3	3,686.3	3,686.3
Less Accumulated Depreciation	-	16.0	32.0	48.0	64.0	87.6	147.0	253.1	377.8	502.8	627.9	753.0
Net Fixed Assets	380.0	364.0	348.0	332.0	316.0	752.7	2,402.5	3,416.6	3,301.5	3,183.5	3,058.4	2,933.3
Construction in Progress	-	-	-	173.2	460.3	1,709.2	1,111.0	-	-	-	-	-
Total Fixed Assets	380.0	364.0	348.0	505.2	776.3	2,461.9	3,513.5	3,416.6	3,301.5	3,183.5	3,058.4	2,933.3
Current Assets												
Cash	16.5	20.9	25.3	2.3	3.0	3.6	4.8	9.5	11.8	15.1	128.3	241.4
Accounts Receivable	-	-	-	6.7	6.7	18.6	24.8	57.6	72.8	90.2	101.5	104.3
Inventories	3.4	4.4	4.8	7.6	7.6	16.8	51.0	73.4	73.6	73.7	73.7	73.7
Total Current Assets	19.9	25.3	30.1	16.6	17.3	39.0	80.6	140.5	158.2	179.0	303.5	419.4
Total Assets	399.9	389.3	378.1	521.8	793.6	2,500.9	3,594.1	3,557.1	3,459.7	3,362.5	3,361.9	3,352.7
LIABILITIES AND EQUITY												
Equity												
National Government	-	-	-	30.9	116.5	594.8	876.1	741.9	510.6	213.2	213.2	213.2
Local Government	397.3	382.1	367.2	367.2	367.2	367.2	367.2	367.2	367.2	367.2	367.2	367.2
Accumulated Surplus	2.6	7.2	10.9	(0.1)	(19.7)	(1.4)	2.4	49.8	118.0	241.5	206.7	166.0
Total Equity	399.9	389.3	378.1	398.0	464.0	960.6	1,245.7	1,158.9	995.8	821.9	787.1	746.4
Consumer Contributions	-	-	-	1.4	5.9	19.9	49.7	97.2	161.7	236.8	299.1	361.4
Long-Term Debt												
Outstanding Debt	-	-	-	121.2	322.2	1,518.6	2,296.3	2,296.3	2,296.3	2,296.3	2,267.3	2,235.6
Less Current Maturities	-	-	-	-	-	-	-	-	-	29.0	31.7	34.6
Total Long-Term Debt	-	-	-	121.2	322.2	1,518.6	2,296.3	2,296.3	2,296.3	2,267.3	2,235.6	2,201.0
Current Liabilities												
Accounts Payable	-	-	-	1.2	1.5	1.8	2.4	4.7	5.9	7.5	8.4	9.3
Current Debt Maturities	-	-	-	-	-	-	-	-	-	29.0	31.7	34.6
Total Current Liabilities	-	-	-	1.2	1.5	1.8	2.4	4.7	5.9	36.5	40.1	43.9
Total Liabilities and Equity	399.9	389.3	378.1	521.8	793.6	2,500.9	3,594.1	3,557.1	3,459.7	3,362.5	3,361.9	3,352.7
Debt as Percent of Total Debt and Equity	-	-	-	23	41	61	65	66	70	74	74	75

August 20, 1974

INDONESIA

PURWOKERTO WATER ENTERPRISE

INCOME STATEMENTS 1972-1983

(in million Rupiahs)

Year ending March 31	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
	Actual/ Estimate	----- Estimate -----										
Water Produced (M ³ 000)	470	515	580	790	790	1,100	2,170	2,620	3,080	3,530	3,530	3,530
Water Sold (M ³ 000)	290	330	390	550	550	830	1,630	2,100	2,460	2,820	2,820	2,820
% Sales to Production	62	64	67	70	70	75	75	80	80	80	80	80
Number of Connections	1,295	1,300	1,300	1,400	2,000	3,200	5,600	6,600	7,200	7,400	7,400	7,400
Average Water Rate Rp/M ³	12.5	12.5	12.5	12.5	12.5	30.0	35.0	40.0	45.0	52.0	55.0	55.0
<u>OPERATING REVENUE</u>												
Water Sales	3.6	4.1	4.9	6.9	6.9	24.9	57.1	84.0	110.7	146.6	155.1	155.1
Other Fees	0.9	0.9	1.0	1.0	1.0	-	-	-	-	-	-	-
Total Billings	4.5	5.0	5.9	7.9	7.9	24.9	57.1	84.0	110.7	141.0	155.1	155.1
Less Provision for Bad Debts	-	-	-	0.2	0.2	0.5	1.1	1.7	2.2	2.9	3.1	3.1
Total Operating Revenue	4.5	5.0	5.9	7.7	7.7	24.4	56.0	82.3	108.5	143.7	152.0	152.0
<u>OPERATING EXPENSE</u>												
Personnel	1.7	1.8	2.0	4.3	7.5	9.9	12.9	15.2	18.5	23.8	26.6	29.9
Electricity and Fuel	-	-	-	-	-	-	-	0.9	2.2	4.1	4.6	5.1
Chemicals	-	-	-	0.2	0.5	1.0	2.4	3.1	4.2	5.4	6.1	6.8
Repairs and Maintenance	0.3	0.3	0.3	0.5	0.6	1.4	4.1	7.5	9.2	9.8	10.6	11.3
Office Supplies	-	-	-	0.1	0.3	0.3	0.3	0.4	0.6	0.7	1.0	1.1
Insurance	-	-	-	-	-	0.1	0.6	0.7	0.8	1.1	1.3	1.4
Taxes	-	-	-	-	-	1.0	3.0	3.2	6.3	12.8	-	-
Other	0.2	0.2	0.2	-	-	-	-	-	-	-	-	-
Depreciation	1.9	1.9	1.9	1.9	1.9	6.7	22.9	39.9	45.7	45.7	45.7	45.7
Total Operating Expense	4.1	4.2	4.4	7.0	10.8	20.4	46.2	70.9	87.5	103.4	95.9	101.3
Income Before Interest	0.4	0.8	1.5	0.7	(3.1)	4.0	9.8	11.4	21.0	40.3	56.1	50.7
Interest	-	-	-	-	-	-	-	-	-	-	76.1	75.1
Net Income (Loss)	0.4	0.8	1.5	0.7	(3.1)	4.0	9.8	11.4	21.0	40.3	(20.0)	(24.4)
Operating Expense as Percent of Operating Revenue	91	84	75	91	140	84	83	86	81	72	63	67
Average Net Fixed Assets in Service (Less Consumer Contributions)	52	50	48	46	41	157	559	962	1,049	975	903	836
Rate of Return (Percent)	0.8	1.6	3.1	1.5	-	2.5	1.8	1.2	2.0	4.1	6.2	6.1

August 20, 1974

INDONESIA
PURWOKERTO WATER ENTERPRISE
CASH FLOW PROJECTIONS 1972-1983

(in million Rupiahs)

Year ending March 31	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
SOURCES OF CASH												
Internal Cash Generation												
Net Income Before Interest	0.4	0.8	1.5	0.7	(3.1)	4.0	9.8	11.4	21.0	40.3	56.1	50.7
Depreciation	1.9	1.9	1.9	1.9	1.9	6.7	22.9	39.9	45.7	45.7	45.7	45.7
Increase in Accounts Payable	-	-	-	0.2	0.2	0.1	0.3	0.4	0.3	0.4	0.2	0.2
Consumer Contributions	-	-	-	1.1	7.3	16.6	46.9	30.6	30.6	28.4	24.4	18.9
Total	2.3	2.7	3.4	3.9	6.3	27.4	79.9	82.3	97.6	114.8	126.4	115.5
Loans From National Government (70%)	-	-	-	47.5	140.1	440.0	220.7	-	-	-	-	-
National Government Equity (30%)	-	-	-	20.4	60.0	188.6	94.6	-	-	-	-	-
Total Sources	<u>2.3</u>	<u>2.7</u>	<u>3.4</u>	<u>71.8</u>	<u>206.4</u>	<u>656.0</u>	<u>395.2</u>	<u>82.3</u>	<u>97.6</u>	<u>114.8</u>	<u>126.4</u>	<u>115.5</u>
APPLICATIONS OF CASH												
Capital Expenditures												
Stage I Program	-	-	-	67.9	200.1	628.6	315.3	3.1	2.0	-	-	-
Payments to National Government on Equity	-	-	-	2.3	6.3	18.5	60.3	66.9	89.5	108.0	-	-
Debt Service												
Interest	-	-	-	-	-	-	-	-	-	-	76.1	75.1
Principal	-	-	-	-	-	-	-	-	-	-	10.7	11.7
Total Debt Service	-	-	-	-	-	-	-	-	-	-	86.8	86.8
Increase in Accounts Receivable	-	-	-	1.6	-	3.4	6.4	5.4	5.3	6.1	2.8	-
Increase in Inventories	-	1.0	-	-	-	5.4	12.6	6.3	0.1	-	-	-
Local Government Withdrawals	2.2	0.8	3.4	-	-	-	-	-	-	-	-	-
Total Applications	<u>2.2</u>	<u>1.8</u>	<u>3.4</u>	<u>71.8</u>	<u>206.4</u>	<u>655.9</u>	<u>394.6</u>	<u>81.7</u>	<u>96.9</u>	<u>114.1</u>	<u>89.6</u>	<u>86.8</u>
Increase (Decrease) in Cash	0.1	0.9	-	-	-	0.1	0.6	0.6	0.7	0.7	36.8	28.7
Cash at Beginning	-	0.1	1.0	1.0	1.0	1.0	1.1	1.7	2.3	3.0	3.7	40.5
Cash at end	0.1	1.0	1.0	1.0	1.0	1.1	1.7	2.3	3.0	3.7	40.5	69.2
Debt Service Coverage	-	-	-	-	-	-	-	-	-	-	1.17	1.11

August 20, 1974

INDONESIA
PURWOKERTO WATER ENTERPRISE
BALANCE SHEET PROJECTIONS 1972-1983
(in million Rupiahs)

As of March 31	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
ASSETS												
Fixed Assets												
Buildings, Plant and Equipment	51.0	51.0	51.0	51.0	51.0	319.0	947.6	1,266.0	1,268.0	1,268.0	1,268.0	1,268.0
Less Accumulated Depreciation	-	<u>1.9</u>	<u>3.8</u>	<u>5.7</u>	<u>7.6</u>	<u>14.3</u>	<u>37.2</u>	<u>77.1</u>	<u>122.8</u>	<u>168.5</u>	<u>214.2</u>	<u>259.9</u>
Net Fixed Assets	51.0	49.1	47.2	45.3	43.4	304.7	910.4	1,188.9	1,145.2	1,099.5	1,053.8	1,008.1
Construction in Progress	-	-	-	<u>67.9</u>	<u>268.0</u>	<u>628.6</u>	<u>315.3</u>	-	-	-	-	-
Total Fixed Assets	51.0	49.1	47.2	113.2	311.4	933.3	1,225.7	1,188.9	1,145.2	1,099.5	1,053.8	1,008.1
Current Assets												
Cash	0.1	1.0	1.0	1.0	1.0	1.1	1.7	2.3	3.0	3.7	40.5	69.2
Accounts Receivable	-	-	-	1.6	1.6	5.0	11.4	16.8	22.1	28.2	31.0	31.0
Inventories	-	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	<u>6.4</u>	<u>19.0</u>	<u>25.3</u>	<u>25.4</u>	<u>25.4</u>	<u>25.4</u>	<u>25.4</u>
Total Current Assets	<u>0.1</u>	<u>2.0</u>	<u>2.0</u>	<u>3.6</u>	<u>3.6</u>	<u>12.5</u>	<u>32.1</u>	<u>44.4</u>	<u>50.5</u>	<u>57.3</u>	<u>96.9</u>	<u>125.6</u>
Total Assets	<u>51.1</u>	<u>51.1</u>	<u>49.2</u>	<u>116.8</u>	<u>315.0</u>	<u>945.8</u>	<u>1,257.8</u>	<u>1,233.3</u>	<u>1,195.7</u>	<u>1,156.8</u>	<u>1,150.7</u>	<u>1,133.7</u>
LIABILITIES AND EQUITY												
Equity												
National Government	-	-	-	18.1	71.8	241.9	276.2	209.3	119.8	11.8	11.8	11.8
Local Government	50.7	49.9	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5	46.5
Accumulated Surplus	<u>0.4</u>	<u>1.2</u>	<u>2.7</u>	<u>3.4</u>	<u>0.3</u>	<u>4.3</u>	<u>14.1</u>	<u>25.5</u>	<u>46.5</u>	<u>86.8</u>	<u>66.8</u>	<u>42.4</u>
Total Equity	51.1	51.1	49.2	68.0	118.6	292.7	336.8	281.3	212.8	145.1	125.1	100.7
Consumer Contributions	-	-	-	1.1	8.4	25.0	71.9	102.5	133.1	161.5	185.9	204.8
Long-Term Debt												
Outstanding Debt	-	-	-	47.5	187.6	627.6	848.3	848.3	848.3	848.3	837.6	825.9
Less Current Maturities	-	-	-	-	-	-	-	-	-	<u>10.7</u>	<u>11.7</u>	<u>12.7</u>
Total Long-Term Debt	-	-	-	47.5	187.6	627.6	848.3	848.3	848.3	837.6	825.9	813.2
Current Liabilities												
Accounts Payable	-	-	-	0.2	0.4	0.5	0.8	1.2	1.5	1.9	2.1	2.3
Current Debt Maturities	-	-	-	-	-	-	-	-	-	<u>10.7</u>	<u>11.7</u>	<u>12.7</u>
Total Current Liabilities	-	-	-	0.2	0.4	0.5	0.8	1.2	1.5	12.6	13.8	15.0
Total Liabilities and Equity	<u>51.1</u>	<u>51.1</u>	<u>49.2</u>	<u>116.8</u>	<u>315.0</u>	<u>945.8</u>	<u>1,257.8</u>	<u>1,233.3</u>	<u>1,195.7</u>	<u>1,156.8</u>	<u>1,150.7</u>	<u>1,133.7</u>
Debt as Percent of Total Debt and Equity	-	-	-	41	61	68	72	75	80	85	87	89

August 20, 1974

INDONESIA
BANYUWANGI WATER ENTERPRISE
INCOME STATEMENTS 1972-1983
(in million Rupiahs)

Year ending March 31	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
	Actual/ Estimate	-----						Estimate	-----			
Water Produced (M ³ 000)		450	585	860	860	860	1,150	1,240	1,320	1,410	1,410	1,410
Water Sold (M ³ 000)		270	380	600	600	650	860	990	1,060	1,130	1,130	1,130
% Sales to Production		60	65	70	70	75	75	80	80	80	80	80
Number of Connections	1,140	1,300	1,300	1,300	1,500	1,800	2,000	2,100	2,150	2,200	2,200	2,200
Average Water Rate Rp/M ³		18.5	18.5	18.5	18.5	34.0	41.0	50.0	58.0	70.0	76.0	78.0
<u>OPERATING REVENUE</u>												
Water Sales	3.2	5.0	7.0	11.1	11.1	22.1	35.3	49.5	61.5	79.1	85.9	88.1
Less Provision for Bad Debts	-	-	-	0.2	0.2	0.4	0.7	1.0	1.2	1.6	1.7	1.8
Total Operating Revenue	<u>3.2</u>	<u>5.0</u>	<u>7.0</u>	<u>10.9</u>	<u>10.9</u>	<u>21.7</u>	<u>34.6</u>	<u>48.5</u>	<u>60.3</u>	<u>77.5</u>	<u>84.2</u>	<u>86.3</u>
<u>OPERATING EXPENSE</u>												
Personnel	0.9	1.6	2.6	4.5	6.8	9.2	11.7	14.3	17.3	22.3	24.9	27.9
Electricity and Fuel	-	-	-	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3
Chemicals	0.2	0.6	0.9	2.1	2.4	2.7	4.0	4.9	5.9	6.8	7.6	8.5
Repairs and Maintenance	-	0.7	0.8	1.7	1.9	2.3	3.3	4.4	5.0	5.4	5.8	6.2
Office Supplies	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.5	0.6	0.9	1.0	1.1
Insurance	-	-	-	0.1	0.1	0.1	0.3	0.4	0.4	0.5	0.5	0.6
Taxes	-	-	-	-	-	-	0.3	1.1	2.1	4.8	0.9	0.4
Other	0.3	0.3	0.5	-	-	-	-	-	-	-	-	-
Depreciation	6.8	6.8	6.8	6.8	6.8	8.2	13.2	18.5	20.4	20.4	20.4	20.4
Total Operating Expense	<u>8.4</u>	<u>10.2</u>	<u>11.8</u>	<u>15.5</u>	<u>18.4</u>	<u>22.9</u>	<u>33.5</u>	<u>44.3</u>	<u>51.9</u>	<u>61.3</u>	<u>61.4</u>	<u>65.4</u>
Income Before Interest	(5.2)	(5.2)	(4.8)	(4.6)	(7.5)	(1.2)	1.1	4.2	8.4	16.2	22.8	20.9
Interest	-	-	-	-	-	-	-	-	-	-	19.3	19.1
Net Income (Loss)	<u>(5.2)</u>	<u>(5.2)</u>	<u>(4.8)</u>	<u>(4.6)</u>	<u>(7.5)</u>	<u>(1.2)</u>	<u>1.1</u>	<u>4.2</u>	<u>8.4</u>	<u>16.2</u>	<u>3.5</u>	<u>1.8</u>
Operating Expense as Percent of Operating Revenue	263	204	169	142	169	106	96	89	83	76	73	76
Average Net Fixed Assets in Service (Less Consumer Contributions)	161	155	148	141	133	161	276	397	422	397	373	350
Rate of Return (Percent)	-	-	-	-	-	-	0.4	1.1	2.0	4.1	6.1	6.0

August 20, 1974

INDONESIA
BANYUWANGI WATER ENTERPRISE
CASH FLOW PROJECTIONS 1972-1983
(in million Rupiahs)

Year ending March 31	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
<u>SOURCES OF CASH</u>												
Internal Cash Generation												
Net Income Before Interest	(5.2)	(5.2)	(4.8)	(4.6)	(7.5)	(1.2)	1.1	4.2	8.4	16.2	22.8	20.9
Depreciation	6.8	6.8	6.8	6.8	6.8	8.2	13.2	18.5	20.4	20.4	20.4	20.4
Increase in Accounts Payable	-	-	-	0.4	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2
Consumer Contributions	-	-	-	-	1.8	3.6	4.4	4.5	4.5	4.8	3.6	2.0
Total	1.6	1.6	2.0	2.6	1.2	10.7	18.9	27.4	33.5	41.7	47.0	43.5
Loans from National Government (60%)	-	-	-	11.5	34.4	109.3	59.8	-	-	-	-	-
National Government Equity (40%)	-	-	-	7.7	22.9	72.8	39.9	-	-	-	-	-
Total Sources	1.6	1.6	2.0	21.8	58.5	192.8	118.6	27.4	33.5	41.7	47.0	43.5
<u>APPLICATIONS OF CASH</u>												
Capital Expenditures												
Stage I Program	-	-	-	19.2	57.3	182.1	99.7	-	-	-	-	-
Other	1.1	-	-	-	-	-	-	-	-	-	-	-
Payments on National Government Equity	-	-	-	-	0.5	6.7	12.1	22.2	29.0	38.4	-	-
Debt Amortization												
Interest	-	-	-	-	-	-	-	-	-	-	19.3	19.1
Principal	-	-	-	-	-	-	-	-	-	-	2.7	2.9
Total Debt Service	-	-	-	-	-	-	-	-	-	-	22.0	22.0
Increase in Accounts Receivable	-	-	-	2.2	-	2.2	2.7	2.8	2.4	2.8	1.9	0.6
Increase in Inventories	-	-	-	3.1	-	1.6	3.6	2.0	-	-	-	-
Local Government Withdrawals	0.5	0.6	-	-	-	-	-	-	-	-	-	-
Total Applications	1.6	0.6	-	24.5	57.8	192.6	118.1	27.0	31.4	41.2	23.9	22.6
Increase (Decrease) in Cash	-	1.0	2.0	(2.7)	0.7	0.2	0.5	0.4	2.1	0.5	23.1	20.9
Cash at Beginning	-	-	1.0	3.0	0.3	1.0	1.2	1.7	2.1	4.2	4.7	27.8
Cash at End	-	1.0	3.0	0.3	1.0	1.2	1.7	2.1	4.2	4.7	27.8	48.7
Debt Service Coverage	-	-	-	-	-	-	-	-	-	-	1.96	1.90

August 20, 1974

INDONESIA

BANYUWANGI WATER ENTERPRISE

BALANCE SHEET PROJECTIONS 1972-1983

(in million Rupiahs)

As of March 31	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
ASSETS												
Fixed Assets												
Buildings, Plant and Equipment	158.0	158.0	158.0	158.0	158.0	234.5	416.6	516.3	516.3	516.3	516.3	516.3
Less Accumulated Depreciation	-	6.8	13.6	20.4	27.2	35.4	48.6	67.1	87.5	107.9	128.3	148.7
Net Fixed Assets	158.0	151.2	144.4	137.6	130.8	199.1	368.0	449.2	428.8	408.4	388.0	367.6
Construction in Progress	-	-	-	19.2	76.5	182.1	99.7	-	-	-	-	-
Total Fixed Assets	158.0	151.2	144.4	156.8	207.3	381.2	467.7	449.2	428.8	408.4	388.0	367.6
Current Assets												
Cash	-	1.0	3.0	0.3	1.0	1.2	1.7	2.1	4.2	4.7	27.8	48.7
Accounts Receivable	-	-	-	2.2	2.2	4.4	7.1	9.9	12.3	15.1	17.0	17.6
Inventories	-	-	-	3.1	3.1	4.7	8.3	10.3	10.3	10.3	10.3	10.3
Total Current Assets	-	1.0	3.0	5.6	6.3	10.3	17.1	22.3	26.8	30.1	55.1	76.6
Total Assets	<u>158.0</u>	<u>152.2</u>	<u>147.4</u>	<u>162.4</u>	<u>213.6</u>	<u>391.5</u>	<u>484.8</u>	<u>471.5</u>	<u>455.6</u>	<u>438.5</u>	<u>443.1</u>	<u>444.2</u>
LIABILITIES AND EQUITY												
Equity												
National Government	-	-	-	7.7	30.1	96.2	124.0	101.8	72.8	34.4	34.4	34.4
Local Government	163.2	162.6	162.6	162.6	162.6	162.6	162.6	162.6	162.6	162.6	162.6	162.6
Accumulated Surplus	(5.2)	(10.4)	(15.2)	(19.8)	(27.3)	(28.5)	(27.4)	(23.2)	(14.8)	1.4	4.9	6.7
Total Equity	158.0	152.2	147.4	150.5	165.4	230.3	259.2	241.2	220.6	198.4	201.9	203.7
Consumer Contributions	-	-	-	-	1.8	5.4	9.8	14.3	18.8	23.6	27.2	29.2
Long-Term Debt												
Outstanding Debt	-	-	-	11.5	45.9	155.2	215.0	215.0	215.0	215.0	212.3	209.4
Less Current Maturities	-	-	-	-	-	-	-	-	-	2.7	2.9	3.2
Total Long-Term Debt	-	-	-	11.5	45.9	155.2	215.0	215.0	215.0	212.3	209.4	206.2
Current Liabilities												
Accounts Payable	-	-	-	0.4	0.5	0.6	0.8	1.0	1.2	1.5	1.7	1.9
Current Debt Maturities	-	-	-	-	-	-	-	-	-	2.7	2.9	3.2
Total Current Liabilities	-	-	-	0.4	0.5	0.6	0.8	1.0	1.2	4.2	4.6	5.1
Total Liabilities and Equity	<u>158.0</u>	<u>152.2</u>	<u>147.4</u>	<u>162.4</u>	<u>213.6</u>	<u>391.5</u>	<u>484.8</u>	<u>471.5</u>	<u>455.6</u>	<u>438.5</u>	<u>443.1</u>	<u>444.2</u>
Debt as Percent of Total Debt and Equity	-	-	-	7	22	40	45	47	49	52	51	51

August 20, 1974

INDONESIA
 JAMBI WATER ENTERPRISE
 INCOME STATEMENTS 1972-1983
 (in million Rupiahs)

Year ending March 31	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
	Actual/ Estimate	----- Estimate -----										
Water Produced (M ³ 000)				330	910	910	910	3,570	4,270	4,830	4,830	4,830
Water Sold (M ³ 000)	190	170	170	230	640	680	680	2,860	3,420	3,860	3,860	3,860
% Sales to Production				70	70	75	75	80	80	80	80	80
Number of Connections	1,400	1,500	1,600	1,600	2,200	3,400	5,800	8,600	10,200	10,800	10,800	10,800
Average Water Rate Rp/M ³	25.0	37.5	50.0	50.0	50.0	58.0	67.0	75.0	84.0	94.0	101.0	104.0
<u>OPERATING REVENUE</u>												
Water Sales	4.8	6.4	8.5	11.5	32.0	39.4	45.6	214.5	287.2	362.8	389.9	401.4
Other Fees	0.3	0.3	0.3	0.3	0.3	-	-	-	-	-	-	-
Total Billings	5.1	6.7	8.8	11.8	32.3	39.4	45.6	214.5	287.2	362.8	389.9	401.4
Less Provision for Bad Debts	-	-	-	0.2	0.6	0.8	0.9	4.3	5.7	7.1	7.8	8.0
Total Operating Revenue	<u>5.1</u>	<u>6.7</u>	<u>8.8</u>	<u>11.6</u>	<u>31.7</u>	<u>38.6</u>	<u>44.7</u>	<u>210.2</u>	<u>281.5</u>	<u>355.7</u>	<u>382.1</u>	<u>393.4</u>
<u>OPERATING EXPENSE</u>												
Personnel	4.2	4.8	6.1	8.0	14.4	20.2	26.6	31.7	38.3	46.2	51.8	58.1
Electricity and Fuel	-	0.7	0.7	0.9	3.3	3.7	4.2	19.5	26.7	33.7	37.8	42.3
Chemicals	0.7	0.7	0.7	1.1	3.4	3.9	4.3	19.3	25.9	32.6	36.5	40.9
Repairs and Maintenance	1.2	1.8	2.4	2.8	3.4	5.2	9.9	16.8	21.2	22.8	24.5	26.4
Office Supplies	0.3	0.3	0.3	0.4	0.8	1.2	1.9	3.4	4.2	4.8	5.3	6.0
Insurance	-	-	-	0.1	0.3	0.4	1.1	1.8	2.0	2.3	2.5	2.8
Taxes	-	-	-	-	-	-	-	8.0	15.3	27.8	-	-
Other	0.2	0.8	1.1	-	-	-	-	-	-	-	-	-
Depreciation	10.0	10.0	10.0	11.1	13.1	21.9	48.8	83.7	99.9	100.0	100.0	100.0
Total Operating Expense	<u>16.6</u>	<u>19.1</u>	<u>21.3</u>	<u>24.4</u>	<u>38.7</u>	<u>56.5</u>	<u>96.8</u>	<u>184.2</u>	<u>233.5</u>	<u>270.2</u>	<u>258.4</u>	<u>276.5</u>
Income Before Interest	(11.5)	(12.4)	(12.5)	(12.8)	(7.0)	(17.9)	(52.1)	26.0	48.0	85.5	123.7	116.9
Interest	-	-	-	-	-	-	-	-	-	-	128.0	126.2
Net Income (Loss)	<u>(11.5)</u>	<u>(12.4)</u>	<u>(12.5)</u>	<u>(12.8)</u>	<u>(7.0)</u>	<u>(17.9)</u>	<u>(52.1)</u>	<u>26.0</u>	<u>48.0</u>	<u>85.5</u>	<u>(4.3)</u>	<u>(9.3)</u>
Operating Expense as Percent of Operating Revenue	325	285	242	210	122	146	217	84	78	70	68	70
Average Net Fixed Assets in Service (Less Consumer Contributions)	210	201	191	210	251	469	1,157	2,023	2,332	2,185	2,039	1,900
Rate of Return (Percent)	-	-	-	-	-	-	-	1.3	2.1	4.0	6.1	6.2

August 20, 1974

INDONESIA
 JAMBI WATER ENTERPRISE
 CASH FLOW PROJECTIONS 1972-1983
 (in million Rupiahs)

Year ending March 31	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
<u>SOURCES OF CASH</u>												
Internal Cash Generation												
Net Income Before Interest	(11.5)	(12.4)	(12.5)	(12.8)	(7.0)	(17.9)	(52.1)	26.0	48.0	85.5	123.7	116.9
Depreciation	10.0	10.0	10.0	11.1	13.1	21.9	48.8	83.7	99.9	100.0	100.0	100.0
Increase in Accounts Payable	-	-	-	0.6	0.5	0.3	0.6	1.9	1.0	1.0	0.7	0.8
Consumer Contributions	-	-	-	-	5.5	14.0	31.0	47.5	50.4	48.3	42.8	36.8
Total	(1.5)	(2.4)	(2.5)	(1.1)	12.1	18.3	28.3	159.1	199.3	234.8	267.2	254.5
Loans from National Government (60%)	-	-	-	67.5	197.7	629.6	530.8	-	-	-	-	-
National Government Equity (40%)	-	-	-	45.0	131.8	419.7	353.8	-	-	-	-	-
National Government Grants	-	-	60.0	50.0	-	-	-	-	-	-	-	-
Local Government Equity	2.9	2.8	2.5	8.9	-	-	-	-	-	-	-	-
Total Sources	<u>1.4</u>	<u>0.4</u>	<u>60.0</u>	<u>170.3</u>	<u>341.6</u>	<u>1,067.6</u>	<u>912.9</u>	<u>159.1</u>	<u>199.3</u>	<u>234.8</u>	<u>267.2</u>	<u>254.5</u>
<u>APPLICATIONS OF CASH</u>												
Capital Expenditures												
Stage I Program	-	-	-	112.5	329.5	1,049.3	884.6	8.6	5.5	-	-	-
Other	1.2	-	60.0	50.0	-	-	-	-	-	-	-	-
Payments to National Government on Equity	-	-	-	-	6.0	7.2	5.1	95.1	177.0	219.2	-	-
Debt Service												
Interest	-	-	-	-	-	-	-	-	-	-	128.0	126.2
Principal	-	-	-	-	-	-	-	-	-	-	18.0	19.8
Total Debt Service	-	-	-	-	-	-	-	-	-	-	146.0	146.0
Increase in Accounts Receivable	-	-	-	2.4	4.1	1.4	1.2	33.8	14.5	13.6	7.0	2.3
Increase in Inventories	-	-	-	5.3	1.0	8.9	20.9	17.9	0.1	-	-	-
Total Applications	<u>1.2</u>	<u>-</u>	<u>60.0</u>	<u>170.2</u>	<u>340.6</u>	<u>1,066.8</u>	<u>911.8</u>	<u>155.4</u>	<u>197.1</u>	<u>232.8</u>	<u>153.0</u>	<u>148.3</u>
Increase (Decrease) in Cash	0.2	0.4	-	0.1	1.0	0.8	1.1	3.7	2.2	2.0	114.2	106.2
Cash at Beginning	0.4	0.6	1.0	1.0	1.1	2.1	2.9	4.0	7.7	9.9	11.9	126.1
Cash at End	0.6	1.0	1.0	1.1	2.1	2.9	4.0	7.7	9.9	11.9	126.1	232.3
Debt Service Coverage	-	-	-	-	-	-	-	-	-	-	1.53	1.49

August 20, 1974

INDONESIA
JAMBI WATER ENTERPRISE
BALANCE SHEET PROJECTIONS 1972-1983

(in million Rupiahs)

As of March 31	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
ASSETS												
Fixed Assets												
Buildings, Plant and Equipment	206.0	206.0	206.0	266.0	316.0	758.0	1,807.3	2,700.5	2,706.0	2,706.0	2,706.0	2,706.0
Less Accumulated Depreciation	-	10.0	20.0	31.1	44.2	66.1	114.9	198.6	298.5	398.5	498.5	598.5
Net Fixed Assets	206.0	196.0	186.0	234.9	271.8	691.9	1,692.4	2,501.9	2,407.5	2,307.5	2,207.5	2,107.5
Construction in Progress	-	-	60.0	162.5	442.0	1,049.3	884.6	-	-	-	-	-
Total Fixed Assets	206.0	196.0	246.0	397.4	713.8	1,741.2	2,577.0	2,501.9	2,407.5	2,307.5	2,207.5	2,107.5
Current Assets												
Cash	0.6	1.0	1.0	1.1	2.1	2.9	4.0	7.7	9.9	11.9	126.1	232.3
Accounts Receivable	-	-	-	2.4	6.5	7.9	9.1	42.9	57.4	71.0	78.0	80.3
Inventories	-	-	-	5.3	6.3	15.2	36.1	54.0	54.1	54.1	54.1	54.1
Total Current Assets	0.6	1.0	1.0	8.8	14.9	26.0	49.2	104.6	121.4	137.0	258.2	366.7
Total Assets	206.6	197.0	247.0	406.2	728.7	1,767.2	2,626.2	2,606.5	2,528.9	2,444.5	2,465.7	2,474.2
LIABILITIES AND EQUITY												
Equity												
National Government	-	-	-	45.0	170.8	583.3	932.0	836.9	659.9	440.7	440.7	440.7
National Government Grants	-	-	60.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0
Local Government	218.1	220.9	223.4	232.3	232.3	232.3	232.3	232.3	232.3	232.3	232.3	232.3
Accumulated Surplus	(11.5)	(23.9)	(36.4)	(49.2)	(56.2)	(74.1)	(126.2)	(100.2)	(52.2)	33.3	29.0	19.7
Total Equity	206.6	197.0	247.0	338.1	456.9	851.5	1,148.1	1,079.0	950.0	816.3	812.0	802.7
Consumer Contributions	-	-	-	-	5.5	19.5	50.5	98.0	148.4	196.7	239.5	276.3
Long-Term Debt												
Outstanding Debt	-	-	-	67.5	265.2	894.8	1,425.6	1,425.6	1,425.6	1,425.6	1,407.6	1,387.8
Less Current Maturities	-	-	-	-	-	-	-	-	-	18.0	19.8	21.5
Total Long-Term Debt	-	-	-	67.5	265.2	894.8	1,425.6	1,425.6	1,425.6	1,407.6	1,387.8	1,366.3
Current Liabilities												
Accounts Payable	-	-	-	0.6	1.1	1.4	2.0	3.9	4.9	5.9	6.6	7.4
Current Debt Maturities	-	-	-	-	-	-	-	-	-	18.0	19.8	21.5
Total Current Liabilities	-	-	-	0.6	1.1	1.4	2.0	3.9	4.9	23.9	26.4	28.9
Total Liabilities and Equity	206.6	197.0	247.0	406.2	728.7	1,767.2	2,626.2	2,606.5	2,528.9	2,444.5	2,465.7	2,474.2
Debt as Percent of Total Debt and Equity	-	-	-	17	37	51	55	57	60	63	63	64

August 20, 1974

INDONESIA
SAMARINDA WATER ENTERPRISE
INCOME STATEMENTS 1971-1982
(in million Rupiahs)

Year ending December 31	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
	Actual/ Estimate	-----	----- Estimate -----									
Water Produced (M ³ 000)				330	1,120	1,120	1,120	2,450	2,770	3,100	3,100	3,100
Water Sold (M ³ 000)	335	365	300	230	790	840	840	1,960	2,220	2,480	2,480	2,480
% Sales to Production				70	70	75	75	80	80	80	80	80
Number of Connections	950	950	1,000	1,300	1,600	2,400	3,200	3,500	3,700	3,800	3,800	3,800
Average Water Rate Rp/M ³	20.0	20.0	20.0	20.0	23.5	50.0	68.0	88.0	114.0	130.0	140.0	143.0
OPERATING REVENUE												
Water Sales	6.7	7.3	6.0	4.6	18.6	42.0	57.1	172.5	248.6	322.4	347.2	354.6
Less Provision for Bad Debts	-	-	-	0.1	0.4	0.8	1.1	3.5	5.0	6.4	6.9	7.1
Total Operating Revenue	<u>6.7</u>	<u>7.3</u>	<u>6.0</u>	<u>4.5</u>	<u>18.2</u>	<u>41.2</u>	<u>56.0</u>	<u>169.0</u>	<u>243.6</u>	<u>316.0</u>	<u>340.3</u>	<u>347.5</u>
OPERATING EXPENSE												
Personnel	2.0	2.2	2.8	5.8	9.6	13.3	20.9	26.8	36.9	43.2	48.4	54.2
Electricity and Fuel				0.8	2.4	2.7	3.1	11.0	13.5	16.5	18.5	20.7
Chemicals				1.5	5.2	5.9	6.6	16.1	20.2	25.6	28.6	32.1
Repairs and Maintenance	1.3	0.7	1.5	2.6	3.6	4.4	8.2	13.9	18.2	19.9	21.4	23.0
Office Supplies				0.1	0.3	0.3	0.5	0.5	0.8	0.9	1.0	1.1
Insurance	-	-	-	0.2	0.3	0.3	1.0	1.6	1.8	2.0	2.3	2.6
Taxes	-	-	-	-	-	-	-	5.8	14.6	28.0	1.9	0.9
Supplies and Fuel *	1.6	1.9	2.0									
Water Treatment *	2.0	0.2	1.5									
Pumping Expenses *	2.5	2.8	3.0									
Other *	0.7	0.3	0.5									
Depreciation	<u>8.5</u>	<u>8.5</u>	<u>8.5</u>	<u>11.2</u>	<u>14.8</u>	<u>19.5</u>	<u>40.9</u>	<u>74.1</u>	<u>91.9</u>	<u>93.9</u>	<u>93.9</u>	<u>93.9</u>
Total Operating Expense	<u>18.6</u>	<u>16.6</u>	<u>19.8</u>	<u>22.2</u>	<u>36.2</u>	<u>46.4</u>	<u>81.2</u>	<u>149.8</u>	<u>197.9</u>	<u>230.0</u>	<u>216.0</u>	<u>228.5</u>
Income Before Interest	(11.9)	(9.3)	(13.8)	(17.7)	(18.0)	(5.2)	(25.2)	19.2	45.7	86.0	124.3	119.0
Interest	-	-	-	-	-	-	-	-	-	-	116.8	115.4
Net Income (Loss)	<u>(11.9)</u>	<u>(9.3)</u>	<u>(13.8)</u>	<u>(17.7)</u>	<u>(18.0)</u>	<u>(5.2)</u>	<u>(25.2)</u>	<u>19.2</u>	<u>45.7</u>	<u>86.0</u>	<u>7.5</u>	<u>3.6</u>
Operating Expense as Percent of Operating Revenue	278	227	330	493	199	113	145	89	81	73	63	66
Average Net Fixed Assets in Service (Less Consumer Contributions)	185	177	168	233	319	427	978	1,834	2,233	2,185	2,082	1,982
Rate of Return (Percent)	-	-	-	-	-	-	-	1.0	2.0	4.0	6.0	6.0

* These items are classified as above in years after 1973.

INDONESIA
SAMARINDA WATER ENTERPRISE
CASH FLOW PROJECTIONS 1971-1982
(in million Rupiahs)

Year ending December 31	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
<u>SOURCES OF CASH</u>												
Internal Cash Generation												
Net Income Before Interest	(11.9)	(9.3)	(13.8)	(17.7)	(18.0)	(5.2)	(25.2)	19.2	45.7	86.0	124.3	119.0
Depreciation	8.5	8.5	8.5	11.2	14.8	19.5	40.9	74.1	91.9	93.9	93.9	93.9
Increase in Accounts Payable	-	-	-	0.5	0.4	0.2	0.6	1.2	0.9	0.7	0.5	0.6
Consumer Contributions	-	-	-	-	2.8	9.0	13.0	10.4	10.0	10.0	8.5	4.5
Total	(3.4)	(0.8)	(5.3)	(6.0)	-	23.5	29.3	104.9	148.5	190.6	227.2	218.0
Loans from National Government (60%)	-	-	-	67.3	59.8	584.0	525.2	65.9	-	-	-	-
National Government Equity (40%)	-	-	-	44.9	39.9	389.4	350.1	43.9	-	-	-	-
National Government Grants	-	-	150.0	50.0	-	-	-	-	-	-	-	-
Local Government Equity	2.2	0.8	5.3	14.5	4.6	-	-	-	-	-	-	-
Total Sources	<u>(1.2)</u>	<u>-</u>	<u>150.0</u>	<u>170.7</u>	<u>104.3</u>	<u>996.9</u>	<u>904.6</u>	<u>214.7</u>	<u>148.5</u>	<u>190.6</u>	<u>227.2</u>	<u>218.0</u>
<u>APPLICATIONS OF CASH</u>												
Capital Expenditures												
Stage I Program	-	-	-	112.2	99.7	973.4	875.3	109.8	0.3	-	-	-
Other	-	-	150.0	50.0	-	-	-	-	-	-	-	-
Payments on National Government Equity	-	-	-	-	-	14.1	5.7	62.7	131.7	174.9	-	-
Debt Service												
Interest	-	-	-	-	-	-	-	-	-	-	116.8	115.4
Principal	-	-	-	-	-	-	-	-	-	-	16.6	18.0
Total Debt Service	-	-	-	-	-	-	-	-	-	-	133.4	133.4
Increase in Accounts Receivable	-	-	-	0.9	2.8	4.7	3.0	22.3	12.5	14.3	8.9	1.5
Increase in Inventories	-	-	-	6.6	1.0	4.3	19.4	17.5	2.2	-	-	-
Total Applications	<u>-</u>	<u>-</u>	<u>150.0</u>	<u>169.7</u>	<u>103.5</u>	<u>996.5</u>	<u>903.4</u>	<u>212.3</u>	<u>146.7</u>	<u>189.2</u>	<u>142.3</u>	<u>134.9</u>
Increase (Decrease) in Cash	(1.2)	-	-	1.0	0.8	0.4	1.2	2.4	1.8	1.4	84.9	83.1
Cash at Beginning	1.2	-	-	-	1.0	1.8	2.2	3.4	5.8	7.6	9.0	93.9
Cash at End	-	-	-	1.0	1.8	2.2	3.4	5.8	7.6	9.0	93.9	177.0
Debt Service Coverage	-	-	-	-	-	-	-	-	-	-	1.64	1.60

August 20, 1974

INDONESIA
SAMARINDA WATER ENTERPRISE
BALANCE SHEET PROJECTIONS 1971-1982

(in million Rupiahs)

As of December 31	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
ASSETS												
Fixed Assets												
Buildings, Plant and Equipment	181.0	181.0	181.0	331.0	381.0	592.9	1,566.3	2,441.6	2,551.7	2,551.7	2,551.7	2,551.7
Less Accumulated Depreciation	-	8.5	17.0	28.2	43.0	62.5	103.4	177.5	269.4	363.3	457.2	551.1
Net Fixed Assets	181.0	172.5	164.0	302.8	338.0	530.4	1,462.9	2,264.1	2,282.3	2,188.4	2,094.5	2,000.6
Construction in Progress	-	-	150.0	162.2	211.9	973.4	875.3	109.8	-	-	-	-
Total Fixed Assets	181.0	172.5	314.0	465.0	549.9	1,503.8	2,338.2	2,373.9	2,282.3	2,188.4	2,094.5	2,000.6
Current Assets												
Cash	-	-	-	1.0	1.8	2.2	3.4	5.8	7.6	9.0	93.9	177.0
Accounts Receivable	-	-	-	0.9	3.7	8.4	11.4	33.7	46.2	60.5	69.4	70.9
Inventories	-	-	-	6.6	7.6	11.9	31.3	48.8	51.0	51.0	51.0	51.0
Total Current Assets	-	-	-	8.5	13.1	22.5	46.1	88.3	104.8	120.5	214.3	298.9
Total Assets	<u>181.0</u>	<u>172.5</u>	<u>314.0</u>	<u>473.5</u>	<u>563.0</u>	<u>1,526.3</u>	<u>2,384.3</u>	<u>2,462.2</u>	<u>2,387.1</u>	<u>2,308.9</u>	<u>2,308.8</u>	<u>2,299.5</u>
LIABILITIES AND EQUITY												
Equity												
National Government	-	-	-	44.9	84.8	460.1	804.5	785.7	654.0	479.1	479.1	479.1
National Government Grants	-	-	150.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0	200.0
Local Government	192.9	193.7	199.0	213.5	218.1	218.1	218.1	218.1	218.1	218.1	218.1	218.1
Accumulated Surplus	(11.9)	(21.2)	(35.0)	(52.7)	(70.7)	(75.9)	(101.1)	(81.9)	(36.2)	49.8	57.3	60.9
Total Equity	181.0	172.5	314.0	405.7	432.2	802.3	1,121.5	1,121.9	1,035.9	947.0	954.5	958.1
Consumer Contributions	-	-	-	-	2.8	11.8	24.8	35.2	45.2	55.2	63.7	68.2
Long-Term Debt												
Outstanding Debt	-	-	-	67.3	127.1	711.1	1,236.3	1,302.2	1,302.2	1,302.2	1,285.6	1,267.6
Less Current Maturities	-	-	-	-	-	-	-	-	-	16.6	18.0	19.8
Total Long-Term Debt	-	-	-	67.3	127.1	711.1	1,236.3	1,302.2	1,302.2	1,285.6	1,267.6	1,247.8
Current Liabilities												
Accounts Payable	-	-	-	0.5	0.9	1.1	1.7	2.9	3.8	4.5	5.0	5.6
Current Debt Maturities	-	-	-	-	-	-	-	-	-	16.6	18.0	19.8
Total Current Liabilities	-	-	-	0.5	0.9	1.1	1.7	2.9	3.8	21.1	23.0	25.4
Total Liabilities and Equity	<u>181.0</u>	<u>172.5</u>	<u>314.0</u>	<u>473.5</u>	<u>563.0</u>	<u>1,526.3</u>	<u>2,384.3</u>	<u>2,462.2</u>	<u>2,387.1</u>	<u>2,308.9</u>	<u>2,308.8</u>	<u>2,299.5</u>
Debt as Percent of Total Debt and Equity	-	-	-	14	23	47	52	54	56	58	57	57

August 20, 1974

INDONESIAFIVE CITIES WATER SUPPLY PROJECTSAssumptions for Financial ProjectionsGeneral

1. The financial statements in this report cover the water supply operations in each of the five cities in Annexes 10 through 14. These annexes are each divided into part A - income statements, B - cash flow statements, and C - balance sheets. The accounts of the water supply units have generally been parts of the municipal or regency systems and have been kept on a cash receipts and disbursements basis. They do not account for such items as receivables, payables, inventories, fixed assets or depreciation, and reliable information to supplement them is for the most part lacking. The annex statements for the first three fiscal years have therefore been derived or estimated on a cash receipts and disbursement basis, using actual statements available for the first fiscal year or years, as indicated below. The statements for the succeeding fiscal years have been projected on an accrual accounting basis.

Income Statements

2. The income statements for the first one or two fiscal years, as denoted by the column heading "Actual/Estimate", are based on statements of actual cash receipts and disbursements prepared by the WE or municipality. The revenues and expenses in the income statements are the cash receipts and disbursements, respectively, and an allowance for depreciation has been included (para 13). The other data on water production, water sales, connections, and average water rates are estimated, and the omission of a figure indicates that there is insufficient basis for an estimate.

3. Water production for each WE is based on the lower of the projected water demand rates of the population to be served or the projected production capacity of the WE.

4. Unaccounted-for water is projected to decrease from existing levels to about 30% of water production in fiscal years 1975-1976, 25% in 1977-1978, and 20% thereafter, as substantial new facilities are placed in service and leakage detection measures are taken.

5. Continuation of the existing water rates of the WE's, except Samarinda, is assumed through FY 1976 and through FY 1975 for Samarinda.

(This distinction is made because the fiscal year of Samarinda ends on December 31 and those of the others end on March 31.) The following increases in the present average water rates are assumed to apply for the entire FY 1977 (FY 1976 for Samarinda): Malang 170%, Purwokerto 140%, Banyuwangi 80%, Jambi 15%, and Samarinda 110%. Thereafter, the water rates reflect each year gradual increases so that in FY 1982 (FY 1981 for Samarinda) returns of 6% of net fixed assets in service (less consumer contributions) will be achieved.

6. Meter rentals or other charges under existing rate schedules are included in other fees where shown separately in the statements of the WE. Charges for metered consumption are assumed to constitute all of the revenues when the above program of water rate increases is put into effect, pending a study of water rate structures to be completed by that time. Consumer payments for the cost of new connections are included in consumer contributions in the balance sheet and cash flow projections (para 20).

7. It is assumed that with increased levels of water sales and rates, 2% of annual water sales will be written off as bad debts.

8. Operating expenses are assumed at substantially increasing levels considered necessary to operate and maintain the systems adequately and to provide for expanding volume of production and sales. Price increases are assumed at the annual rates of 18% in FY 1975, 15% in FY 1976, and 12% in FY 1977 and thereafter ("inflation factor"), except where otherwise indicated.

9. Personnel costs are based on increased numbers of staff recommended by the management consultants to implement the improvement program and on increased rates of personnel compensation designed to upgrade the staffs and provide comparability under local conditions. The projected increases in rates of compensation from FY 1974 to 1980, including the inflation factor, average on an annual basis approximately 24% for Malang, 18% for Purwokerto, 22% for Banyuwangi, 25% for Jambi, and 27% for Samarinda. After 1980, a 12% annual increase in average rates of compensation is assumed.

10. Electricity costs are based on the volume of water produced, an expected electric rate increase in FY 1974 from Rp 4 to Rp 6 per KWH for electricity consumed, and increases in electric rates at the inflation factor thereafter. At present Malang, Purwokerto and Banyuwangi do not incur significant electricity expenses. Chemical expenses are based on the chemical requirements for volume of water to be treated, and prices are increased at the inflation factor.

11. Office supplies expense is estimated to increase in proportion to the number of customers. Insurance expense is estimated on the basis of 0.25% of the cost of buildings and 5% of office, transportation and laboratory equipment. Price increases in both of these categories of expense are assumed at the inflation factor.

12. Repairs and maintenance expense, in addition to labor included in the item of personnel costs, is estimated at approximately 0.6% of the gross value of average fixed assets in service each year. Price increases are reflected for maintenance of existing fixed assets, and of new fixed assets from the end of construction, at annual rates assumed for foreign costs, i.e., 14% in FY 1975, 11% in FY 1976, and 7.5% in FY 1977 and thereafter.

13. Depreciation of existing fixed assets is calculated on the basis of an assumed remaining average useful life of 20 years, or an annual rate of 5%. Depreciation of new fixed assets is calculated at a composite rate developed for each WE on the basis of the estimated useful life of each type of its property. These composite rates, which are applied to average fixed assets in service each year, are 3.3% for Malang; 3.6% for Purwokerto, Jambi and Samarinda; and 3.8% for Banyuwangi.

14. Taxes on income payable to the Government by each WE as a Perusahaan Daerah are assumed at annual rates of 20% of the first Rp 10 million of net income and 25% of net income exceeding that amount. Taxable net income is operating revenue less operating expense (including depreciation but excluding taxes on income) and less interest on indebtedness. Other taxes are assumed not to be significant.

Balance Sheets and Cash Flow Statements

15. In view of the lack of records of historical costs and physical data, the amount of fixed assets in the initial balance sheet of each WE as of March 31, 1972 (December 31, 1971 for Samarinda) has been estimated by the consultants from available records and physical inspections at replacement cost at that date, less allowance for depreciation to reflect the remaining useful lives of the properties. The depreciation allowance in the income statement for FY 1972 (FY 1971 for Samarinda) has been omitted from accumulated depreciation in the initial balance sheet, since fixed assets at the end of that year is stated net of depreciation. Available information indicates no loan indebtedness at that date and, in some cases, cash balances of the water supply units, which are reflected in the initial statements. In the absence of current information on receivables, other assets or liabilities, which are not believed to be significant for purposes of the projections, the statements for the first three fiscal years have been estimated on a cash receipts and disbursement basis, with allowances for depreciation, and on an accrual accounting basis thereafter.

16. Cash balances are projected at a minimum of Rp 1 million or one month's cash operating expenses, whichever is larger.

17. Accounts receivable are estimated at 20% of billings, which is considered reasonable in the light of present and proposed billing procedures, indicated payment practices of consumers, the projected volume of sales, and proposed loan covenants invoking prompt payment procedures for government agencies.

18. Inventories are estimated at 2% of the amount of gross fixed assets in service at the end of each year.

19. Accounts payable are estimated at one-half month's cash operating expenses.

20. Costs of new connections are included in fixed assets, and payments received from consumers for connections are credited to consumer contributions. An average cost per connection, including allowances for price and physical contingencies, of Rp 30,000 is assumed, payable upon installation by consumers other than residential and payable by residential users on the basis of Rp 5,000 upon installation and the balance of Rp 25,000 in equal monthly installments over a five-year period at an annual interest rate of 7-1/2%. The estimated receipts of payments for connections have been reflected in the projections on a cash basis. In practice, under the accounting system to be installed, receivables from consumers who are to pay in installments will be recorded and will be credited as the payments are received.

21. The proceeds of the IBRD loan, together with other Government funds, will be loaned by the Government to the WE's. The terms of the loans and the related aspects of the financing plan, which were agreed at negotiations, are as follows:

- (a) Interest rate of 9% annually.
- (b) The loans to each WE will be repayable in 48 equal semi-annual installments of principal and interest following a 6-year period of grace from the date of the project loan agreement, which the projections assume will be the first day of the WE's next fiscal year, i.e. April 1, 1975 (January 1, 1975 for Samarinda). Under this assumption, the grace period would be the six fiscal years 1976 to 1981, inclusive (FY 1975-1980 for Samarinda). Interest will be waived during the grace period, and the first payment of principal and interest will become due in FY 1982 (FY 1981 for Samarinda).
- (c) The Government will lend to each WE 60% of the project costs and will make available as equity the remaining 40% of project costs, except that for Malang and Purwokerto such percentages will be 70% and 30% respectively. Any surplus amounts which the WE is able to generate internally from its operations during the 6-year grace period will be repaid annually to reduce the Government's equity.

22. It is assumed that the estimated costs of immediate improvement programs in Jambi (FY 1974 and 1975) and Samarinda (FY 1973 and 1974) are met by Government grants. These amounts are shown as other capital expenditures in the cash flow statements and as Government grants in the balance sheets.

23. It is assumed that any additional external funds which may be required by a WE for its operations in any year in which project construction costs have been met by Government loans and equity, will be met by local government equity. This occurs in the projections only to a relatively small extent for Jambi in FY 1975 and Samarinda in FY 1974 and 1975.

August 20, 1974

INDONESIA

FIVE CITIES WATER SUPPLY PROJECTS

MALANG - WATER RATE SCHEDULE

Effective April 1968

A. Water Consumption:

	Single-Step Charge		Multiple-Step Charge				
	Rate per M ³ (Rp)	Min. ^{a/} in M ³	Rate per M ³ (Rp)	Min. ^{a/} in M ³	Rate per M ³ (Rp)	Am't in M ³	Rate per M ³ (Rp)
1. Residential	5	15	-	-	-	-	-
2. Company housing	5	15	-	-	-	-	-
3. Boarding houses and convents	5	30	-	-	-	-	-
4. Military and prison	6	-	-	-	-	-	-
5. Schools	6	3 ^{b/}	-	-	-	-	-
6. Offices and shops	6	25	-	-	-	-	-
7. Swimming pools	6	-	-	-	-	-	-
8. Hospitals	6	-	-	-	-	-	-
9. Hotels			12	50 ^{c/}	16	50 ^{c/}	20
10. Restaurants			12	30	16	30	20
11. Other trade			12	50	16	50	20
12. Charitable and juv. reform.			free	50	-	-	1
13. Main mosques			free	50	-	-	3
14. Other mosques			free	15	-	-	3

B. Non-recurring Charges:

1. Disconnection and reconnection charge Rp 25.

^{a/} Minimum consumption for which monthly charge is made.

^{b/} Per classroom.

^{c/} Per bedroom.

March 15, 1974

INDONESIAFIVE CITIES WATER SUPPLY PROJECTSPURWOKERTO - WATER RATE SCHEDULEEffective May 1971A. Water Consumption:

	<u>Minimum Consumption</u> <u>Rate</u> <u>per M³</u> <u>(Rp)</u>	<u>Consumption</u> <u>in M³ a/</u>	<u>Rate per M³</u> <u>in Excess</u> <u>of Minimum</u> <u>(Rp)</u>
1. Residential household:			
a. 1 to 5 persons	10	10	15
b. 6 to 10 persons	10	15	15
c. 11 persons and over	10	20	15
2. Shops and stores	12.5	15	15
3. Schools and Gov't offices	15	20	15
4. Industrial, hotels and motels	15	50	15
5. Mosques, churches and social institutions	5	20	15

B. Other Monthly Charges:

1. Monthly maintenance charge Rp 25.
2. Monthly meter rental charge Rp 50.

C. Non-recurring Charges and Deposits:

1. Guarantee deposit Rp 300-750, except Rp 1,000 for schools and government offices and Rp 2,000 for industrial, hotels and motels.
2. Excavation cost Rp 1,000-5,000 depending on type of road.
3. Disconnection and reconnection charge Rp 500.
4. Meter testing fee Rp 100.
5. Penalties Rp 5,000.

a/ Minimum consumption for which monthly charge is made.

March 15, 1974

INDONESIAFIVE CITIES WATER SUPPLY PROJECTSBANYUWANGI - WATER RATE SCHEDULEEffective April 1972A. Water Consumption:

Rate per M³
(Minimum monthly charge
is made for 15 M³)

1. Residential, government, schools and sports centers	Rp 15
2. Social institutions, such as mosques, orphanages and hospitals	10
3. Commercial and industrial customers outside port area	30
4. Commercial and industrial customers and government offices inside port area	35

At the Rogojampi well, the charge for water is Rp 1-1/2 per tin of about 20 liters, equivalent to about Rp 75 per m³.

B. Other Monthly Charges:

1. Monthly meter rental of Rp 125 for residential-size meter, up to maximum of Rp 250 for larger meters.

C. Non-recurring Charges and Deposits:

1. Connection or transfer to another person Rp 100.
2. Disconnection and reconnection charge Rp 100.
3. Guarantee deposit Rp 500, except commercial and industrial customers and government offices inside the port area are charged Rp 1,000.
4. Customers are charged labor costs for installation or repair of fixtures on their premises according to a fixed schedule.
5. Customers are charged a 10% penalty for payments of water bills made after the monthly due date and, in addition, are charged the disconnection and reconnection fee of Rp 100 after a bill is overdue more than five days.

March 15, 1974

INDONESIA

FIVE CITIES WATER SUPPLY PROJECTS

JAMBI - WATER RATE SCHEDULE

Effective March 1970,
As Revised October 1972

A. Water Consumption:

1. Rp 25 per m³ for all customers until October 1, 1972.
Rp 50 per m³ for all customers after October 1, 1972.

B. Other Monthly Charges:

1. Monthly meter rental charge Rp 10.
2. Monthly pipe connection charge Rp 25.

The service in Jambi is not metered. Billings are based on records of consumption in 1962 when there were some meters, as carried forward each month and adjusted to current estimates. If a customer has received little or no water because of supply shortages during the month, payment of the bill is waived or the amount to be paid is negotiated.

March 15, 1974

INDONESIAFIVE CITIES WATER SUPPLY PROJECTSSAMARINDA - WATER RATE SCHEDULEEffective 1969A. Water Consumption:

	Minimum Consumption Rate per M ³ (Rp)	Consumption in M ³ a/ of Minimum	Rate per M ³ in Excess of Minimum (Rp)
1. Residential	17	10	20
2. Standpipes	20	60	60
3. Stores	40	30	90
4. Hotels and motels	35	40	80

B. Other Monthly Charges:

1. Monthly fixed charge of Rp 75 for residential customers; Rp 300 for standpipes and stores; and Rp 500 for hotels and motels.

With respect to A and B above, since service in Samarinda is not metered, monthly billings are estimated by the waterworks. These estimates are based on such factors as the number of persons in a household, the assumed consumption per person, the adequacy of water supply to the customer, and the type and size of non-residential customers.

C. Non-recurring Charges and Deposits:

1. Set on a case-by-case basis. Guarantee deposits range from about Rp 2,500 to 30,000. Connection charges average about Rp 10,000 for enlargement of size of connection and Rp 60,000 for new connection.

a/ Minimum consumption for which monthly charge is made.

March 15, 1974

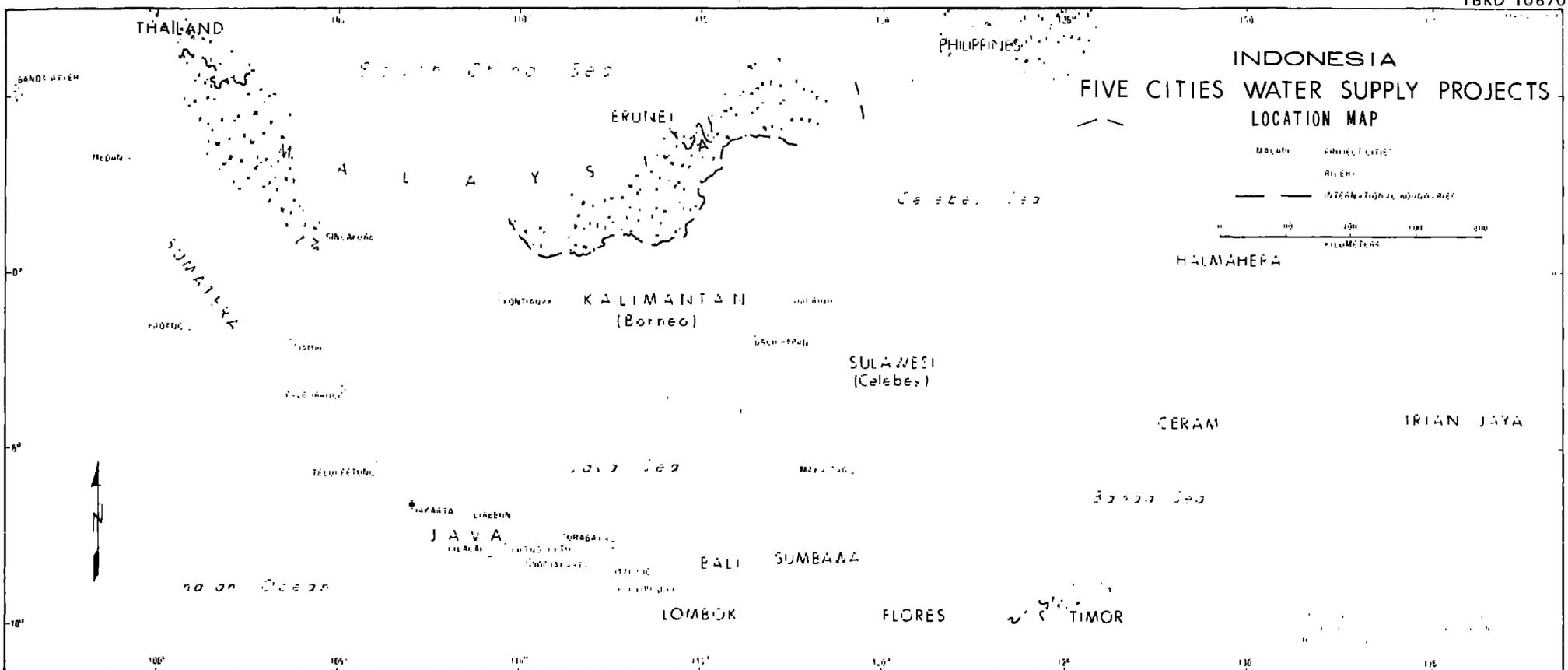
INDONESIAFIVE CITIES WATER SUPPLY PROJECTSFORECAST PERFORMANCE INDICATORS FY 1975-1982

1. The following indicators will assist in monitoring the performance of the water enterprises in the five cities. Each enterprise will be asked to include these indicators in its reporting and to compare its achievements with the forecast.

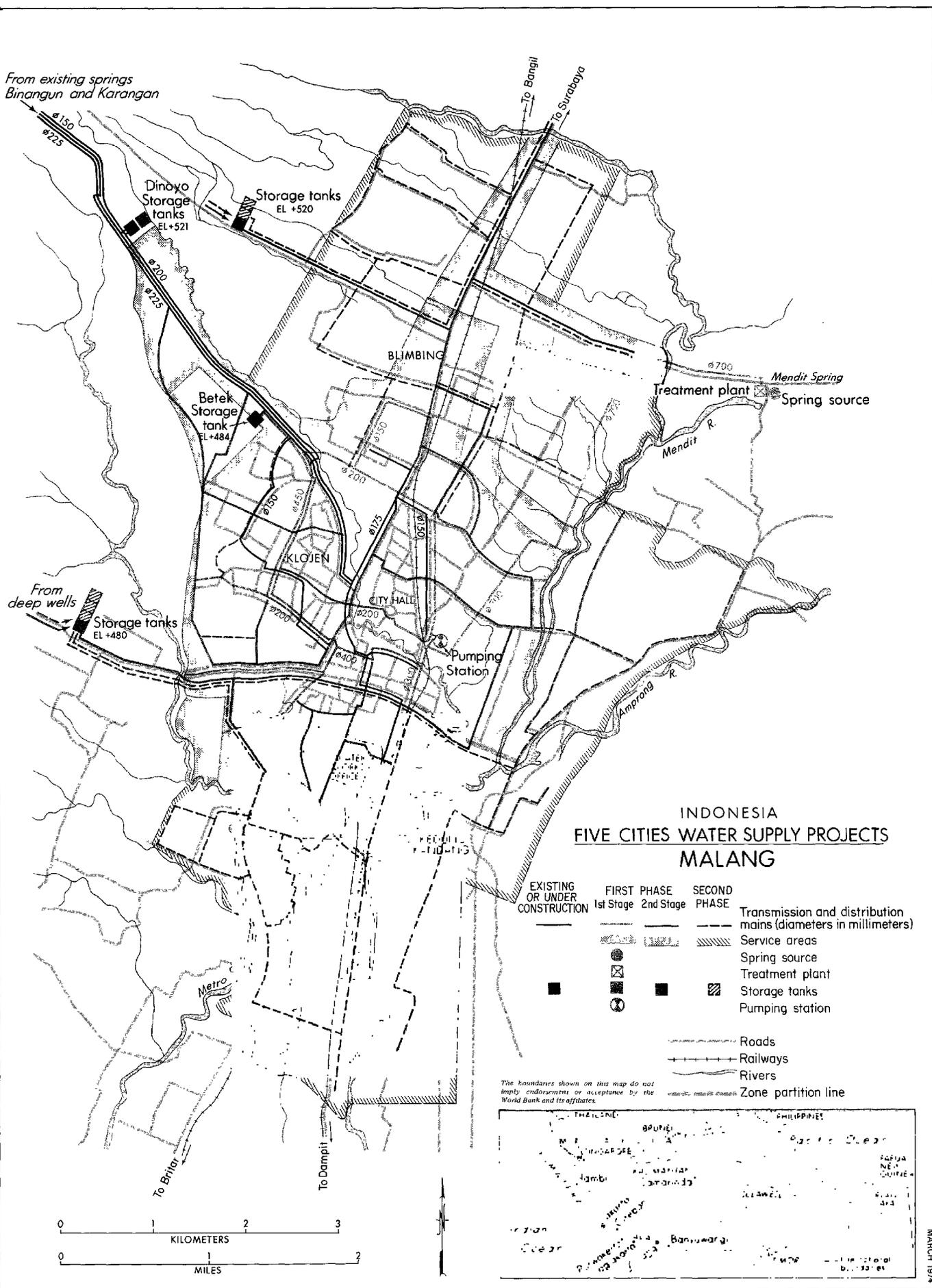
2. Following are the forecast performance indicators, using Malang as an example.

	<u>Year ending March 31-1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Water produced (M ³ 000)	8,300	8,300	8,300	8,300	15,000	16,320	17,640	17,640
Water sold (M ³ 000)	5,800	5,800	6,200	6,200	12,000	13,000	14,100	14,100
% sales to production	70	70	75	75	80	80	80	80
Number of connections	13,500	14,100	15,900	18,700	21,700	24,500	26,300	26,300
Pop.served-residential	94,000	98,100	110,800	130,000	186,500	210,000	225,700	225,700
Pop. served-standpipes	37,700	37,700	37,700	37,700	67,500	67,500	67,500	67,500
L/cd - residential	111	115	119	123	127	131	135	135
L/cd - standpipes	10	10	11	11	11	12	12	12
Rate of return (%)					1	2	4	6
Operating ratio (%)					83	81	74	66

August 20, 1974



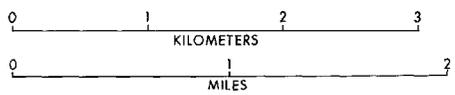
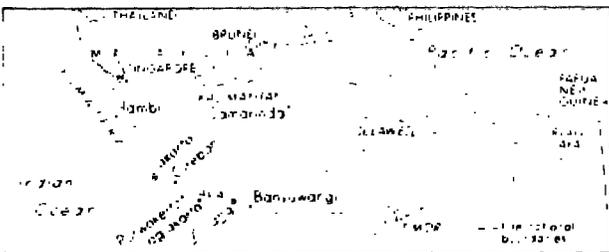
From existing springs
Binangun and Karangany



INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
MALANG

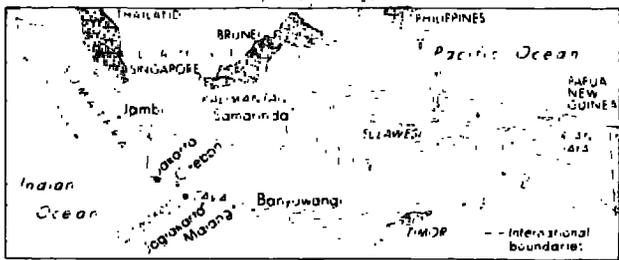
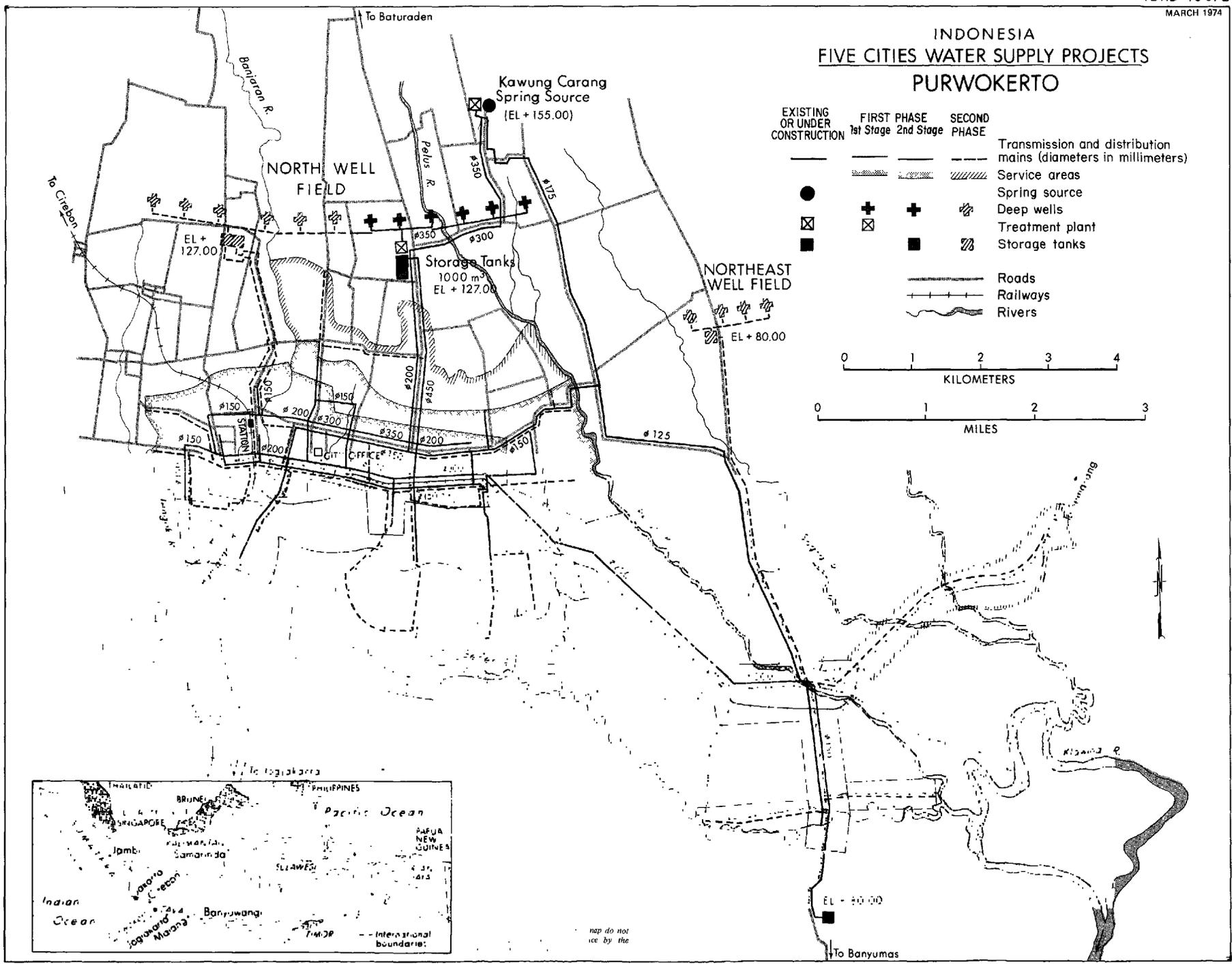
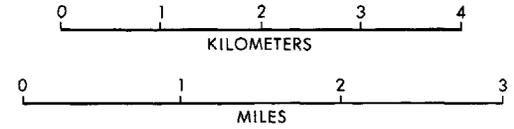
- | | | | | |
|--------------------------------|-----------------------|-----------------------|--------------|--|
| EXISTING OR UNDER CONSTRUCTION | FIRST PHASE 1st Stage | FIRST PHASE 2nd Stage | SECOND PHASE | Transmission and distribution mains (diameters in millimeters) |
| | | | | Service areas |
| | | | | Spring source |
| | | | | Treatment plant |
| | | | | Storage tanks |
| | | | | Pumping station |
| | | | | Roads |
| | | | | Railways |
| | | | | Rivers |
| | | | | Zone partition line |

The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.

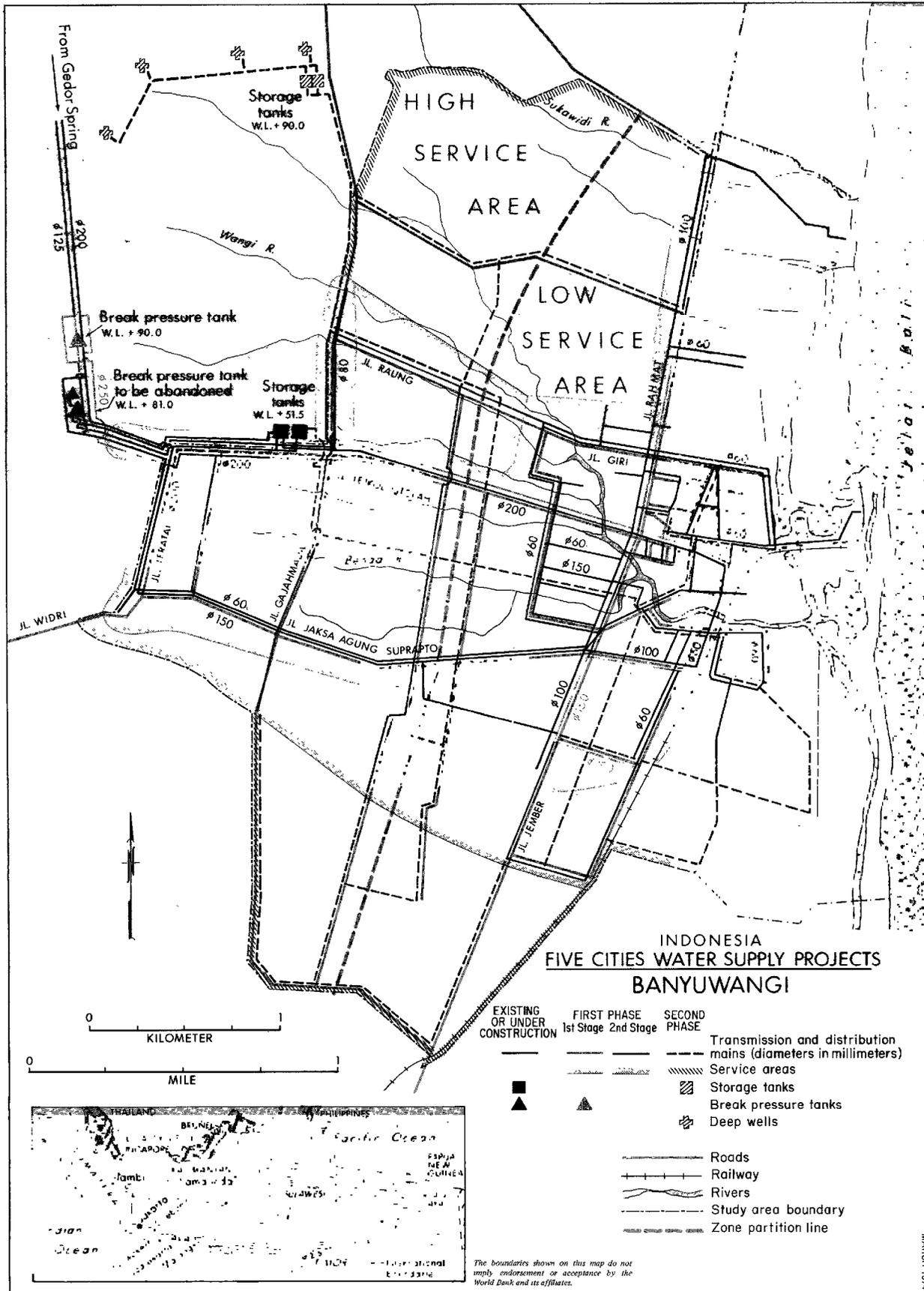


INDONESIA FIVE CITIES WATER SUPPLY PROJECTS PURWOKERTO

- | EXISTING OR UNDER CONSTRUCTION | FIRST PHASE
1st Stage | SECOND PHASE
2nd Stage | SECOND PHASE | |
|--------------------------------|--------------------------|---------------------------|--------------|--|
| ● | + | + | + | Transmission and distribution mains (diameters in millimeters) |
| ⊠ | ⊠ | ⊠ | ⊠ | Service areas |
| ■ | ■ | ■ | ■ | Spring source |
| | | | | Deep wells |
| | | | | Treatment plant |
| | | | | Storage tanks |
| | | | | Roads |
| | | | | Railways |
| | | | | Rivers |

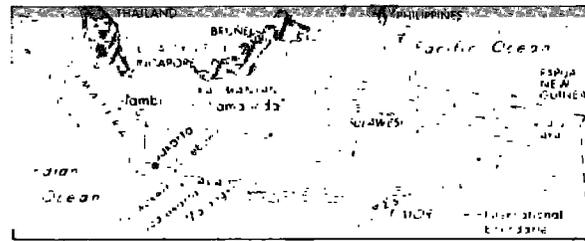


map do not
ice by the

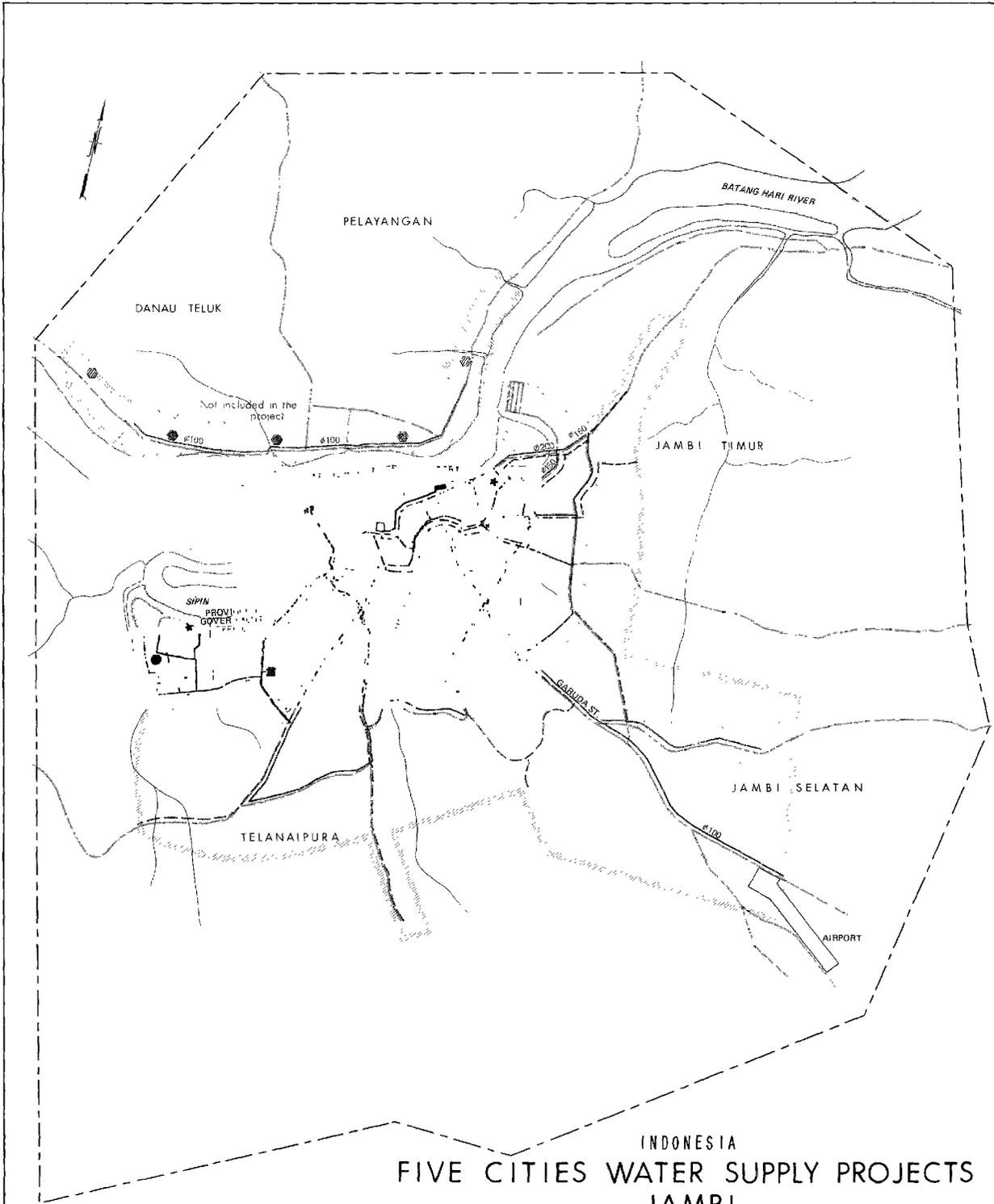


INDONESIA
 FIVE CITIES WATER SUPPLY PROJECTS
 BANYUWANGI

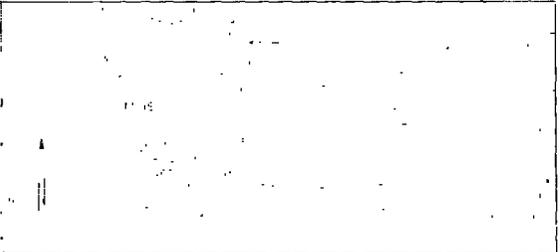
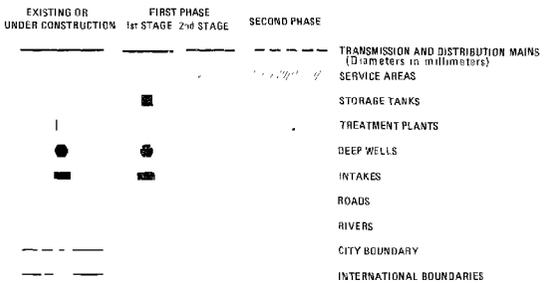
- EXISTING OR UNDER CONSTRUCTION
- FIRST PHASE 1st Stage
- FIRST PHASE 2nd Stage
- SECOND PHASE
- Transmission and distribution mains (diameters in millimeters)
- Service areas
- Storage tanks
- Break pressure tanks
- Deep wells
- Roads
- Railway
- Rivers
- Study area boundary
- Zone partition line



The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.



The boundaries shown in this map do not imply endorsement or acceptance by the World Bank and its affiliates.



IBRD
MARCH 1961



Treatment plant

intake

Treatment plant

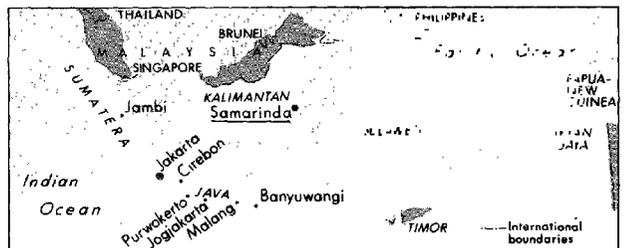
Storage tank

TO BE ABANDONED

TO BE ABANDONED

INDONESIA
FIVE CITIES WATER SUPPLY PROJECTS
SAMARINDA

EXISTING OR UNDER CONSTRUCTION	FIRST PHASE 1st Stage	SECOND PHASE 2nd Stage	
			Transmission and distribution mains (diameters in millimeters)
			Service areas
			Treatment plants
			Storage tank
			Intake
			Roads
			Rivers
			Study area boundary



The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.