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

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MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

MONTHLY REPORT 4

1 APRIL 1979 THROUGH 30 APRIL 1979

ENGINEERING SCIENCE INC
SINOTECH ENGINEERING CONSULTANTS INC
PADCO INC
P.T. DACREA

MEDAN URBAN DEVELOPMENT, HOUSING, WATER SUPPLY AND SANITATION PROJECT

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

Medan, 30 April 1979

DIRECTOR GENERAL CIPTA KARYA
Ministry of Public Works
Jln. Pattimura 20
Kebayoran Baru
Jakarta Selatan

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SUBJECT : Monthly Progress Report 4,
1 April through 30 April 1979

REFERENCE : Contract dated 17 October 1978, between
Ministry of Public Works, Directorate
General of Housing Building Planning, and
Engineering-Science, Inc.

Gentlemen:

In compliance with article 10.15 of our Agreement, Engineering-Science, Inc., submits Monthly Progress Report 4 for the calendar period 1 April through 30 April 1979.

SECTION 1 - PRIMARY ACTIVITY PROGRESS

The first Project Steering Committee Meeting was held in Jakarta on 5 April for the purpose of reviewing the consultants report on Long Term Urban Development plan and Feasibility Study on First Stage Housing Development Project. The Water Supply and Sanitation Master Plan and Feasibility Studies for Project Guidance were also reviewed at that meeting. A summary of the major points of discussion and conclusions reached at the Steering Committee Meeting is attached as Annex I of this report. Due to prior commitments, the Mayor of Medan was unable to attend the meeting. In order to obtain his input on some of the sensitive policy issues being raised by the Consultant, arrangements for separate discussions with the Mayor are being pursued through local officials in Medan.

As noted at the Steering Committee Meeting, the acquisition of a site for the SSCH/LCH project is difficult to accomplish soon enough to allow the Consultant to carry out detailed design work within his contract period. In order to speed up the acquisition process, officials of the Ministry of Peoples Housing and Perumnas visited Medan in mid-April to identify, with the assistance of the Consultant, suitable sites for the project and obtain support from local officials in streamlining the procurement procedures. The general site selection criteria contained in Technical Memorandum Number 1 were observed in selecting the general site areas, and further input was provided by the Consultant regarding relative development costs for wet and dry sites.

The Consultants' work plans and proposed schedule of reports was accepted, and was agreed that an Interim Strategic Plan Report would be

submitted by the end of June. A tentative outline of the Long Term Urban Development Plan Report and a production schedule for the initial Technical Memoranda connected with that report are attached as Annex II. A tentative outline of the proposed formal report on the Housing Program is given in Annex III.

The status of project activities by work plan task as of the end of April is presented in Annex IV.

SECTION II - PERFORMANCE

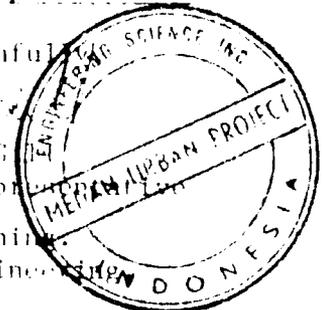
Annex V presents the professional staffing schedule (solid lines) together with the actual schedule of on-site staff (dashed lines). Actual performance versus that scheduled for project month 4 is illustrated in the graph comprising Annex VI, Item 1, Cumulative Input of Professional Personnel. This graph is based upon the schedule shown in Annex V. Item 2 of Annex VI summarizes the planned and actual man-months by personnel category and firm as of the end of the month. As indicated in this summary, the actual professional staffing level is now 96 percent of the scheduled level. Indonesian professional and non-professional levels were 90 and 99 percent of scheduled as of the end of the month. Annex VI, Personnel Movement, identifies personnel changes during project month 4. Item 4, Annex VI, End-of-month strength, Medan Office, indicates the number and type of staff assigned to the project at the end of the reporting period.

SECTION III - PLANNED PROGRAMS AND ACTIVITIES

During the coming month (May) the Consultants major attention will be directed to: (1) Evaluation of the existing water supply and sanitation systems with special emphasis upon population not served or poorly served by municipal systems; (2), preparation of unit water use and water demand projections; (3), evaluation of present water supply sources and identification of potential new sources; (4), identification of location and characteristics of low cost housing target groups; (5), evaluation of ability to pay and financial resource capabilities relative to housing, water supply and sanitation systems; and, (6), detailed projections of population and land use. Those project activities which will be pursued during the coming month are illustrated in Annex IV, Activity Schedule.

Yours faithfully,

John M. McG...
John M. McG...
Project Representative



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

Medan Urban Development, Housing,
Water Supply and Sanitation Project

Summary of first Steering Committee Meeting

Present were:	<u>N A M E</u>	<u>A G E N C Y</u>
	Ruslan Diwiryo	Dir. of City & Regional Planning
	Sunaryo	Head Sub-Dit. Town Planning
	Siswara Wiramihardja	Sub Dit. Tata Kota
	Hendropranoto Suselo	Head of Planning
	Wahjudi Subagio	Directorate of Housing
	Tosin	Dit. of Housing
	Wiyoto Wijano	Bina Marga
	Soeratmo	Sub Dit. of Planning
	Darmawan Saleh	Sub Dit. of Planning
	Hamdani Amin	Ministry of Finance
	Duddy Soegoto	PERUMNAS
	Paul Thorn	USAID
	Robert E. Davis	USAID
	Eddie S. Kristiawan	USAID
	Chua Peng Chue	A.D.B.
	Karnold Pohan	Project Manager, MUDS
	Susetyo	Deputy Project Manager, MUDS
	Kumala Siregar	Project Technical Ass., MUDS
	H. Fennerty	Engineering-Science
	John McGill	Engineering-Science, Inc.
	Chen-Yih Huang	Sinotech
	Donald E. Stout	PADCO
	A. Van Huyck	PADCO
	E. Ames	PADCO
	J. Means-Ames	PADCO
	L. Baker	PADCO
	S.P. Limasalle	DACREA

1. Ir. Ruslan Diwiryo welcomed attendees and stated the objectives of the meeting as

- Review Consultants Inception Report and Work Plans.
- Attempt to clarify certain policy issues.

Since the Director General is still in Washington, the meeting would attempt to formulate an opinion on policy issues which will be submitted to the Director General for his review and decision.

2. Ir. Ruslan provided a review of Government objectives for Medan.

a) Function of Medan

- Primary function of Medan
 - to provide a distribution services to the hinter-land of N. Sumatra through - Trade
 - Transportation
- Secondary function
 - well-being of city population

The current studies are therefore mainly concerned with the secondary function

- housing, water supply & sanitation to improve the well being of the city population.

b) Repelita III priorities for Medan are in accord with National objectives, i.e.,

- equity
- growth
- stability

Equity : Target group will be low income population of Medan. Main emphasis is to develop housing, water supply and sanitation to be within financial capability of low income group.

c) Housing

- Two approaches:
- develop new housing
 - improve existing houses in Kampung and/or improve environmental conditions of Kampung.

New housing has potential conflict

- ° Aim for low income group must be to keep housing costs low - by implication standards need to be kept low
- ° But BTN - the bank which provides mortgages for Gov't housing seeks assurance of future repayment and sees its safeguard in the provision of a high quality house built of materials which will last 20 years. This inevitably implies high minimum standards.

Imperative that some acceptable compromise be reached on acceptable and affordable standards.

- d) Water Supply and Sanitary - a similar situation exists
For water supply: ideal is availability of as much water as may be required through a private house connection.

But financial capability is not adequate to provide this and new government policy is to provide wider distribution of water to benefit low income groups.

3. Mrs. Jan Ames and Mr. Lee Baker presented the major findings from the Inception Reports on Urban Planning and Housing.

4. An extensive discussion took place on policy and technical issues which affect the direction of future study on the Medan Project.
The main points included

HOUSING

- (a) Land acquisition for Medan III Perumnas Housing Development.

- ° Repelita III indicates land acquisition for period 1980-81-82 total area 250 Ha.

If this cannot be changed design of the site will not be possible during the term of the present consulting contract.

Agreed That Tata Kota will invite contribution of Central Committee for Land Acquisition to determine whether period for acquisition of a site can be shortened in order to permit detailed survey and design to be undertaken during the term of the present contract.

(b) Sukaramai Kampung. This was the Kampung in the central area of Medan which was destroyed by fire earlier this year. City has requested Perumnas to redevelop the area. Ministry of Housing feels it would be a good area for flats perhaps combined with a district centre.

Duddy Soegoto asked whether the development of a reconstruction program could be included in whole or in part within the Consultant's present contract.

Mr. Thorne (USAID) said he would require a specific proposal, but was concerned that such additional work at this time might divert effort from the main project which is already on a very tight schedule.

Agreed: That Perumnas would initiate the work and that possible involvement of Consultant would be reviewed at a later date.

(c) The target group for the low cost housing studies has been stated as the 20-30 percentile income group.

Mr. Duddy asked whether higher income housing could be developed on the same 250 Ha site proposed for Medan III in order to develop cross-subsidisation to help defray infrastructure costs.

Mr. Ruslan said it was Government policy to encourage a mix. At present however Perumnas has been given the responsibility for developing Medan III, but Perumnas only has responsibility for low cost housing.

Two possible solutions are:

(i) Encourage private investment to work in parallel with Government.

(ii) Widen the authority and responsibility of Perumnas.

(d) Demonstration Houses for LCH

In Medan I standard of houses built was high relative to affordability.

In Medan II provision has been included for a 10 Ha demonstration project to study reduced standards of housing and infrastructure.

Objectives of demonstration project are to :

- test acceptance of reduced standards by people and by local government.
- provide basis for development of a new set of policies which can be applied on a national scale.
- study processes necessary for successful construction of lower cost projects.
- set up new selection criteria for occupants in relation to ability to pay.

Three types of lot will be provided :

60 sq meter with 4 combinations of housing, including empty lot.

90 sq meter with 3 combinations of housing, including empty lot.

120 sq meter with 2 combinations of housing, including empty lot.

The alternative combinations comprise different types of incomplete house essentially roofed areas plus a sanitary core. Average construction cost Rp.500,000.

Infrastructure standards include communal tap, foot-paths, small vehicular roads plus some open space.

Net density 90 houses per hectare.

Urban Development

The Consultant noted that several major development project were proposed for the Medan area and Belawan and questioned

- (i) was it realistic to take all these projects as "givens" when considering future urban development ?

(This question had extra significance in the light of the Governments stated policy of equity where-by benefits were to be spread over an increasing number of cities and towns).

- (ii) what is the probable time frame of those projects which are likely to proceed ?

(iii) will the local contributions and local currency costs of these major projects absorb local funding capacity to such an extent that virtually no investment will be possible during the next five year period on housing, water supply and sanitation ?

Ir. Ruslan, TW. Chey (ADB), Ir. all responded. The replies may be summarized as

(i) The Belawan Port Development and the Toll Road are items related to the Primary function of Medan. The justification for both is the benefit which will be derived from the whole N. Sumatra region from having an improved port from which its products can be exported.

It is believed that the project will proceed and that the financing of its local component will not affect the Housing, Water Supply and Sanitation Project.

A report on the studies for the Toll Road is available from Bina Marga.

(ii) Medan Industrial Estate.

This project is scheduled to be in operation by 1982. It is intended to have light industry which will not cause pollution which might adversely affect the adjacent tobacco plantations.

(iii) Outer Ring Road.

Part of N-W section already exists. It is intended that the whole of this N-W section will be completed in 1980-81. A sufficient portion of the N-E section will also be constructed to provide a connection to the Toll Road and so improve communications with Binjai.

Two studies have been made on the south part of Medan and both concluded that a southern ring road was not justified at that time. Mr. Ruslan believes that its completion is now a MUST in order to develop the overall transportation network.

Its justification can probably be further substantiated by its providing access to the future housing sites proposed in the south part of the city, including Medan III. If necessary

Government could foreseeably invite development into this area.

The Consultant needs to know the probable location of the south ring road as soon as possible to avoid potential severance problems should a housing site be selected in the near future.

Bina Marga will soon be engaged in a transportation plan and hopefully the needs of roads and housing can be assessed together and a mutually satisfactory solution achieved.

(iv) Rapid Transit.

While rapid transit represents the most effective means of enabling people to move along the city, it nevertheless requires a high capital investment with almost total Government subsidy during the early stages.

It is therefore probable that this project will be postponed.

Contact should be made with the Ministry of Communications for their current news on this matter.

(v) Airport relocation.

There are no immediate plans for acquisition of land for a new airport. An up-to-date study should be made of the benefits and costs of retaining the airport in its present location within the city and the corresponding benefits and costs of moving it elsewhere.

It is unlikely that action on relocating the airport will be taken in the near future.

(vi) Transmigration.

N. Sumatra is not a transmigration area under Government's present policy since it is considered that all available land in the area will be required to accommodate local population growth.

5. Additional Review Comments.

The previous paragraphs incorporated review comments by Steering Committee members made during the meeting.

Additional specific comments were :

(a) Ir. Hendropranoto

- (i) There should be one KIP policy. UNICEF-work should be assessed to determine any findings which might suggest modification in KIP policies.
- (ii) Housing work plan not yet developed in comparable detail to other parts of study.

Consultant must visit

- ° Directorate of Housing of Cipta Karya
- ° Directorate of Urban Development of Home Affairs

both of whom have key roles.

(iii) Housing Criteria

Inception Report refers to a Padco report on criteria prepared 3-4 years ago.

This reference does not reflect current policy.

Consultant must take into account provisions of Ch. 15 of Repelita III and Cipta Karya note on Water Supply, Kampung Improvement and Sanitation.

Ir. Hendropranoto can supply this.

- (iv) Aim of studies should not be to produce only one set of projects but rather a program of investment over next two Repelitas.

Consultant should study Bandung reports for format at presentation and for organization and financial approaches.

Identified projects should be developed in manner such that they can be readily appraised by ADB. They must also follow Repelita III guidelines for level of financing.

(b) Ir. Suratmo

- (i) New policy on financing water supplies
 - Up to 60/pcd supported by Gov't subsidy
 - Up to 125/pcd loan assisted by Gov't
 - Over 125/pcd normal loan.

- (ii) There are detailed proposals for some immediate water supply improvements for Medan E. Consultant should check these with Tirtanadi.
 - (iii) Consultant must study implications on ability to pay resulting from devaluation (ref. current need to revise financial packages in Six Cities Reports).
 - (iv) Sanitation: Discussions are taking place between Cipta Karya and a donor Gov't willing to offer assistance in solid wastes. Consultant should maintain contact with Cipta Karya for details.
 - (v) Scope of Consultants work should emphasise immediate measures.
- (c) Darmawan Saleh
- (i) Site selection for housing should not only take into account proximity to potential work but also costs of developing the supporting infrastructure.
 - (ii) If treatment of wastewater is proposed by oxidation ponds Consultant should already be considering the implications of the large area of land which will be required; e.g. for Bandung this was 200 Ha.

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ANNEX II

PRELIMINARY OUTLINE FOR FINAL REPORT, VOLUME II: LONG TERM URBAN
DEVELOPMENT PLAN

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* Urban Planning Technical Memorandum

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- d. Wampu and Ular Rivers
Dredging
- f. Railway Widening
(North Sumatra-Aceh)
- f. Railway Extension
(Medan-Padang)

(Note: Description of each
project would consist of
the following)

Location
Purpose
Development Agency
Total Cost
Funding Source
Date of Completion
Impact Assessment
Remarks

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TENTATIVE OUTLINE OF HOUSING
PROGRAM REPORT

ANNEX III

Medan Housing Development Projects

- I. Analysis of Medan's Low-income Kampung (Not only will this analysis give us an understanding of the existing situation of Medan's low-income kampung, it will serve to focus our attention on the specific target groups which will be the beneficiaries of the KIP and SSCH/LCH projects, at the same time that it provides the broad design parameters for these projects.)
 1. Definition of the Types of Low-income Kampung (A typology of homogeneous residential areas will be established. The city's low-income areas will be identified and mapped according to this typology. One or more of these homogeneous types will serve as the target group for the subsequent projects.)
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 - d. Land tenure
 - e. Employment
 - f. Costs of consumption items
 - g. Community organizations

5. Construction Methods, Building Materials and Design Practices

Used in Medan's Low-income Housing (Given the myriad of physical and socio-economic constraints facing Medan's low-income population, this section investigates how individual household accommodate themselves with respect to a housing solution.)

6. Potential for Growth of Medan's Low-income Kampung

(This section quantifies the potential for the densification and/or expansion of Medan's low-income combined with an appropriate growth strategy for Medan, this type of analysis will help determine the requirements for future land, infrastructure, community facilities, etc.)

II. Kampung Improvement Program

1. Selection of Kampung to be improved (Medan's Kampung will be analyzed, as potential KIP sites, on the basis of the typology established in Part I.)

- a. Criteria for the selection process
- b. Ranking of Kampung according to criteria
- c. Selection of Kampung which will be initially improved

2. Guiding Principles and Policies for KIP (Not only will overall goals and objectives for KIP be discussed, but sectoral requirements by type of Kampung will be recommended in the following areas:

- a. Infrastructure
- b. Housing solutions
- c. Land tenure and legal assistance
- d. Community organization
- e. Employment
- f. Other

3. Existing Situation in the Selected Kampung

- a. Priorities expressed by the community (It is essential to understand which improvements are important to the community itself in order to determine the community's

- willingness to pay for some or all of the improvements.)
- b. Detailed Analysis of coverage of essential urban services (Housing, community facilities, public transportation, etc.)
4. Analysis of Alternative KIP Program Components and their Corresponding Costs. (This analysis is based on the priorities and the existing situation in the selected Kampung, in conjunction with the affordability of the program on the part of the community and/or government institutions.)
 5. Selected KIP Plan and Program
 - a. Preliminary engineering plans for the improvements to be made
 - b. Socio-economic program components
 - c. Administrative, legal and financial coordination required at the local, provincial and national levels
 - d. Required additional personnel
 - e. Community participation-self-help programs
 6. Preliminary Cost Analysis

III. SSCH/LCH Housing Project

1. Criteria for Site Selection (Criteria have already been developed. In conjunction with Perumnas and the local Agraria office, the site selection process will focus on 1-2 sites.)
2. Selection of Target Groups (While the SSCH/LCH target groups should definitely fall below the 50th percentile, specific groups to be served will be determined in discussions with the Study team and Government officials.)
3. Appropriate Individual Financial Terms (Once again, financial terms for Medan III must be determined in conjunction with Perumnas officials.)
4. Alternative Norms and Standards and Their Costs
 - a. Land-use (Alternative norms and standards must be

- b. Infrastructure compatible with the results of the
- c. Core Housing analysis of the physical and s-e
situation of Medan's low-income popu-
lation, and in particular, with the
affordability of the alternatives by
the proposed target groups.)

5. Site Selection, Preliminary Design and Cost Estimates

(The PADCO-Bertaud Model will be used at this stage to analyze the various alternatives, and to select the most appropriate package of norms and standards affordable by the target group[s].)

6. Preliminary Design

- a. Land-use plans for: (all major program component
Infrastructure should at least be preliminarily
Circulation system discussed at this stage. Cost
Core housing estimates and affordability should
Community facilities be considered for all components.)
- b. Typical sketch plans for:
Core housing
Streets, Community facilities, etc.

7. Socio-economic Project Components with a discussion of their
Administrative, Legal and Financial Aspects

- a. Schools
- b. Health clinics
- c. Community organization (Self-help, etc.)
- d. Small scale home industry
- e. Vocational training

8. Financial, Administrative and Legal Aspects (This section will deal with the specific SSCH/LCH project, and any additional coordination required at the local, provincial or national level. This section should tie in well with the Public Action Section.)

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
TITLE	NUMBER	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
I. RECONNAISSANCE/WORK PROGRAM															
Establish Contract with Agencies.	1	————													
Collect/Review Existing Data.	2	————													
Review National, Provincial and Local Objectives.	3	————				-----									
Conduct Field Visits.	4	————													
Prepare Work Program.	5	————													
Inception Report.	6		————												
II. HOUSING DEVELOPMENT PROJECT KAMPUNG IMPROVEMENT (KIP)															
Analysis of Low Income Kampung.	7				-----	-----									
Appraise Low Cost Housing Activities.	8					-----	-----								
Examine Building Materials and Construction.	9					-----	-----								
Identify Target Groups and Existing Housing Condition.	10					-----	-----								
Assemble Current Cost Data.	11					-----	-----								
Field Survey and Reconnaissance.	12						-----	-----							
Analyze Demographic Characteristics.	13						-----	-----							
Prepare Guiding Principles and Policies.	14							-----	-----						
Selection of Kampung to be Improved.	15								-----	-----					

BEST AVAILABLE DOCUMENT

Schedule Activity Period through 31 May 1979

Legend
 ————— Scheduled Task Activity
 ----- Estimated Activity to 30 April 1979
 Activity for May 1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
TITLE	NUMBER	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
KIP Strategy.	16							—							
Prepare Standards for KIP Project.	17							—							
Finalize Selected KIP Plan and Program.	18								—						
Preliminary Engineering Report.	19									—					
Draft Final Feasibility Report.	20										—				
Final Feasibility Report.	21														—
III. PUBLIC ACTION FRAMEWORK															
Identify Present and Proposed Public Projects.	22	—	—	—	—	—	—								
Assemble Data on Existing Taxation and Revenue Sources.	23					—									
Assemble Information on Legal and Administrative Constraints.	24					—	—	—	—						
Assess Public Action Capabilities.	25					—	—	—	—						
Identify Public Action Capabilities.	26						—	—	—						
Determine Financial Benefits.	27								—	—					
Recommend Measures for Increasing Municipal Revenue.	28									—	—				
Recommend Legislation and Administration — KIP	29										—	—			
Develop Organization for Project Management.	30											—	—		
Estimate Investments Needed for Housing.	31														—

Schedule Activity Period through 31 March 1979

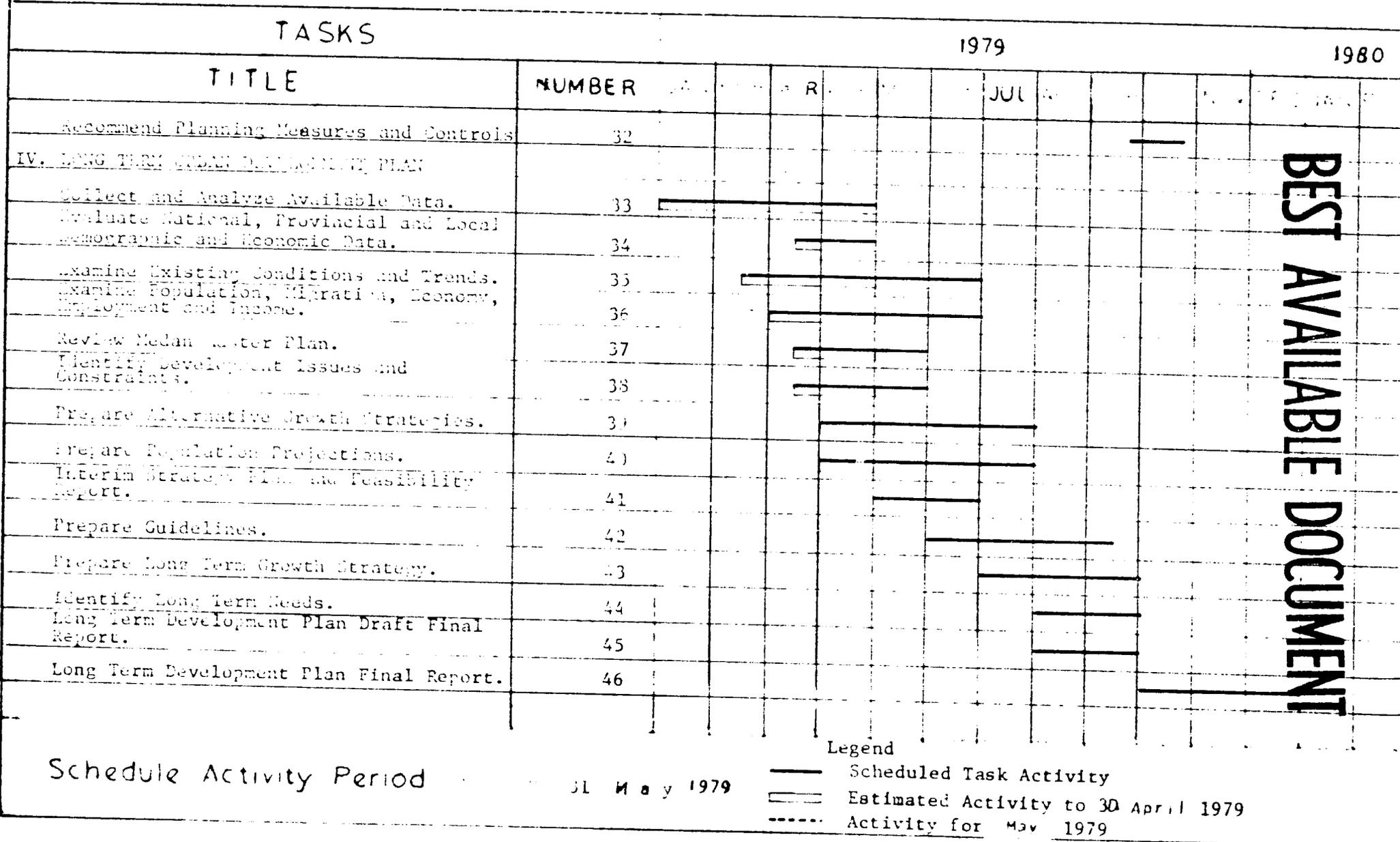
Legend

- Scheduled Task Activity
- Estimated Activity to 31 March 1979
- Activity for 1979

1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE



BEST AVAILABLE DOCUMENT

Schedule Activity Period

31 May 1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
TITLE	NUMBER	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
HOUSING DEVELOPMENT PROJECT SITES AND SERVICES CORE HOUSING (SSCH) AND LOW COST HOUSING (LCH)															
Site Selection Criteria for SSCH/LCH Projects.	47			—	—	—									
Site Selection.	48					—									
Identify Target Groups.	49								—	—					
Prepare Objectives.	50								—	—					
Determine Standards and Costs.	51								—	—					
Survey of Selected Site.	52						—								
Finalize Design Criteria, Costs and Standards.	53									—	—				
Develop Alternative SSCH/LCH Concepts.	54								—	—					
Prepare Social and Economic Components.	55									—	—				
Prepare Financial, Administration, and Legal Aspects.	56									—	—				
Preliminary SSCH and LCH Design Report.	57										—	—			
Prepare Draft Final Feasibility Report.	58											—	—		
SSCH and LCH Detailed Design Report.	59												—	—	
Final Feasibility Report.	60													—	—

BEST AVAILABLE DOCUMENT

Legend

- Scheduled Task Activity
- ▭ Estimated Activity to 30 April 1979
- Activity for May 1979

Schedule Activity Period through 31 May 1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
TITLE	NUMBER														
WATER SUPPLY	101-1107														
General Tasks															
Summarize Population, Land Use, and Economy	1101														
Assess Development Resources															
Inventory existing Facilities and Operations	1102														
Assess Environmental Effects	1103														
Inventory existing Facilities and Operations															
Inventory existing Facilities and Operations															
Inventory existing Facilities and Operations															
Inventory existing Facilities and Operations	1107														
Inventory existing Facilities and Operations															
Estimate Water Supply Sources	1108-1109														
Summarize Water Use and Demand	1106-1107														
Inventory existing Facilities and Operations															
Inventory existing Facilities and Operations	111-112														

Schedule Activity Period

through 31 May 1979

Estimated Task Activity
 Estimated Activity to 30 April 1979
 Activity for May 1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
TITLE	NUMBER	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
Review and Evaluate Planned Facilities and Operations	113		—	—											
Review Management, Policies, and Regulations	114-118		—	—											
Summarize Revenue and Finance	119-121		—	—											
Recommend Improvements	122-124			—	—										
Estimate Potential Basin Yield	130-131			—	—										
Additional Hydrological Studies	200			—	—	—									
Project Future Water Demand	132-134			—	—										
Establish Evaluation Criteria and System	135-136			—	—										
Formulate Alternative Schemes	137-138				—	—									
Estimate Water Source Variations	142					—	—								
Establish New Service Areas and Local Water Demands	141, 144					—	—								
Formulate Alternative Local Systems	140						—	—							
Prepare Preliminary and Interim Reports	143							—	—						

Schedule Activity Period

January 31 May 31

— Scheduled Activity

— Estimated Activity (to April 1979)

..... Activity (to May 1979)

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
TITLE	NUMBER														
<u>WASTEWATER</u>	200-2100														
Population, Land Use, and Economy	1101														
Public Health	1104														
Water Quality	1105														
<u>INVENTORY AND PLAN</u>	201-253														
Estimate Wastewater Generation	201-202														
Inventory Facilities, Operations, and Management	203-204														
Review Collector Interconnections	205														
Formulate Evaluation System	231-232														
Project Wastewater Generation	233-234														
Formulate Alternative Strategies	235														
Select Recommended Plan	236-239														
Establish Localized Generation	251														
Formulate Alternative Schemes	252														
Prepare preliminary and final plans	253														

BEST AVAILABLE DOCUMENT

Schedule Activity Period

from 31 May 1979

to Estimated Activity to 31 April 1979
 Activity for May 1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
TITLE	NUMBER														
General Tasks															
Climate and Hydrology	1106		—	—	—	—									
Soils, Topography, and Geology	1107		—	—	—										
Inventory and Plan															
Estimate Existing Runoff	301-302			—	—	—									
Inventory Facilities, Operations and Maintenance	303-307		—	—	—	—									
Review Management	308-311		—	—	—	—									
Review Finance	311		—	—	—	—									
Review Future Plans	312		—	—	—	—									
Recommend Improvements	313-314			—	—	—									
Formulate Evaluation System	331-333				—	—	—								
Project Future Runoff	334				—	—	—								
Develop Alternative Schemes	335				—	—	—								
Select Recommended Plan	336-339				—	—	—								

Schedule Activity Period through 31 May 1979

Legend
 — Scheduled Task Activity
 — Estimated Activity to 30 April 1979
 - - - - Activity for May 1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
TITLE	NUMBER														
Establish Local Basins and Runoff	351					—									
Formulate Alternative Local Systems	352					—									
Prepare Preliminary and Interim Report	353					—									
Master Plan	361-371														
Define Major Facilities	361							—							
Establish Collector Drains	362-363							—							
Develop Operations Maintenance	364								—						
Establish Management System	365								—						
Schedule Facilities and Operations	366								—						
Estimate Cost, Revenue, and Finance	367								—						
Develop Plan Revision Methods	368								—						
Produce Draft Master Plan	369									—					
Produce Final Master Plan	371										—				

BEST AVAILABLE DOCUMENT

Legend

Schedule Activity Period through 31 May 1979

- Scheduled Task Activity
- Estimated Activity to 31 April 1979
- Activities for May 1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
TITLE	NUMBER	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
SOLID WASTES	400-4100														
Summarize population, Land Use, and Economy	1101			—	—	—									
Assess Effects										—		—			
Summarize Public Health	1104			—	—	—									
Summarize Water Quality	1105			—	—	—									
INVENTORY AND PLAN FORMULATION	401-455														
Review Solid Waste Generation	401-403			—	—	—									
Inventory Facilities and Equipment	404			—	—	—									
Summarize collection and Disposal	405-406			—	—	—									
Summarize Management and Regulations	407-408			—	—	—									
Review Revenue, Costs, and Finance	409-411			—	—	—									
Review Plans	412			—	—	—									
Formulate Improvements of Facilities	413-414			—	—	—									
Project Future Solid Waste Generation	431-434			—	—	—									
Formulate Evaluation System	435-436			—	—	—									
Formulate Alternative Strategies	437-438			—	—	—									

Schedule Activity Period through 31 May 1979

Legend
 — Scheduled Task Activity
 — Estimated Activity to 30 April 1979
 - - - Activity for May 1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT

ACTIVITY SCHEDULE

TASKS		1979												1980	
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
Select Recommended Plan	439-444					-----									
Project Local Solid Wastes	451-452					-----									
Form Alternative Local Schemes	453-454					-----									
PREPARE PRELIMINARY AND INTERIM REPORTS	455					-----									
ENVIRONMENTAL REVIEW	4201-02					-----	-----				-----		-----		
MASTER PLAN	460-470														
Develop Water Utilities and Sites	461							-----	-----						
Form Tariffs and Sewer Rates	462								-----	-----					
Water Operations Requirements	463								-----	-----					
Local Water Management System	464								-----	-----					
Schedule Facilities and Operations	465								-----	-----					
Estimate Plan Costs, Rates and Finance	466-467								-----	-----					
Develop Revision System	468								-----	-----					
Prepare Master Plan	469								-----	-----					
Prepare Final Master Plan	470											-----	-----		

Legend

Schedule Activity Period through 31 M a y 1979

- Scheduled Task Activity
- Estimated Activity to 30 April 1979
- Activity for May 1979

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT PROFESSIONAL STAFF SCHEDULING CHART (ES/SINOTECH/PADCO)

ANNEX V
SHEET 1
PROJECT MONTH 4
CALENDAR MONTH Apr 30 79

NAME AND TITLE	ASSIGNMENT/WORK AREA LEGEND Scheduled _____ Actual ***** Intermittant - - - - -	MONTHS -29 Dec 1978														MAN MONTHS	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	ACTUAL (END OF MO)	Schedu led
1 J.M. MCGILL, Project Representative	Resident Project Representative															3	14
2 C.Y. HUANG, Deputy Project Representative	Sanitary Engineering															3	14
3 E.T. AMES, Chief Planner	Land Use Planning Physical Zonal Forecasts															4.1	12
4 L.H. MCGILL, Chief Engineer	Water Supply Sanitary Engineering															3.25	12
5 D. STOUT, Economist/Financial Analyst	Metro & Hsing Econ, Mun Finance, Emplm, Indust															1.16	12
6 L. BAKER, Housing Planner	Residential Planning Housing SSCH/LCH/KIP															3.87	12
7 M. JAN AMES, Urban Planner	Planning of Training, Small Scale Ind Non Profit Hsi															4.1	5
8 C.T. WHITE, Chief Designer	Technical Work Production																9
9 C.H. WANG, Urban Planner	Physical Planning															3	10
10 J.D.E. PERERA, Sanitary Engineer	Solid Waste, Sanitary Engineering															0.57	8
11 Y.T. HSUEH, Sanitary Engineer	Drainage and Sewerage															1.87	9
12 C.F. WU, Civil Sanitary Engineer	Urban Development Collect & Dist System															0.97	10
13 T.G. ARULAMBALAM, System Sanitary Engr.	System Engineering Computer Modeling Water Supply															3.48	9
14 C. ADELMAN, Financial Analyst	Economics Financial Analysis Tariffs																6
15 J.G. DANIEL, Special Consultant	Drainage																1
16 H. FENNERTY, Project Director	Project Direction															0.83	2
17 P.N. STORRS, ES Senior Vice President	Technical Review																2
18 C.L. SENN, Public Health Specialist	Public Health															0.73	2
19 R. FOX, Hydrogeologist	Hydrogeology																0.5
20 C.T. WILLIAM, Environmental Analyst	Environmental Aspects															3.9	6
21 J.E. ARRINGTON, Senior Planner	Planning Project Planning Direction															1.25	3
22 A.P. VAN HUYCK, PADCO President	Housing Finance for SSCH/KIP															0.36	1
23 H.S. SHYU, Transportation Engineer	Transportation Engineering																4
HOME OFFICE SUPPORT	AS REQUIRED															3.5	9.5
TOTAL TIME														42.94	173.0		

MEDAN URBAN DEVELOPMENT HOUSING WATER SUPPLY AND SANITATION PROJECT PROFESSIONAL STAFF SCHEDULING CHART (DACREA)

ANNEX V
SHEET 2
PROJECT MONTH 4
CALENDER Mo: TO Apr 30, 79

NAME AND TITLE	ASSIGNMENT/WORK AREA	MONTHS														MAN MONTHS	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	ACTUAL (END OF MO)	Schedule
1 HENDRATA/NIZAR, Principal & Coordinator	Coordination and Direction	[Gantt chart showing activity from Dec 1978 to Feb 1979]														0.9	4
2 MARIAM DARUS, Legal Specialist	Legal Specialist	[Gantt chart showing activity from Dec 1978 to Feb 1979]														0.5	3
3 ISMAIL R. YUSUF, Economist	Economics, Financial Analysis, Industrial	[Gantt chart showing activity from Dec 1978 to Feb 1979]														0.8	5
4 ABRAAR, Socio Economist	Socio Economics, Demography, Finances, Employment	[Gantt chart showing activity from Dec 1978 to Feb 1979]														0.8	5
5 VICTOR THE, Economist	Economics, Financial Analysis, Industrial	[Gantt chart showing activity from Dec 1978 to Feb 1979]														1.0	1
6 M. JUWONO, Socio Economist	Socio Economics, Demography, Finances, Employment	[Gantt chart showing activity from Dec 1978 to Feb 1979]														1.0	1
7 WIDJONO, Urban Planner	Land Use Planning, Forecasts, Housing Planning	[Gantt chart showing activity from Dec 1978 to Feb 1979]														1.25	11
8 BAMBANG SUDARPO, Urban Planner / Trans Planner	Land Use Planning, Forecasts, Housing Planning	[Gantt chart showing activity from Dec 1978 to Feb 1979]														2.5	5
9 HANDOYO, Transportation / Highway Engineer	Transportation Planning and Economics	[Gantt chart showing activity from Dec 1978 to Feb 1979]														1.0	6
10 ARIYANI HARTONO, Cost Engineer	Cost Estimating Construction Material	[Gantt chart showing activity from Dec 1978 to Feb 1979]														2.0	5
11 P. WIDIYANTO, Senior Civil Engineer	SSCH/LCH/KIP Engineering, Civil	[Gantt chart showing activity from Dec 1978 to Feb 1979]														2.0	11
12 PRAWOTO/LILY.T, Sr Sanitary Engineer	SSCH/LCH/KIP Engineering, Sanitary Engineering	[Gantt chart showing activity from Dec 1978 to Feb 1979]														0.24	5
13 PRAYITNO / FACHMI R., Hydrogeologist	Hydrogeologist	[Gantt chart showing activity from Dec 1978 to Feb 1979]														0.8	3
14 DJAYADI P., Sanitary Engineer	Water Supply, Sewerage, Solid Waste	[Gantt chart showing activity from Dec 1978 to Feb 1979]														2.0	11
15 UNKNOWN	Utility Management Tariffs and Finances	[Gantt chart showing activity from Dec 1978 to Feb 1979]															5
16 DJOKO SOEJATMIKO, Hydraulic / Materials Engineer	Drainage System, Hydraulics	[Gantt chart showing activity from Dec 1978 to Feb 1979]														1.0	9
17 M. DISHMAR, Architect / Site Planner	Housing, Architecture, SSCH/LCH/KIP Site Planning	[Gantt chart showing activity from Dec 1978 to Feb 1979]														3.0	12
18 SAHUSILAWANE, Electrical Engineer	Electrical Engineering	[Gantt chart showing activity from Dec 1978 to Feb 1979]															3
19 GARDJITO, Architect	Housing, SSCH/LCH/KIP	[Gantt chart showing activity from Dec 1978 to Feb 1979]															7
20 SOEDARSONO	Graphics Coordinator	[Gantt chart showing activity from Dec 1978 to Feb 1979]														1.58	3
		TOTAL TIME														21.57	116

MEDAN URBAN DEVELOPMENT, HOUSING, WATER SUPPLY AND SANITATION PROJECT

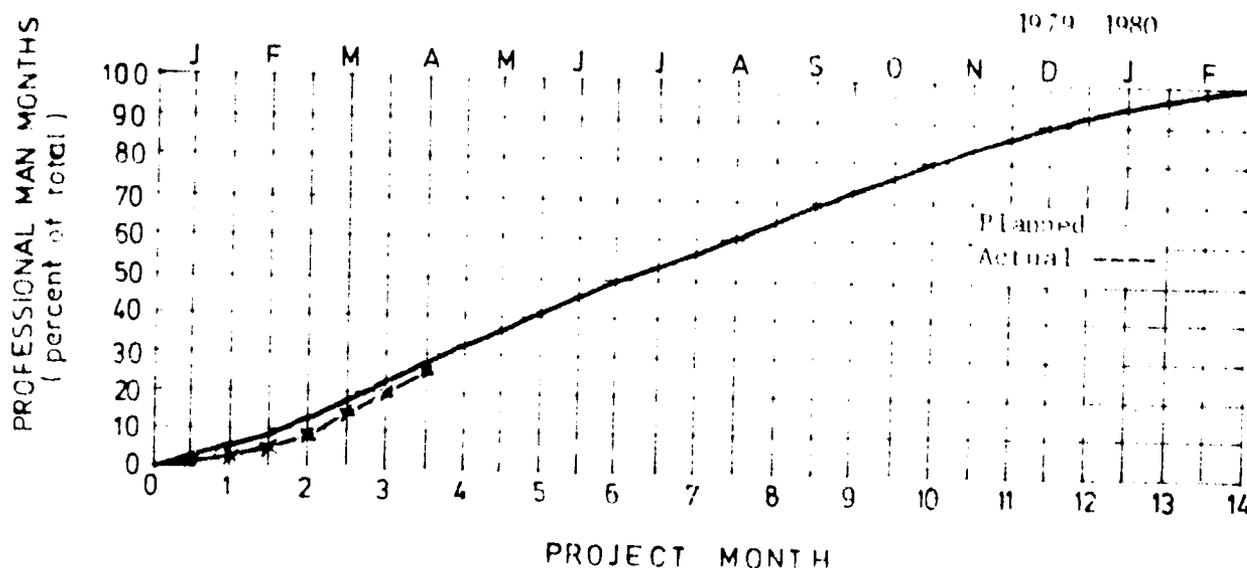
ANNEX VI
Sheet 1

Project Month : 4

Calendar Month : 1 April 1979 - 30 April 1979

BEST AVAILABLE DOCUMENT

1. CUMULATIVE INPUT OF PROFESSIONAL PERSONNEL



2. SUMMARY TABLE

	MAN - MONTH		Cumulative	
	This Month Planned	This Month Actual	Planned	Actual
Professional - Medan				
ES	6.0	5.4	18.0	15.4
Sinotech	4.0	4.0	11.0	9.0
Padco	4.0	4.0	17.2	14.1
Dacrea	10.2	9.2	32.28	21.95
Total	24.2	22.6	78.48	60.45
Professional - Home Office				
ES - Arcadia	0.5	0.5	1.0	1.0
Sinotech - Taiwan	0.5	0.5	2.5	2.5
Padco - Washington	-	-	-	-
Dacrea - Jakarta	-	-	-	-
Total	1.0	1.0	3.5	3.5
Non-Professional - Medan (Dacrea)	27.0	26.8	93.0	61.7

MEDAN URBAN DEVELOPMENT, HOUSING
WATER SUPPLY AND SANITATION PROJECT

Project Month : 4

Calendar Month : 1 April 1979 - 30 April 1979

3. Personnel Movement

Expatriate Staff

<u>Ref.</u>	<u>Name</u>	<u>Arrival</u>	<u>Departure</u>
1	J.M. McGill	February 2	
2	C.Y. Huang	February 2	
3	E.T. Ames	December 31	
4	L.H. McGill	January 10 April 11	March 22
5	D. Stout	March 29	
6	L. Baker	January 6	
7	M.J. Ames	December 31	
8	C.T. White		
9	C.H. Wang	February 2	
10	J.D.E. Perera	April 16	
11	Y.T. Hsueh	March 6	
12	C.F. Wu	April 3	
13	T.G. Arulambalam	January 18	
14	C. Adelman		
15	J.C. Daniel		
16	H. Fennerty	February 14 April 3	February 24 April 11
17	P.N. Storrs		
18	C.L. Senn	April 11	
19	R.J. Turney		
20	C.T. Williams	January 5	
21	J.E. Arington	February 24	March 30
22	A.P. Van Huyck	February 10 March 21 April 9	February 16 March 23 April 10

Local Professional Staff

<u>Ref.</u> <u>Annex II</u>	<u>Name</u>	<u>Arrival</u>	<u>Departure</u>
1	Hendrata/Nizar		
2	Mariam Darius	March 15	
3	Ismail R. Yusuf	March 5	
4	Abraar	March 5	
5	Victor The		
6	M. Juwono		
7	Widjono	March 12	March 16
8	Bambang Sudarpo	February 13	
9	Handoyo		
10	Ariyani Hartono	March 1	
11	Widiyanto	March 1	
12	Prawoto/Lily T.	March 20	March 24
13	Prayitno/Fachmi Rasjid	March 23	
14	Djajadi	March 5	
15	Unknown		
16	Djeko Soejatmiko	April 2	
17	M. Dishmar	January 22	
18	Sahusilawane		
19	Gardjito		
20	Sudarsono	March 12	

4. End-of-month Strength, Medan Office

Professional

ES	6
Sinotech	4
Padco	4
Dacrea	10

Non-Professional (Dacrea) 24