

THE ANSWER OF THE QUESTIONNAIRE FOR
PRELIMINARY SURVEY
ON THE PROJECT-TYPE TECHNICAL COOPERATION
CONCERNING THE WATER SUPPLY AND
ENVIRONMENTAL SANITATION TRAINING CENTRE
IN INDONESIA

THE ANSWER OF THE QUESTIONNAIRE FOR
PRELIMINARY SURVEY ON THE PROJECT-TYPE TECHNICAL COOPERATION
CONCERNING THE WATER SUPPLY AND ENVIRONMENTAL SANITATION
TRAINING CENTRE IN INDONESIA.

1. Current status of legislation (Presidential decree, law, guidelines, etc.) development and its effectiveness.

- a. Water Supply : - decree of MPW for Organization Structure of DWS
- decree of MPW & MHA :
 . guideline for Organization BPAM/PDAM.
 . guideline for Accounting System
 . guideline for Operation & Maintenance.

- b. Law No. 4, Y 1984 - for Living Environmental Protection.
Decree No.14, Y 1987 - Delegation of Authority for Development
of Environmental Sanitation & Facility to
the Local Governments.

2. Background information on the National Development plan.

a. Water Supply :

- Achievement of Repelita IV : urban 65% population served
rural 30,5% population served.
- Objective & targets of Repelita V : urban 80% population served.
rural 60% population served.
(1.600.000 HC & 17.900 public stand posts).
- Progress of Repelita V : 836.000 HC and 424 public stand posts and 4991 people have been trained.

b. Environmental Sanitation :

- Achievement of Repelita IV : urban 60% population served.
rural 30% population served.
- Objective & targets of Repelita V : Waste Water : To provide the facilities for human waste water disposal with appropriate technology and effective financial approach to cover 200 big, medium and small cities & 5000 villages of housing areas where there are shortage of water resources, occurrence of epidemic diseases, tourist centers and slum areas.

Solid Waste : Improvement of the solid waste management in 450 cities/towns.

Drainage : Improvement of the drainage facilities in 135 cities /towns.

- Progress of Repelita V : (89/90 & 90/91)
 - Waste Water : 53 cities, 854 rural/ village.
 - Solid Waste : 44 cities.
 - Drainage : 90 cities (only a part of each city).

3. HRDP in the Repelita V :

- a. Water Supply : 7.257 people will be trained.
- b. Environmental Sanitation : 2.898 people will be trained; NGO = 14.835 people and in-service training = 785 cities.

4. Past experiences in HRD.

a. Water Supply.

- Names of training courses - see Appendix (No.4a.)
- Total number of trainees until 1989/1990 = 5772 people.
- Facility : regional TC. (Jakarta, Surabaya)
- Training material : Hand-out 513 modules, audio visual teaching aids, i.e. slide films, video cassette films, transparent sheets.
- Instructors : Staff of Directorate of Water Supply, officials from PDAM, BPAM, Provincial Project and Consultants.
- Financing : State budget (DIP)
Grant aid from donor countries
Loan.

b. Environmental Sanitation :

- Names of training courses - see Appendix (No.4b)
- Total number of trainees until 1989/1990 = 1.167
- Facility : Regional Training Centre of Jakarta.
- Training Material : Hand out 6 modules, audio visual teaching aids, i.e. slide films, video cassette films, transparent sheets.
- Instructors : Staff of Directorate of Environmental Sanitation, lecturers from universities, consultants.

5. Review of the grant aid project for construction of Water Supply and Environmental Sanitation Training Centre.

- 1. Place : Margahayu, Bekasi Timur.
- 2. Site area : 15.000 sqm, building : 5370 sqm area
 - Consultant : K. ITO Architects & Engineers.
 - Contractor : KAJIMA-Toyomenka Consortium.
- 3. Main facilities and equipment :
 - a. Administration Building.
 - b. Workshop Building for Water Supply : - Piping.

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- Pump & gen. set.
- Mini treatment plant
- Mini laboratory.

Workshop Building for Environmental Sanitation :

- Waste water treatment plant.
- Sanitary landfill cell.
- Mini laboratory.

- c. Dormitory and Canteen.
- d. Garage.
- e. Lecture Room, Exercise Room & Seminar Room.
- f. Library.
- g. Computer Room.
- h. Analytical Laboratory & Bacteriological Laboratory.
- i. Leakage Survey Training Yard.
- j. Equipment : - Cars for operation of TC.
 - Photocopy/ printing equipment.
 - Audio visual aparatus for lecture room.
 - Analytical instruments.

4. Construction period : April 8, 1989 to March 5, 1990.

5. Amount of the grant aid : ¥ 1.140 million ~ Rp. 14 billion.

6. Local works : amount of Rp. 740 million for construction of :
 - road
 - water - with deep well
 - electricity
 - fence
 - houses
 - land scaping.

7. Result of inspection : made by Consultant and Cipta Karya and accepted.

8. Completion/Delivery Ceremony : March 23, 1990.

9. Others : Inaguration of utilization by Ministry of Public Works and Junior Minister of State Secretary on May 28, 1990, and, simultaneously, starting of training courses.

6. Institutional arrangement of TC.

- 1. Organization structure : See Appendix. (No. 6)
- 2. Status : Management Project Unit of Training Centre for Increasing Skill of Water Supply and Environmental Sanitation Sector Personnel.
 Decree of MPW No. 139/KPTS/1990 dated March 23, 1990.
- 3. Assignment of the staff members : Total 43 people of staff from D.W.S. and D.E.S. (see Appendix) 6-3
- 4. Job discription : see Appendix 6-4 (Decree of MPW No. 139/KPTS- /1990 dated March 23, 1990)

5. Background and experiences of full-time instructure (counterparts).
 - Staff of D.W.S. } Who has background and experiences of
 - Staff of D.E.S. } the development of Water Supply and Environmental Sanitation (CV Attached)
6. Future prospectives : Very good prospective in the future, because this TC is very complete and equiped with lab and workshop.
7. Training plan for the fiscal year of 1990/1991.
see Appendix 7.
8. Planned activities other than the routine training courses utilizing the training centre :
 - a. Training courses for NGO and other sectors beside water supply and environmental sanitation; also training courses for members of associations dealing with water supply and environmental sanitation.
 - b. Seminars :
 - Seminars on water supply and environmental sanitation.
 - Seminars on syllabuses.
 - Other seminars related to WS & ES.
9. Operation and maintenance plan of the TC
 - OM financed by the government of Indonesia through DWS & DES.
10. Budget allocation for FY 1990/1991.
 1. Nat. Budget allocation : Rp 336.353 million - D.W.S.
 205.000 million - D.E.S.

 Rp.541.353 million
 2. Others : None
 3. Annual expenses :
 - Wage/Salary
 - Materials
 - Transportation
 - Stationaries
 - O & M
 - Training.
 4. Expenses expected to be born by local governments and water enterprises :
 - Transportation of the participants.
11. Reconfirmation of the proposal for the project-type technical cooperation :
 1. Period of implementation : 5 years
 2. Time of commencement : FY 1990/1991.
 3. Dispatch of long-term and short-term experts from Japan (see Appendix).

4. Provision of equipment (see Appendix 11-4).
5. Counterpart training in Japan : eleven (11) counterpart personnels per year.
12. Objective training courses in the project - type technical cooperation.
 1. Names and outline training course (see Appendix 12-1).
 2. Target of achievement (time per year to be held, size & class, annual number of trainees etc.) (see Appendix 12-2)
 3. Expected effect of the technical cooperation on the development of water supply & environmental sanitation sectors : it is expected that the technical cooperation could support the development of training modules and the implementation of advanced training courses in water supply and environmental sanitation sectors.
13. Convenience of the Japanese experts dispatched under the technical cooperation :
 1. Office space : in kind
 2. Secretary : 2 (two) persons including one for team leader
 3. Transportation : with office bus
 4. Others : -
14. Relation to other training institution of the MPW.
 1. Water Supply TC in Pejompongan will be used as TC of IUIDP (Integrated Urban Infrastructure Development Project) and for general training of Training Division DGHS.
 2. Provincial Training Unit of DWS in Surabaya as regional TC to cover the training for east Indonesia.
 3. Regional Education TC of MPW : much more for personnel training program of MPW.
15. Cooperation plan with other organization and Institutions.
 1. Universities : University of Indonesia, Bandung Institute of Technology.
 2. International : NWTTI in Bangkok, Thailand.
 3. Other education/training institutions :
 - Indonesian Water Works Assosiation.
 - Indonesian Sanitary Engineers Assosiation.
 - Consultants.
 - Other institutions related to WS & ES.
16. Future prospectives of TC network development in WS & ES sectors in Indonesia.
 - For the future, it is expected that the organization of TC should be a unit of training implementation as a part of the organization structure under DGHS and could be self-standing in its operation and maintenance.

MINISTRY OF PUBLIC WORKS, DIRECTORATE GENERAL OF CIPTA KARYA
 DIRECTORATE OF WATER SUPPLY
 THE NUMBER OF STAFF IN THE WATER SUPPLY SECTOR
 HAS BEEN TRAINED

NAME OF INSTITUTIONS	PELITA IV Development 1984/1985-1988/1989	PELITA V Development 1989/1990
TOP MANAGER (DJCK, PPSAB, PDAM/BPAM)		
- MANAGEMENT (DIRECTOR/ASISTEN)	420	88
- TECHNICAL DEPARTEMENT	414	20
- FINANCE/ADMINISTRATION DEPART.	395	23
II. MIDDLE MANAGER		
- TESHNICAL SECTION	747	55
- FINANCE/ADMINISTRATION SECTION	712	261
III. OPERATOR	725	334
OTHERS	727	-
SCOUT / EXTENTION WORKERS	851	-
T O T A L	4.991	781

Total : 5.772 People

Name of Course.

A. Top Manager

Managemen

1. Course for Director of PDAM/Head of BPAM
2. Management Information System Course

Technical Department

1. Course for Technical of Director PDAM/Head of Technical Department

Finance/Administration Departement

1. Course for Head of Finance/Administration Departemnt
2. Accounting System Course
3. Budgeting and Expenditures Estimation Course
4. Budget and Finance Report Analisis Course

B. Middle Manager

Technical Section

1. Course for Chief of Production Section
2. Course for Chief of Transmission/Distribution Section
3. Course for Chief Planning/Supervisory Section
4. Course for Chief of Workshop/Maintenace Section
5. Laboratory Practice Course

Finance/Administration Section

1. Course for Chief of Bookeeping Section
2. Course for Chief of Personel & Administration Section

C. Operator

1. Head of IKK Installation Unit Course/Operator
2. IKK Construction Supervisor Course
3. Operator Course (Water Treatment)

4. Water leakage survey course (leakage control)
5. Water Works Engineering Course (equipment. mechanics anda electricity)
6. Water meter Course (type., model, testing, maintenance and repair)
7. Pipelayer Course
8. Genset & Pumps Course
9. Technical Staff

D. Others

1. Pre-Invesment Planning for Community Course
2. Training for Trainers
3. Training for head of cleansing Department/Project Manager of Community Enviromental Sanitation
4. Training for Contractor
5. Community Partisipation Course
6. Workshop Micro Computer
7. Seminar HATHI
8. Planning & Supervisory for Staff DPU Province and Kabupaten (Subdin Cipta Karya).

E. Training for Scout
Extention Workers.

Note :

PDAM : Regional Water Enterprise

BPAM : Water Supply Management Body

at18-past

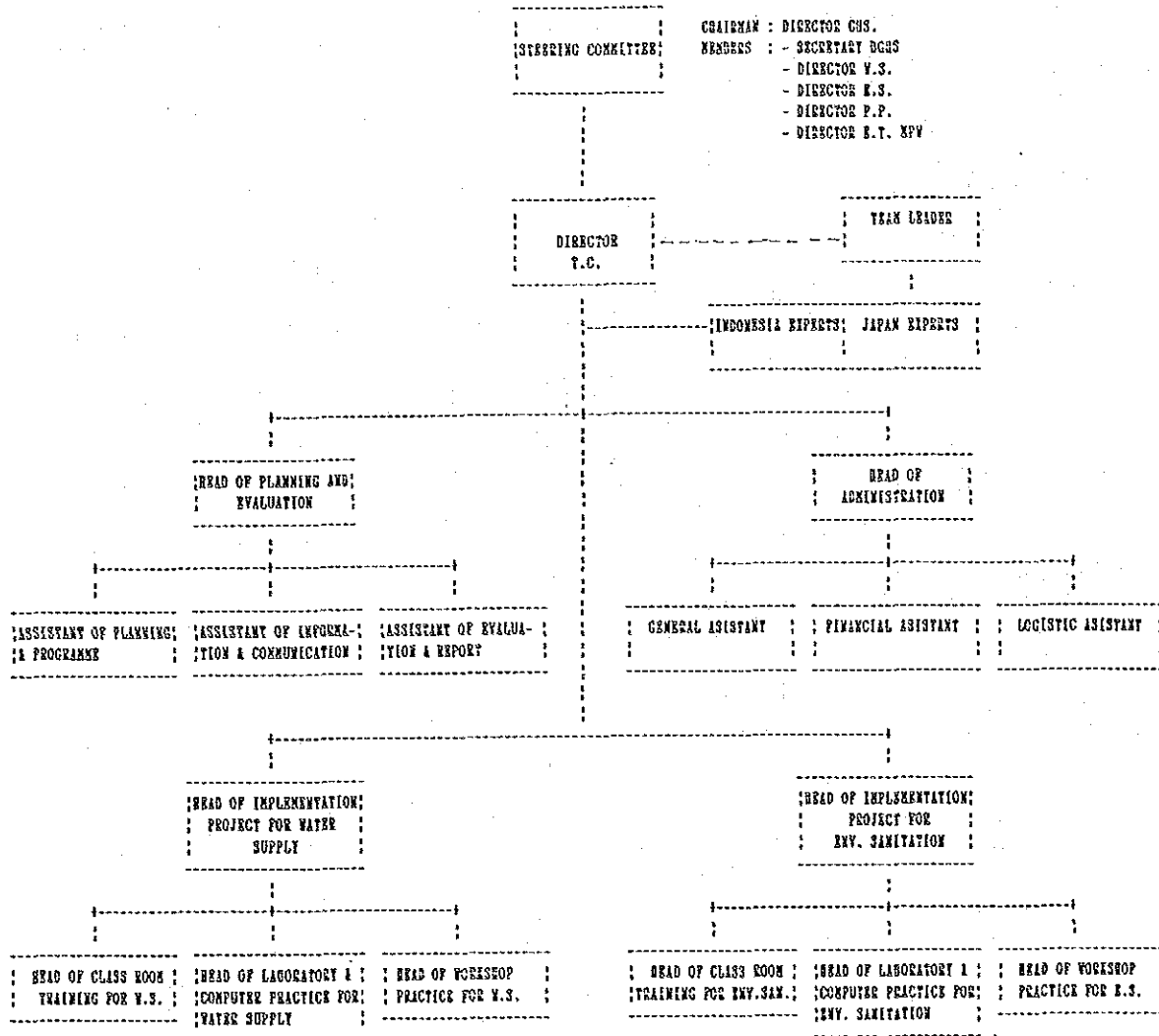
PAST TRAINING LOOD OF THE COURSES ON ENVIRONMENTAL
SANITATION F.Y. 1984/1985 UNTIL FY 1989/1990

COURSE FOR	SIZE OF CLASS	DURATION (WEEK)	FREQUENCY (TIME)	TOTAL NUMBER OF TRAINEES	TRAINING LOAD MAN-WEEK	REMARKS
I. General Courses						
Solid Waste :						Total Class room training = 1,167 people
- Freshmen	30	1	2	53		
- Supervisory Manager	30	1	6	173		
- Planner	30	1	4	116		Inservice training 67 cities * 20 people key person/cities net included.
Human Waste						
- Freshmen	30	1	2	54		
- Supervisory Manager	30	1	5	146		
- Planner	30	1	3	94		
Drainage						
- Freshmen	30	1	1	27		
- Supervisory Manager	30	1	6	178		
- Planner	30	1	3	80		
II. Advance Courses						
- Sanitary Landfill Operation.	-	-	-	-		
- Collection & Transportation	-	-	-	-		
- Night Soil Treatment	-	-	-	-		
III. Motivator Courses	30	1	8	246		
Total	300	10	40	1167		

THE ORGANIZATION STRUCTURE OF TRAINING CENTRE
WATER SUPPLY AND ENVIRONMENTAL SANITATION
AS THE PROJECT MANAGEMENT UNIT FOR MANPOWER SKILL INCREASING
IN WATER SUPPLY AND ENVIRONMENTAL SANITATION

MPV DECISION NO.: 133/EPTS/1990

DATED : MARCH 23, 1990



PRE/ATZIS/90.

ASSIGNMENT OF THE STAFF MEMBERS

- | | | |
|---|---|------------------------------|
| 1. Director | : | Ir. Susanto Mertodiningrat |
| 2. Head Of Planning & Evaluation | : | Ir. Kusniati |
| 3. Head Of Administration | : | Drs. Sudjoko |
| 4. Assistant Of Planning & Programme | : | Wati Herawati BE |
| Assisted by | : | - Dra. Yuni Erni Aguslin |
| | | - Pangat |
| 5. Assistant of information & Communication | : | Drs. Bambang Heru Purwanto |
| Assisted by | : | - Drs. Pardosi |
| | | - A g u s |
| 6. Assistant Of Evaluation & Report | : | Dra. Yoesi Rosnidar |
| Assisted by | : | - Waluyo Ambarman |
| 7. General Assistant | : | Drs. Karyono |
| Assisted by | : | - F. Darmono, Hadi Suroto |
| | | - F. Lathuru, Suhadi, Sarmin |
| | | - Sri Kijati Maharan |
| 8. Financial Assistant | : | Dra. Sri Murniningsih |
| Assisted by | : | - Tutyrat |
| | | - Suryadi |
| | | - Herlis Megawati BSc |
| 9. Logistic Assistant | : | Hedy Suherman BE |
| Assisted by | : | - Syafnil |
| | | - Hadi Suroto |
| | | - Suhadi |
| | | - Suwandi |
| 10. Head Of Implement Unit For Water Supply | : | Ir. M. Chamin |
| 11. Head Of Implement Unit For Env. Sanitation: | : | Ir. Widhi Handoko Dipl. SE. |
| 12. Head Of Classroom Training For W.S. | : | Otong Unang BE |
| Assisted by | : | - Nurdin |
| | | - Syafnil |
| 13. Head Of Laboratory & Computer Practice | : | Ir. Ida Dhaliawati Dipl. SE |
| for Water Supply | : | - Dra. N. Nina Indrasari |
| Assisted by | | - Laborants (3) |
| 14. Head Of Workshop Practice For W.S. | : | Ir. Darlis Darwis |
| Assisted by | : | - Sartono |
| | | - Sadiman |
| | | - Ernapura BE |
| | | - Laborant (1) |

15. Head Of Classroom Training For E.S
Assisted by : Dra. Yuni Erni Aguslin
: - Nurdin
: - Syafnil
16. Head Of Laboratory & Computer Practice
For Environmental Sanitation
Assisted by : Ir. Ida Dhaliawati Dipl. SE.
: - Dra. N. Nina Indrasari
: - Laborants (3)
17. Head Of Workshop Practice For E.S.
Assisted by : Ir. Widhi Handoko Dipl. SE.
: - Dra. Yuni Erni Aguslin
: - Hadi Suroto
: - Suhadi

DIRECTOR GENERAL OF HUMAN SETTLEMENT INSTRUCTION
NO : 181/SPRIN/CK/1990

DIRECTOR GENERAL OF HUMAN SETTLEMENT

Considering :

- a. that with Minister of Public Works declare No. 139/KPTS/1990 had formed the Project Management Unit Personnel Skill Increasing in Water Supply and Environmental Sanitation field.
- b. that to smoothness that implementation of Management Unit duties Ir. Soesanto Mertodiningrat had suggested as Project Management Unit Leader.
- c. while waiting the publish of Minister of Public Works decision about the nomination of Head of Project Management Unit Personnel Skill Increasing in Water Supply and Environmental Sanitation field.

In view of : 1. Decision of President Republic of Indonesia No. 61/M 1983;
2. Minister of Public Works decision No. 211/KPTS/1984;
3. Minister of Public Works decision No. 311/KPTS/1988;
4. Minister of Public Works decision No. 139/KPTS/1990;

T O I N S T R U C T

To : Mr. Ir. Soesanto Mertodiningrat Nip. 110007672 Pembina Utama Muda IV/c, Widyaaiswara Utama Muda;

For : do the duties as Head of Project Management Unit Personnel Skill Increasing in Water Supply and Environmental Sanitation field as follow :

1. For their concern subject to all of right & obligation, authority and responsibility which have on that position agree with the effective regulation;
2. This instruction begin to take effect from the fix date and the end after the official appointment of decision letter fixed in definitif manner;

This instruction in order to do well and responsibility.

C.C :

1. Department of Public Works Cq. Head of Personnel Department of Public Works;
2. All of Director in Directorate General of Human Settlements;
3. Secretary of Directorate of Human Settlements;

MINISTER OF PUBLIC WORKS DECISION

NO. 139/KPTS/1990

CONCERN

THE FORMATION OF PROJECT MANAGEMENT UNIT PERSONEL SKILL INCREASING IN
WATER SUPPLY AND ENVIRONMENTAL SANITATION FIELD

MINISTER OF PUBLIC WORKS

Considering : a. that in the framework to increase the personel skill
in the government sector and commercial in Water
Supply and Environmental Sanitation as well as to
increase the using facility and the supply, important
to form the Project Management Unit who can form that
activity ;

b. that the meaning point a, important to fix by
Minister of Public Works decision.

In view of : 1. President Republic of Indonesia decision No. 44/1974.
2. President Republic of Indonesia decision No. 61/M/
1983
3. President Republic of Indonesia No. 15/1984
4. President Republic of Indonesia No. 29/1984
5. President Republic of Indonesia nO. 64/M/1988
6. Minister of Public Works decision No. 211/KPTS/1984
7. Minister of Public Works decision No. 99/KPTS/1984
8. Minister of Public Works decision No. 332/KPTS/1986
9. Minister of Public Works decision No. 421/KPTS/1988

T O D E C I D E :

To fix : THE MINISTER OF PUBLIC WORKS DECISION ABOUT THE FORMATION OF
PROJECT MANAGEMENT UNIT PERSONEL SKILL INCREASING IN WATER
SUPPLY AND ENVIRONMENTAL SANITATION FIELD

CHAPTER I
GENERAL DETERMINATION

Article 1

In this decision, the meaning of :

- (1) Minister is Minister of Public Works.
- (2) Director General is Director General of Human Settlement Department of Public Works.
- (3) The Project Management Unit is the Project Management Unit Personnel Skill Increasing in Water Supply and Environmental Sanitation field.
- (4) The Implement Project of Personnel Skill Increasing in Water Supply is the Project which formed to implement the increasing of personnel skill of Water Supply field with the organization formation and working system who fixed by Director General and using the budget from APBN.

CHAPTER II
POSITION

Article 2

Project Management Unit is the non structural unit in education field and practice at Directorate General of Human Settlement which responsible for Director General of Human Settlement as Direct Boss the Project Management Unit Leader.

CHAPTER III
FORMATION AND ORGANIZATION

Article 3

Formation of Project Management Unit organization consist of :

- (1) Leader element is Project Management Unit Leader.
- (2) Assistance of Leader element are :
 - a. Head of Planning & Evaluation Staff, assisted by :
 1. Assistant of Planning & Program
 2. Assistant of Information & Communication
 3. Assistant of Evaluation & Report

b. Head of Administration Staff, assisted by :

1. General Assistant
2. Financial Assistant
3. Logistic Assistant

(3) Performer element consist of :

a. Leader of Project Personnel skill Increasing in Water Supply field, assisted by :

1. Head of Practice Class
2. Head of Laboratory & Computer Practice
3. Head of Workshop Practice

b. Leader of Project Personnel Skill Increasing in Environmental Sanitation field, assisted by :

1. Head of Practice Class
2. Head of Laboratory & Computer Practice
3. Head of Workshop Practice

CHAPTER IV

DUTY AND FUNCTION

Article 4

The duty of Project Management Unit to coordinate and control the implementation Personnel Skill Increasing Program in Water Supply and Environmental Sanitation field.

Article 5

To perform that duty on chapter 4, Project Management Unit have function :

- a. to implement the program arrangement and personnel skill increasing plan in Water Supply and Environmental Sanitation field;
- b. to implement the personnel skill increasing activity in Water Supply and Environmental Sanitation field, laboratory, computer & workshop.
- c. to implement control & evaluation of implementation personnel skill increasing activity in Water Supply & Environmental Sanitation field.
- d. to perform the information and communication activities for society in the personnel skill increasing Water Supply and Environmental Sanitation field.
- e. to implement the supply, maintenance and control of education and training supply.

- f. to implement the administration activity which covered finance administration activity, general administration, personnel, letter system, acquisition & maintenance, building and equipment maintenance and office equipment.

Article 6

PROJECT MANAGEMENT UNIT LEADER

- (1) Project Management Unit Leader duties consist of :
 - a. to perform the coordination plan arrangement and personel skill increasing program in Water Supply and Environmental Sanitation field ;
 - b. to lead the implementation of the personel skill increasing program control in Water Supply and Environmental Sanitation field, agree with the duty and function how arranged in chapter 4 & 5 ;
 - c. to make cooperation with related instantiation both in Department of Public Works area and other instantiation out of Department of Public Works ;
 - d. to focus all of Implementation Project Leader to achieve the object agree with the schedule and fixing condition.
- (2) In act upon their duties, the Leader of Project Management Unit obliged :
 - a. to send the Implementation Project report in periodic manner or in necessity to Director General through Secretary of Director General of Human Settlement.
 - b. to follow and adhere to the Director General guidelines and Secretary of Director General of Human Settlement or another guidelines personnel who appoint by Director General of Human Settlement to give the guidelines in implementation project.

Article 7

HEAD OF STAFF

- (1) Head of Planning & Evaluation Staff have the duty :
 - a. to help and represent the Project Management Unit in implementation of duty and function planning, information & communication program and evaluation & report.

b. to lead the function implementation the Project Management Unit Staff and assistant's duty.

c. to arrange and fix the details duty of each assistant and cooperation between the assistants who lead them.

(2) Head of Administration Staff duties :

a. to help and represent the Project Management Unit Leader in implementation of duty and general administration function, administration, maintenance of building & equipment, acquisition & logistic control and finance administration.

b. to lead the implementation of Project Management Unit Staff function and implementation of assistant duties.

c. to arrange and fix the detail duties of assistants and assistants cooperation.

Article 8

A S S I S T A N T

(1) Planning Assistant & Program duties : doing the plan and program arrangement in the framework the personel skill increasing in Water Supply and Environmental Sanitation field for long term, middle term and annual.

(2) Information Assistant & Communication duties : doing the information & communication for society about activity of Project Management Unit program.

(3) Evaluation & Report Assistant duties are doing the monitoring & evaluation for the planning & implementation of program and arrange of evaluation report.

(4) General Assistant duties are doing the office administration, letter system, filing, personnel and inventarisation of government assets.

(5) Logistic Assistant duties are implement and acquisition control, building maintenance and facility.

(6) Finance Assistant duties are implement the plan arangement and finance/budget program, supervision/verification for implementation of finance administration by treasurer who lead.

Article 9

MANAGEMENT PROJECT LEADER

- (1) The leader of Management Project Personnel Skill Increasing in Water Supply field duties is lead the implementation of personnel skill increasing in Water Supply program.
- (2) The leader of Management Project Personnel Skill Increasing in Environmental Sanitation field is lead the implementation of personnel skill increasing program in environmental sanitation field.
- (3) If important the Project Management Leader can appoint the Assistant agree with the necessity with 3 Assistants maximum.

Article 10

HEAD OF MANAGEMENT

- (7) Head of Class Training Management duties are arrange the schedule and plan of class training program implementation, arrange the facility and using equipment, and arrange the instructor activity schedule.
- (8) Head of Laboratorium Training Management & Computer duties are arrange the schedule and implementation of laboratorium and computer practice program plan, arrange the facility and using equipment as well as arrange the instructor activity schedule.
- (9) Head of Workshop Training Management duties are arrange the schedule and implementation of Workshop Training program plan, arrange the facility and the using equipment as well as arrange the instructor activity schedule.

CHAPTER V

APPOINTMENT AND DISCHARGE

Article 11

- (1) The Project Management Unit Leader appoint and discharge by Minister.
- (2) All of Head of Staff appointed & discharge by Director General.
- (3) All of Assistant & Head of Management appointed and discharge by Project Management Leader.
- (4) Project Management Leader appointed & discharge by Minister.

CHAPTER VI

WORKING SYSTEM

Article 12

In doing their duties the Project Management Leader, all of Head Staff, all of Project Management Leader and all of Assistant obliged to evaluate the coordination principle, integration and sincronisation both in Project Management Unit area and out of Project Management Unit Instansion agree with their duties.

Article 13

Every the organization Unit Leader in Project Management Unit are obliged to lead and control each their sub ordinate and if deviation happened in order to make the using steps agree with the valid regulation.

Article 14

Every the organization Unit Leader obliged to follow, obedient the indications and responsible to each superior/boss and send the period report on time.

Article 15

Every the receipt report by the organization unit leader from sub ordinate, obliged to prepared and used as material to arrange the report followed and give the indications for sub ordinate.

Article 16

In doing their duties every the organization unit leader helped by sub ordinate the organization unit leader and in the framework to give the guide for sub ordinate, obliged to do the period meeting.

CHAPTER VII

ENDING DEFINITION

Article 17

- (1) Organization of Project Management Unit Structure is how mentioned in this instruction enclosure.
- (2) The change of organization and working system this instruction follow decided by Minister.
- (3) Another case which important to arrange follow will decided by Director General.
- (4) This instruction beginning from the fix date.

Appendix 7-A

TEMPERATE TRAINING SCHEDULE FOR WATER SUPPLY (1990/1991)

NO	COURSE FOR	NO OF TRAINEES	YEAR 1990												YEAR 1991	
			MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY				
1.	Basic Course for Manager of PDAM/BDAM	20				20-25										
2.	Advance Course for Manager of PDAM/BDAM	20		09-14												
3.	DIRECTOR: Basic Course for Technical Director	20					24-29									
4.	Advance Course for Technical Director	20				20-25										
5.	Finance/Administrations Director	20	28-02													
6.	Chief of Bookkeeping Section	20					03-08									
7.	Chief of Production Section	20		09-14												
8.	Chief of Transmission/Distribution Section	16					24-25									
9.	CHIEFS: Chief of Planning Supervisory Section	20		25-30												
10.	Chief of Workshop/Maintenance Section	20				30-04										
11.	General Administration & Personnel Section	18		25-30												
12.	Skill Development Course for Electrical & Mechanics	10				30-11										
13.	STAFF: Skill Development Course for Pipelayers	10	28-09													
14.	Skill Development Course for of Unaccounted Water	10					03-15									
15.	Workshop on the use Micro-computer for water supply planning, design and analysis	20	28-09													
	TOTAL	264														

jica/ppsc

1. BASIC COURSE FOR MANAGER OF PDAM/BPAM

Objectives :

To improve the ability and knowledge of the Directors of PDAM and the Heads of BPAM in analysing, processing data and making decisions through a general information system, technical, financial, manpower data and time.

Main Discussions :

1. Objectives, strategy and target of clean water supply
2. Clean water supply and public health
3. Water enterprise development and factors outside the environment
4. Basic Management
5. Manpower Development
6. Tariff and drinking water tariff structure
7. Budget cost and income budget of PAM
8. Office administration procedures
9. Basic production techniques, transmission and drinking water distribution.
10. Basic water treatment
11. Management of water sources sanitation
12. Reporting system.

Participants : Directors/Heads of PDAM, BPAM.

Education : at least Bachelor of Engineering & Bachelor of Finance.

Methods : Lectures, demonstrations, discussions, study on site and examination.

Course Schedule : 1 (one) weeks.

Participants : Managers of BPAM / Director of PDAM who have
already followed the Basic course for Managers/
Directors of BPAM/PDAM.

Education : Bachelors of Engineering or experienced Senior
high school graduates.

Methods : Lecturers, discussions and case study.

Course Schedule : 1st (one) weeks.

3. BASIC COURSE FOR TECHNICAL DIRECTOR

Objectives :

To improve the knowledge of clean water facilities system, to increase the general knowledge especially in functions, duties, role of Heads of Technical Department in the water enterprise and increasing the skill in the engineering field.

Main Discussions :

1. Objectives of clean water facilities development
2. Clean water facilities and public health
3. Basic clean water facilities
4. Functions, structure and external relations of the water enterprise
5. Basic management
6. Introduction of chemistry and microbiology
7. Water purification and water treatment
8. Clean water transmission and distribution
9. Supervision of work performance
10. Supervision of water production, clean water transmission/distribution
11. Administrative procedures in relation with the technical department
12. Financial planning and budgeting
13. Personnel management
14. Development and manpower exercises

Participants : Heads of technical department.

Education : at least STM level, (technical high school)

Methods : Lectures, demonstrations, discussions, study on site, site visits, examination.

Course Schedule : 11 (one) weeks.

4. TRAINING FOR HEAD OF TECHNICAL DEPARTMENT - Second round.

Objectives :

To improve skills and knowledge of Heads of technical department especially in Management information System and preparing enterprise development plan.

Syllabus :

1. Review of penataran dasar and purpose of penataran Lanjutan I.
(basic course).
2. Review of principles of water supply management.
3. Management activities of the Kepala Bagian Teknik :-
 - Preparation of enterprise development plans
 - o data requirements
 - o objectives
 - o methodology
 - o implementation.
 - Personnel management
 - o manpower forecasting
 - o job design/organisational development
 - o job descriptions
 - o recruitment
 - o staff development
 - o team building
 - o supervisory skills
 - Management of materials
 - o material needs of technical department
 - o purchasing/ordering problems
 - o stock levels and stores control
 - Management of machines
 - o cost/benefits of preventative maintenance
 - o maintenance schedule
 - o control of maintenance
 - Financial management
 - o budgetting & budgetary control

- o understanding financial statements
- Technical management information system
 - o managements need for data
 - o records & reports.
- Management of change

Participants : Heads of Technical Departments of BPAM/PDAM who have already followed The Basic Course for Heads of Technical Departments.

Education : experienced Senior High School graduates

Methods : Lectures, discussions

Course Schedule : 11 (One) weeks.

5. BASIC COURSE FOR FINANCE/ADMINISTRATION DIRECTOR

Objectives :

To improve the knowledge, increasing the skill in acquiring the ability to carry out in an orderly manner the financial administration of the water enterprise.

Main Discussions :

1. Development of the water enterprise
2. Manpower development and office management
3. Procedures of the water enterprise system
4. Reporting system in the water enterprise
5. Budgetting system of the water enterprise

Participants : Heads of administration and finance department

Education : at least SLA (Senior High School) with some experience.

Methods : Class room lectures, discussions, examinations, demonstrations (exercises/examples).

Course Schedule : 1 (one) weeks.

6. BASIC COURSE FOR CHIEF OF BOOKKEEPING SECTION

Objectives :

To improve the knowledge, ability and skills of the book-keepers in the water enterprise.

Main Discussions :

1. Development of clean water supply
2. Introduction to book-keeping
3. Book-keeping of water sales
4. Book-keeping of warehousing
5. Book-keeping of salary payment
6. Book-keeping of petty, cash.
7. Book-keeping of new connections
8. Transfer of booking entries.

Participants : Heads of book-keeping section

Education : at least SLA (Senior High School)

Methods : Lectures, discussion, classroom demonstrations
examinations.

Course Schedule : 1 (one) weeks.

7. BASIC COURSE FOR CHIEF OF PRODUCTION SECTION

Objective :

To improve the ability and knowledge on the principles of management, operation, maintenance and cleaning of all water production facilities, preparation of annual budget.

1. Introduction to water supply and the role of the water enterprise.

2. Water supply and public health.

3. The role and responsibilities of Seksi Produksi

4. Technical background to water production :-

- water sources and the water cycle
- raw water quality
- basic water chemistry
- construction, operation and maintenance of water intakes
(springs, boreholes, river intakes)
- water coagulation, flocculation
- sedimentation and filtration
- handling, mixing and dosing of chemicals
- pH corection (neutralisation)
- disinfection
- water quality control
- pumping plant and gensets
- water storage

5. Managerial activities of Kepala Seksi Produksi :-

- management of staff
- management of materials
- management of machines/equipment
- systems and procedures
- financial management
- communications.

Participants : Chief of Production Section

Education : at least SLA (Senior High School) with some experience.

Methods : Lecturers, discussions study on site.

Course Schedule : 1(one) weeks.

8. BASIC COURSE FOR CHIEF OF TRANSMISSION/DISTRIBUTION SECTION

Objective :

To improve the ability and knowledge on the principles of management, inspections and handling leakage in the pipeline, operation and maintenance all transmission/distribution facilities, preparation of annual budget.

1. Introduction to water supply and the role of the water enterprise.
2. Water supply and public health
3. The role and responsibilities of Seksi Transmisi/Distribusi.

4. Technical background to water transmission & distribution :-

- identification and function of pipes and fittings
- pipelaying techniques (trench excavation, handling laying, jointing pipes).
- pipe testing
- anchor blocks and trench reinstatement
- flushing and disinfecting pipelines
- basic water chemistry
- water quality and the distribution system
- operation and maintenance of the distribution system
- (monitoring system performance, sampling)
- methods of leakage detection & control
- plumbing inspection
- pipeline hydraulics
- pumping plant
- methods to reduce or increase water pressures/flows in the distribution system.

5. Managerial activities of Ka. Seksi Transmisi/Distribusi :-

- management of staff
- management of materials
- systems & procedures
- financial management
- communications

Participations : Chief of Transmission/Distribution Section.

Education : at least SLA (Senior High School) with some experience

Methods : Lecturers, discussions.

Course Schedule : 1 (one) weeks.

9., BASIC COURSE FOR CHIEF OF PLANNING/SUPERVISORY SECTION.

Objective :

To improve the ability and knowledge in planning design and supervision of the construction of water supply system.

Syllabus :

1. Introduction to water supply and the role of the water enterprise.
2. Water supply and public health
3. The role and responsibilities of Seksi Perencanaan/Pengawasan.
4. Technical planning for water supply :-
 - definition of short, medium & long-term planning
 - short/medium term planning & design activities :-
 - o map reading
 - o simple surveying techniques
 - o design and specification for minor new works
 - o estimating for new house connections and pipeline extensions
 - the long-term planning cycle.
 - data collection and analysis for long term planning :-
 - o water consumption patterns
 - o forecasting future water demand
 - o water source data (river flows, spring flow, groundwater levels, rainfall, water quality)
5. Construction supervision :-
 - outline of water supply construction techniques (pipelines, reinforced concrete, foundations).
 - contracts, contract documents and the role, authority and responsibility of the construction supervisor.
 - reading construction drawings.
6. Preparation of "as built" drawings.
7. Managerial activities of Kepala Seksi Perencanaan & Pengawasan.

10. BASIC COURSE FOR CHIEF OF WORKSHOP/MAINTENANCE SECTION

Objective :

To improve the ability and knowledge in the planning to prevent maintenance/repair of water enterprise equipment, preparation of annual budget, monitoring and controlling preventive maintenance.

Syllabus :

1. Introduction to water supply and the role of the water enterprise.
2. Water supply and public health
3. Outline of water production and treatment, especially the use and application of electro-mechanical equipment.
4. Outline of water transmission and distribution, especially the use and application of electro-mechanical equipment.
5. The role and responsibilities of the Seksi Pemeliharaan.
6. Types of pumps used in water supply, their principles of operation and maintenance requirements :-
 - submersible pumps
 - centrifugal pumps
 - diaphragm pumps
7. Electric motors, starters, switchgear and instruments :
 - their principles of operation and their maintenance.
8. Automatic control systems used in water supply in Indonesia.
9. Gensets - principles of operation, maintenance and trouble-shooting.
10. Maintenance/repair of sluice valves, butterfly valves, check valves, air valves, fire hydrants
11. Maintenance of buildings and facilities.
12. Preventative maintenance programmes :
 - planning
 - implementation
 - control
13. Managerial activities of Kepala Seksi Pemeliharaan :-
 - management of staff
 - management of materials.

11. . TRAINING FOR PERSONNEL & ADMINISTRATION CHIEF SECTION

Objectives : To improve the knowledge, skills and ability of Heads of Personnel & Administration Section for carrying out their duties in the field of management, manpower development and personnel function.

Syllabus :

1. Introduction to water supply :
 - water supply objectives
 - outline of water supply system
 - water supply organisation.
2. Operational needs of a water supply system
 - manpower requirements
 - materials requirements
3. Role of the Seksi Administrasi Umum dan Kepegawaian.
4. The personnel function
 - job descriptions
 - selection, requirement, aptitude testing
 - training and development
 - motivation
 - salary structures + payments
 - staff appraisal
 - GOI equipment regulations
 - personnel files/records
 - the role of the personnel/training officer.
5. The purchasing function
 - purchasing inventory
 - stock levels
 - ordering/purchasing system
 - expediting
 - receiving goods
 - payments
6. The warehousing function
 - general storekeeping
 - stock control system
7. Introduction to principles of management.

Participants : Heads of Personnel and Administration Section.

Education : At least Senior High School graduates.

Methods : Lectures, discussions.

Course Schedule : 1 (one) weeks.

12 SKILL DEVELOPMENT COURSE FOR PIPELAYERS

Objectives :

To improve the knowledge and skill of the pipelaying staff who are involved in construction of water transmission / distribution & house connection.

Main Discussions

1. Introduction to pipes and appurtenances
2. Handling, transport and storage of pipes
3. Pipe laying, testing and back filling
4. Modification of PVC pipe, AC pipe, GI pipe.
5. Plumbing regulations
6. Pipe tapping under pressure
7. Working safety
8. Practical exercise

Participants : Having background educations at least Senior High School

Methods : Lectures, practical and demonstrations, examinations

Course Shedule : 2 (two) week

Participants : chief of workshop/maintenance section.

Education : at least STM (Technical High School) or
SLA (Senior High School) with some experience.

Methods : Lecturers; discussions, field study.

Course Schedule : 1 (one) weeks.

13. SKILL DEVELOPMENT COURSE FOR MACHANICS/ELECTRICIAN

Objectives :

To improve the knowledge and skill of the Mechanics/electrician staff who are involved in the instalation, operation & maintenance of electro/mechanical equipment.

Main Discussions

1. Introduction to electro & mechanic equipment for water supply scheme
2. Introduction to diesel engines, gensets, and meter devices
3. Operation & maintenance of generator & panels
4. Operation & maintenance of compressors
5. Operation & Maintenance of diesel motors
6. Operation & maintenance of pumps
7. Genset trouble shooting
8. Fault finding & repair
9. Genset Effeciency
10. Working safety.

Participants : Heaving backround educations a least Senior Technical High Schools

Methods : Lectures, practical and demonstrations, examinations

Course Shexiule : 2 (two) week

14. SKILL DEVELOPMENT COURSE FOR UNACCOUNTED OF WATER

Objectives :

To improve the knowledge and skill of the Water Enterprise staff who are involved in the programme for rediving leakage problems in water supply installation.

Main Discussions

1. The water enterprise and its functions
2. Principles of transmission and distribution of water
3. Identification of water consume fluktuation patterns
4. Tophographical measurements & mapping
5. Causes of water loss
6. Strategy for control of unaccounted for water
7. Practical exercise.

Participants : Heaving backround educations a least Senior High Schools

Methods : Lectures, demonstrations, examinations

Course Shedule : 2 (two) week

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TRAINING ENVIRONMENTAL SANITATION
ON NGO (Young Organization).

1. Objective.

After Completion of the Course the participant will be able to implement operation and maintenance of Environmental Sanitation facilities in their region and convey their knowledge to their members and Community.

2. Scope of discussion.

- Policy development on the 5 year plan V (Pelita V) for Environmental Sanitation sectors.
- Basic theory on Environmental Sanitation.
- Sanitation facilities and Environmental hygiene.
- Management on solid waste and domestic waste water.
- Choosing on waste water technology.
- Institution aspect and management on waste water and solid waste.
- Planning on low Cost Sanitation.
- Solid Waste treatment technology.
- Financing on solid waste management.
- Community involvement and scout's role on Environmental Sanitation Development.
- City-drainage management and Environmental drainage system.
- Field visit study.
- Discussion on problem and causes.
- Simulation on Environmental Sanitation planning & strategy.
- Special programme for Young Organization education.

3. Participants.

- Number of Boy/Girl Scout who has position "profesion/skill full.
- Education : Senior High School until Graduate of University.
- Number of trainers : 20 people.

4. Methode :

Lecture, discussion, exercise/practise and field visit study.

5. Time & Duration.

The training will be held on : Januari 21 to Januari 26.
duration : 1 week.

6. Venue :

Training Centre of water supply and Environmental Sanitation Bekasi.

7. Executing Agency.

Directorate General Human Settlements.

tra-i-1/at21/90.

TRAINING ENVIRONMENTAL SANITATION
ON NGO (Family Welfare Education).

1. Objective.

After Completion of the Course the participant will be able to implement operation and maintenance of Environmental Sanitation facilities in their region and convey their knowledge to their members and Community.

2. Scope of discussion.

- Policy development on the 5 year plan V (Pelita V) for Environmental Sanitation sectors.
- Basic theory on Environmental Sanitation.
- Sanitation facilities and Environmental hygiene.
- Management on solid waste and domestic waste water.
- Choosing on waste water technology.
- Institution aspect and management on waste water and solid waste.
- Planning on low Cost Sanitation.
- Solid Waste treatment technology.
- Financing on solid waste management.
- Community involvement and scout's role on Environmental Sanitation Development.
- City-drainage management and Environmental drainage system.
- Field visit study.
- Discussion on problem and causes.
- Simulation on Environmental Sanitation planning & strategy.
- Special programme for Family Welfare education.

3. Participants.

- Number of Boy/Girl Scout who has position "profesion/skill full.
- Education : Senior High School until Graduate of University.
- Number of trainers : 20 people.

4. Methode :

Lecture, discussion, exercise/practise and field visit study.

5. Time & Duration.

The training will be held on : November 5 - 10 to Januari 7-12
duration : 1 week.

6. Venue :

Training Centre of water supply and Environmental Sanitation Bekasi.

7. Executing Agency.

Directorate General Human Settlements.

tra-1/at21/90.

TRAINING FOR PLANNERS ON SOLID WASTE.

1. Objectives.

After Completion of the course the participant will be increase their knowlegde and Capabalities on Planning, programming and budgetting system of Environmental Sanitation facilities in their region, so more Capable in the development regulation and management Solid waste sector.

2. Scope of discussion.

- Integrated Urban Development Programe, Approach.
- Policy and strategy in the development of solid waste.
- "Adipura" programe, the Government Evaluation Programe on Solid Waste Management in the Cities.
- Regulation and low in the management of Solid Waste.
- Solid Waste Management.
- The inventory of the problema of Solid Waste Management.
- Survey, data analysis and design criteria of solid waste.
- Preparation of implementation of Construction.
- Technical planning on solid waste I.
(Composition and Generation of Solid Waste).
- Technical planning on solid waste II.
(Collecting and transportation).
- Technical planning on solid waste III.
(Solid Waste treatment and final disposal).
- Operation and maintenance discussion.
- Solid waste Management Planning I (Institution).
- Solid waste Management Planning I (Low).
- Solid waste Management Planning II (Budgetary).
- Solid waste Management Planning II (Community involment).
- Stimulant project, system module in the new settlements.
- Solid Waste Management Bogor as system Module as a cases study.
- Discussion on Capita selecta of Solid Waste management.

3. Participant.

- staff of Planner, planner of local government level II, planner in the project of Environmental Sanitation at provices.
- Education : Graduate in technical faculty, mayoring in civil Eng. Sanitation Eng. on Similar exremint : 2 yrs.
Yunior Engineers, experient 4 yrs as planner number of participant : 20.

4. Methode.

- Lecture/class room training, discussion, workshop practises, laboratory and study tour.

5. Time & Duration.

The training will be held on September 17 to 29, 1990
Duration : 2 weeks.

6. Venue.

Training Centre of water supply and Environmental Sanitation Bekasi.

7. Executing Agency :

Directorate General Human Settlements.

TRAINING FOR TECHNICAL STAFF ON SOLID WASTE.

1. Objectives.

After Completion of the course the participant will be increase their knowlegde and Capabalities on Operation and maintenance of Environmental fasilitas in their region.

2. Scope of discussion.

- Policy and Strategy of Environmental Sanitation Development.
- Production, Compotition and Chetracteristic of S.W.
- Gathering and Colection of S.W.
- Tools and equipment of S.W.
- Transfer Depo and its final disposal.
- Treatment and its process.
- Hazardous waste and management.
- Field visit.
- Causal study of management S.W.
- Institution aspect and budgeting system.
- Comparative study on Bogor City in the management of S.W. and participation role of Communities.
- Development of Community participation.
- Evaluation of training.

3. Participant.

- Technical staff of local government level II, staff of project Environmental Sanitation in the provinces.
- Education : Technical High School/ junior Engineer.
- Number of participant : 20.

4. Methode.

- Lecture/class room training, discussion, workshop practises and study tour.

5. Time & Duration.

The training will be held on June 25 to June 30, 1990
Duration : 6 days/1 week.

6. Venue.

Training Centre of water supply and Environmental Sanitation Bekasi.

7. Executing Agency :

Directorate General Human Settlements.

TRAINING FOR PLANNERS ON WASTE WATER

1. Objectives.
After completion of the course the participant will be increase their knowlegde and Capabalities on Planning and programming and budgetting system of Environmental Sanitation facilities in their region, so more Capable in the development regulation and management waste water sector.
2. Scope of discussion.
 - Curriculum and Syllabus.
 - Policy and strategy on the 5 year plan V (Pelita V) for Environmental Sanitation Sector.
 - National strategy in the development of waste water.
 - Integrated Urban Development Programe, Approach.
 - Sanitation and Environmental Hygiene.
 - Characteristic of waste water.
 - Environmental Impact Analysis principal.
 - Preparation of implementation of Construction.
 - Survey and sampling.
 - Choosing the technology of Sanitation.
 - Preparation Program and planning.
 - On site sanitation and low cost sanitation.
 - Sewerage system.
 - Waste treatment plant technology.
 - Sludge treatment technology.
 - Management after Construction and O & M.
 - Institutional Aspect.
 - Field Visit.
 - Casual study and discussion.
 - Evaluation of training.
 - Brief research and practise :
 - Activated sludge
 - R. BC. (Rotating Biological Contactor)
3. Participant.
 - staff of Planner, planner of local government level II, planner in the project of Environmental Sanitation.
 - Education : Graduate in technical faculty, mayoring in civil Eng. Sanitation Eng. or Similar experient : 2 yrs.
 - Yunior Engineers, experient 4 yrs as planner, number of participant : 20.
4. Methode.
 - Lecture/class room training, discussion, workshop practises, laboratory and study tour.
5. Time & Duration.
The training will be held on August 20, to September 1, 1990
Duration : 2 weeks.
6. Venue.
Training Centre of water supply and Environmental Sanitation Bekasi.
7. Executing Agency :
Directorate General Human Settlements.

TRAINING FOR TECHNICAL STAFF ON WASTE WATER

1. Objectives.

After completion of the course the participant will be increase their knowlegde and Capabalities on Operation and maintenance of Environmental fasilitas in their region.

2. Scope of discussion.

- Policy and Strategy of Environmental Sanitation Development.
- Low Cost Sanitation technology.
- Choosing the technology of Sanitation.
- Survey and Sampling.
- Operation and Maintenance of Waste Water fasilities.
- Causal Study onwaste watertreatment in Jakarta.
- Implementation method on Development of waste water.
- Institutional aspect in the management of waste water.
- Environmental impact analyses.
- Management of Sewerage system.
- Evaluation of training.

3. Participant.

- Technical staff of local government level II, staff of project Environmental Sanitation in the provinces.
- Education : Technical High School/ junior Engineer.
- Number of participant : 20.

4. Methode.

- Lecture/class room training, discussion, workshop practises and study tour.

5. Time & Duration.

The training will be held on May 28 to June 2, 1990
Duration : 6 days/1 week.

6. Venue.

Training Centre of water supply and Environmental Sanitation
Bekasi.

7. Executing Agency :

Directorate General Human Settlements.

TRAINING ENVIRONMENTAL SANITATION ON MOTIVATORS
(Community Involvement Motivators).

1. Objectives.
After Completion of the Course the participant will be increase their knowledge and able to motivate Community in the involvement of Environmental Sanitation Development and also can implement operation and maintenance of Environmental Sanitation facilities.
2. Scope of discussion.
 - Policy development on the 5 year plan V (Pelita V) for Environmental Sanitation sectors.
 - Basic theory on Environmental Sanitation.
 - Sanitation and Environmental Sanitation hygiene.
 - Management on solid waste and domestic waste water.
 - Choosing on waste water technology.
 - Institution aspect and management on waste water and solid waste.
 - Planning on low Cost Sanitation.
 - Solid Waste treatment technology.
 - Financing on solid waste management.
 - Community involvement and how to motivate Community.
 - Drainage system and flood Control.
 - Motivation technique.
 - Human Relation Approach.
 - Communication and information system.
 - Mass Communication.
 - Counseling, technical and methodology.
 - Choosing the national Campaign and equipment.
 - Field visit.
 - Discussion.
 - Simulation of Campaign.
3. Participants.
 - Staff of project in the province and other staff local Government i.e. Public Works Public Health. Planning Board division etc.
 - Education : Senior High School until Graduate of University.
 - Number of trainers : 20 people.
4. Methode :
Lecture, discussion, exercise/practise and field visit study.
5. Time & Duration.
The training will be held on : October 15 - 27, December 10 - 22, February 4 - 16.
duration : 1 week.
6. Venue :
Training Centre of water supply and Environmental Sanitation Bekasi.
7. Executing Agency.
Directorate General Human Settlements.

tra-1/at21/90.

TRAINING ENVIRONMENTAL SANITATION
ON NGO (Boy Scout).

1. Objective.

After Completion of the Course the participant will be able to implement operation and maintenance of Environmental Sanitation facilities in their region and convey their knowledge to their members and Community.

2. Scope of discussion.

- Policy development on the 5 year plan V (Pelita V) for Environmental Sanitation sectors.
- Basic theory on Environmental Sanitation.
- Sanitation facilities and Environmental hygiene.
- Management on solid waste and domestic waste water.
- Choosing on waste water technology.
- Institution aspect and management on waste water and solid waste.
- Planning on low Cost Sanitation.
- Solid Waste treatment technology.
- Financing on solid waste management.
- Community involvement and scout's role on Environmental Sanitation Development.
- City-drainage management and Environmental drainage system.
- Field visit study.
- Discussion on problem and causes.
- Simulation on Environmental Sanitation planning & strategy.
- Special programme for Boy Scout education.

3. Participants.

- Number of Boy/Girl Scout who has position "profesion/skill full.
- Education : Senior High School until Graduate of University.
- Number of trainers : 20 people.

4. Methode :

Lecture, discussion, exercise/practise and field visit study.

5. Time & Duration.

The training will be held on : November 26 to Januari 1
duration : 1 week.

6. Venue :

Training Centre of water supply and Environmental Sanitation Bekasi.

7. Executing Agency.

Directorate General Human Settlements.

trai-1/at21/90.

DISPATCH OF LONGTERM & SHORT TERM
EXPERTS FROM JAPAN

Long-Term experts : (1 each) - Team leader

- Expert for water treatment
- Expert for pipeline and maintenance
- Expert for mechanical installation
- Expert for electrical installation
- Expert for water quality
- Expert for solid waste disposal
- Expert for solid waste collection and transportation
- Expert for night soil treatment
- Coordinator

Short-term experts : (1 each making 5 visits)

- Expert for water supply management
- Expert for planning and design for water supply
- Expert for Instrumentation
- Expert for environmental sanitation management
- Expert for solid waste planning
- Expert for solid waste treatment
- Expert for sanitary treatment and disposal

PROPOSED EQUIPMENT
 JICA's Project-Type Technical Cooperation
 Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
1	Total Organic Carbon Analyser (1)	Shimazu	TOC-5000	For large volume(50-2000ul); with an auto-sampler and spares like catalyst, micro-cyringes, etc.	1
2	Total Organic Carbon Analyser (2)	Shimazu	TOC-5000	For small volume(4-250ul); with an auto-sampler and spares as above	1
3	Autoclave	Hirayama	HL-42Ae	Large cylindrical type(inner diameter: 420mmx800mm); with 5 stainless-steel net containers for each	2
4	Sludge Treatment Apparatus (1)	Chemical Service	(order-made)	For aerobic condition	1
5	Sludge Treatment Apparatus (2)	Chemical Service	(order-made)	For anaerobic condition	1
6	Transformer	Matsunaga	ATC-2,2K	Input AC220V/output AC110V; 20k	10
7	Typewriter	Olivetti	ET-2400	Electric; with 8 different daisy-wheels, 30 ink-ribbons and 24 correction-ribbons for each	3
8	Lettering Set	Rottoring		With different templates for each	5

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
9	Tool Set	Hozan	S-85	For laboratory use; 46 pcs/set	3
10	Car for On-Site Water Quality Analysis	Nissan	"Civilian" (order-made)	High roof; long body; diesel; with AC; right handle; with instruments for water quality analysis	1
11	Car for Leakage Survey Practice	Nissan	"Urban" (order-made)	High roof; long body; diesel; with AC; right handle; with instruments for leakage survey	1
12	Microbus	Toyota	"Hi-Ace Computer"	Capacity: 15 persons; high roof; long body; gasoline; with AC; right handle	1
13	Car	Nissan	"Patrol" Station-Wagon	Capacity: 8 persons; long body; 4-wheel drive; gasoline; right handle	3
14	Office Computer			For water distribution network analysis and solid waste collection/transportation analysis	1
15	Personal Computer	NEC	PC-9801 RX21	With a CRT, a printer, a sheet-feeder, a book-stand, a rack and 5 ink-ribbons for each; with a AVR and a UPS for each	5
16	Soft-Ware for Personal Computer	Just System and others		"Ichitaro", "Hanako", "Word-star", "Multiplan", "d-Base III" and "Lotus 1-2-3" for each	5

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
17	Photocopy Machine	Ricoh	PT-4490	With sorter and paper-feeder	2
18	Atomic Absorption Spectrophotometer	Shimazu	AA-680	With 2 spares of 10 different lamps and other spare parts for each	2
19	Gas Chromatograph	Shimazu	GC-15A	ECD; with columns and other spare parts	2
20	Incubator (BOD Unit)	Central Kagaku	UD Unit	For use of 200 BOD bottles; 20± 0.5 C; with light-shade; with DO meter and other accessories for each	3
21	Drying Oven	Putaba Kagaku	(order-made)	For solid waste samples; inner size 1600(W)x800(D)x1600(H)mm; stainless-steel; with a fan for gas circulation, an exhaust pipe and an exhaust nozzle; with 10 stainless-steel containers 700(W)x700(D)x200(H)mm for each	1
22	Potable Generator	Denyo	GA-1600	1.3KW; AC220V	2
23	Balance (1)	A & D	FW10KA2	Maximum 10kg; minimum 1g	2
24	Balance (2)	A & D	FW60KA2	Maximum 50kg; minimum 20g	2
25	Video-Camera	JVC	KY-R17EL 13 and others	With a video cassette recorder; with a video monitor and a control unit for each	2

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
26	Camera	Nikkon	P3	With a camera-case, Al nikkol, a lens-case, a filter, a speed-light, a copy-unit and a tripod for each	2
27	Zoom Lens	Nikkon	Al Zoom Nikkol	100-300mm/F.5.6S	2
28	Wireless Telephone	Nihon Musen		1 main-unit and 2 sub-units	1
29	Potable Wireless Telephone	Nihon Musen		1 main-unit and 2 sub-units	2
30	Facsimili	Cannon	PAX750	For intra- and international use	1
31	Laser Printer	Cannon	LBP-B406S	For a personal computer; B4 size	1
32	Non-Breaking Test Meter	Tokyo Keiki	SM90DX	For testing water pipes after welding	1
33	Gas Welding Maschine	Banzai	GS-10		1
34	Arc Welding Maschine	National	YC-300TW SP-4	With spare rods	1
35	PVC Welding Maschine	Zenya	NEW SUPER 300	With spare rods	1
36	Ultrasonic Homogenizer	Branson	250	With a stand and different tips	1
37	Detergent	Branson		0.95L; 6 bottles in a box	50

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
38	Gas-Burner Lighter	Nihon Tokushu Togyo	SQ-701	Potable	10
39	Flow Meter. (1)	Ikeda Glass	(order-made)	For air; glass; 3 different types (30-300, 200-2000, 800-8000ml/min.)	10
40	Flow Meter (2)	Ikeda Glass	(order-made)	For water; glass; 3 different types (0.3-4.5, 3-38, 10-150ml/min.)	10
41	Dessicator(1)	Ikeda Glass	(order-made)	Glass, circular type, inner diameter 250mm	3
42	Dessicator (2)	Ikeda Glass	(order-made)	Glass, circular type, inner diameter 300mm	3
43	Stabilizer	Matsunaga	TA-224.5 TA-2213	For AAS and GC; input AC220V \pm 15%, output AC220V \pm 0.4% 1KVA 3KVA	5 5

PROPOSED EQUIPMENT
JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
1.	Current meter			<p>Range : to measure flow velocities in the range 0.05 to 1.0 m/s</p> <p>Type : propeller type with digital counter</p> <p>Power Source : battery operated (disposable)</p>	4
2.	Multiple Parameter Test Meter (of the Horiba Multimeter type)			<p>Robust portable weatherproof instrument for heavy duty outdoor use.</p> <p>Capable of testing for pH, DO, Electrical conductivity, temperature, and turbidity.</p> <p>Provided with standardisation and calibration accessories and spares for one year operation.</p> <p>Provided with convenient weatherproof carrying case.</p> <p>Power source : rechargeable batteries 50/60 Hz operation.</p>	4
3.	Spectrophotometer (UV/VIS)			<p>Double or single beam instrument capable of operating in the visible and ultravioletate spectrums. (200 ~ 1000 nm)</p> <p>Wavelength accuracy should be better than 2 nm at 254 nm, 365 nm and 546 nm with wavelength readability better than 1.0 nm. Photometric noise should be less than 0.1% near 100% T and photometric linearity should be better than 0.2% T. Photometric accuracy should be better than 0.3% T. The instrument should also have good long term drift and "zero" drift characteristics.</p>	1

PROPOSED EQUIPMENT
JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
4.	Incubator			<p>The instrument should be provided with 1 cm and 4 cm curvettes and capable of adaption for flow-through operation. Power source : 110/220 V at 50/60 Hz</p> <p>Size : approximately 0.4 m3 capacity Type : cooled (for operation at 20°C) with thermostatic control $\pm 0.1^{\circ}\text{C}$ Power: 110/220 V at 50/60 Hz</p>	2
5.	Automatic sampling device			<p>Automatic liquid sampling device suitable for clean and waste water sampling. Preferably electronically programmable to provide flexibility of sampling programme. Capable of taking discrete or continuous incremental samples with back flush and preflush cycles. Provided with 24 sample containers sampling hose, filter and counterweight. To operate on either battery or mains with recharge pack for 110/220 V, 50/60 Hz operation.</p>	6

PROPOSED EQUIPMENT
JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty						
6.	Liquid sampling device (Depth Sampler)			Manually operated device for taking liquid sample in such environments as rivers at varying depths. Capable of taking sample of 2.5 l volume.	2						
7.	Cool boxes			Insulated boxes for storage of samples during transportation. Approximate 0.2 cm3 capacity.	4						
8.	Chemical Water Quality Test KITS (Portable)			Portable test kits for use in the field contained in one or more convenient carrying containers and equipped with all the necessary chemicals, apparatus and measuring devices to conduct the following tests : <table><tr><td>Parameter</td><td>Range (mg/l)</td><td>Method (suggested)</td></tr><tr><td>Ammonia</td><td>0.05 - 0.8</td><td>indophenol blue method</td></tr></table>	Parameter	Range (mg/l)	Method (suggested)	Ammonia	0.05 - 0.8	indophenol blue method	2
Parameter	Range (mg/l)	Method (suggested)									
Ammonia	0.05 - 0.8	indophenol blue method									

PROPOSED EQUIPMENT

JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
				<p>Arsenic 0.1 - 3</p> <p>Chlorine (free) 0.1 - 4 DPD or orthotolidine</p> <p>pH 1 - 14</p> <p>Copper 0.05 - 0.5 10 - 300</p> <p>Cyanide 0.005 - 0.5 0.03 - 5.0</p> <p>Iron (total) 0.25 - 15 phenanthroline/ferrospectral</p> <p>Chromate 0.025 - 2.5</p> <p>Chloride 25 - 2500</p> <p>Nitrate 5 - 140</p> <p>Nitrite 0.005 - 0.1 0.1 - 10</p> <p>Manganese 0.3 - 10</p> <p>Oxygen Dissolved 0 - 10</p>	

PROPOSED EQUIPMENT

JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
9.	COD (Chemical Oxygen Demand) Test System			<p>Zinc 0.1 - 5.0</p> <p>Nickle 0.1 - 10.0</p> <p>Sulphate 10 - 600</p> <p>Sulphide ----- lead accurate paper</p> <p>Capable of conducting 20 - 40 analysis per batch. It should be a sealed system capable of operation without a fume cupboard, such as the TECATPR or HACH systems, complete with heating block 110/220V 50/60 Hz.</p> <p>All glass thermostatically controlled.</p>	1
10.	Water Distillation Unit				1
11.	Laboratory Vacuum Pump			Any suitable oil filled laboratory vacuum pump for vacuum filtration provided with water/vapour trap. 110/220 V 50/60 Hz.	1
12.	Laboratory Hot Plate			320 watt 110/220 V 50/60 Hz plate area approx 30 x 20 cm. 0 - 200°C ± 2°C.	1
13.	Oven Drying			Range up to 200° C, approximately 0.2 m3 capacity. 110/220 V 50/60 Hz	1

PROPOSED EQUIPMENT
JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
14.	DISSOLVED OXYGEN METER (Lab. Model			Dissolved oxygen meter with probe designed for direct measurement of dissolved oxygen in BOD bottles with temperature compensation and temperature measurement. May be mains or battery operated. If battery operated it should be provided with rechargeable batteries and recharge pack (110/220 V Hz 50/60).	1
15.	Conductivity Meter			Capable of giving reading directly in S or mS over the ranges 0.1 S to 20 mS, with temperature measurement and temperature compensation mains or battery operated. If battery operated should be provided with rechargeable batteries and recharge pack for 110/220 V 50/60 Hz operation.	
16.	Turbidity Meter			Nephelometer type turbidity meter calibrated to read as p.p.m. silicon with charts for direct reading in the ranges covering 0 - 100 ppm.	

PROPOSED EQUIPMENT
JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
17.	Laboratory Glassware				1
18.	Sparatory Funnel				1
19.	Reflux COD			Cap. 250 ml	6
20.	Destruction flask for Nitrogen Kjeldahl			Cap. 200 ml	12
21.	BOD bottle			300 ml Wheaton	200
22.	Erlenmeyer Flask			Cap. 100 ml	50
23.	Erlenmeyer Flask			Cap. 250 ml	50
24.	Reagent bottle (brown)			Cap. 1 liter	60
25.	Reagent Bottle (white)			Cap. 1 liter	24
26.	Reagent Bottle (brown)			Cap. 500 ml	60
27.	Reagent bottle (white)			Cap. 500 ml	24
28.	Reagent bottle (brown)			Cap. 250 ml	60
29.	Reagent bottle (white)			Cap. 250 ml	60
30.	Reagent bottle (brown)			Cap. 100 ml	60

PROPOSED EQUIPMENT
JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
31.	Reagent bottle (white)			Cap. 100 ml	60
32.	Brown Burette			Cap. 25 ml + statip + clamp buret	50
33.	Brown Burette			Cap. 50 ml+statip+double clamp buret	50
34.	Miscellaneous Lab. Equipment				
35.	Clamp			Stainless steel	1
36.	Platinum Cup			10 cm diameter	1
37.	Rack for Labu Ukur			Cap. 100 buah	2
38.	Rack for Pipet ukur			Plastik/teflon	4
39.	Rack for Erlenmeyer			Plastik/teflon	4
40.	Rack			Wood/plastik	4
41.	Aquadest bottle			Cap. 20 liter, plastik/teflon	5
42.	Spraying bottle			Cap. 500 ml, plastik	
43.	Buret Brushes			Fisher cat no. 03-614 pack of 12/2500	
44.	Pipet Brushes (for transfer pipes)			Code J (Fisher) cat 03 - 625	10
45.	Nylon Bristle Middle Section			K (Fisher) cat 03-630	5
46.	Round bottom Flask Brushes			Brush Adapts to Container	5
47.	Nesselar Tube Brushes			Flexible handle Brush for volumetric	1
48.	Dust Brushes			Cat no. 03 - 522	

PROPOSED EQUIPMENT
JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
49.	Vehicles			Fourwheel drive vehicle of long wheel base "Land Rover" type, with diesel engine.	4
50.	Boat			Four man heavy duty inflatable dingey with solid base and transom, with medium power outboard motor and fuel tank. Provided with necessary spares and repair kits.	2
51.	Computers			IBM compatible computer unit, XT comprising : Central processing : 8088, 4.77/10MHz Clock Speed 20-bit addressing and 8-bit data path 8-level interrupts 4-Channel Direct Memory access (DMA) Expansion slots : Eight BIOS : Licenced BIOS Power supply : 155 Watts Real-time clock/Calendar (RTC) : included Storage memory onboard : 640KB (Standard) Floppy disk drive (FDD) : 2 x 360KB Hard disk drive (HDD) : 80MB Display : VGA Communications : Parallel Serial Keyboard : 101 keys Printer : Epson LQ 2000 or equivalent.	4

PROPOSED EQUIPMENT
JICA's Project-Type Technical Cooperation
Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
52.	Work shop (Piping)			Teodolit Water Pas leveling Current Meter Acoustic Rod (1,5 m & 1,0 m) Flow Meter (Type Pilot) Pressure gauge (complete with Graphic or bar-chart) Press Pipa Tembaga (untuk menyambung)	2 1 2 4 1 1 1
53	Maintenance			Hantagerepe (Precision Lathe) Compases, measure Accu Charger Accu Tester Cutter Robber Joint Jig Saw Hol Saw Terminal Compressor (Press Cable Schon)	1 1 1 1 1 1 1 1
54.	Mechanical & Electrical			Electrical motor 3 phase Electrical motor 1 phase Water Pump non Submersible Water Pump Submer Sible Water Pump Deep Well Generator + Panel 40 Kva Butter flay Valve Acuatur Valve (dg motor) Acuatur Valve (tanpa motor) Pressure Regulating Valve (membran system) Alat Praga Electrical Panel (A & Y Stater (Demonstration equipmen for Electrical Panel	2 2 2 2 2 1 2 2 2 1 5

PROPOSED EQUIPMENT
 JICA's Project-Type Technical Cooperation
 Water Supply and Environmental Sanitation Training Centre

No.	Equipment/Instrument	Manufacturer	Type	Specifications	Q'ty
55.	Work Shop Treatment Plant			Unit Chlorinator System Merger (1000) V	1 2

ADVANCED COURSES.

Water Supply

Water Quality	1. Physio-Chemical analysis
	2. Bacteriological Analysis
	3. Heavy Metals Analysis
	4. Micro Organic Substances Anal.
Water Treatment	5. Water Treatment Technology
	6. Water Parameters Technology
Elec/Mech Technology	7. Electrical Technology
	8. Mechanical Technology
Distribution Hydraulics	9. Pipe Laying technology
	10. Leakage Control Technology
	11. Water meter Testing Technology
	12. Design/Distribution system.

Sanitation

Solid Waste	13. Sanitary Landfill Technology
	14. Collection & Transportation Management
Waste Water	15. Night Soil Disposal

1. Water Supply

a. Technical Course on Water Quality Analysis

Course on Physio-chemical Analysis

Description : Specialized knowledge and technology on physio-chemical analysis of raw water, treated water, and hydrant water.

Methods : Lecture plus audio-visual, computer training, laboratory training, practical outdoor training.

Trainees : Engineers and technicians concerned with physio-chemical water analysis attached to water treatment or water quality testing sections of water enterprises across the country.

Course on Bacteriological Analysis

Description : Specialized knowledge and technology on Bacteriological parameter testing of raw water treated and hydrant water.

Methods : Lecture plus audio-visual, computer training, laboratory training, practical outdoor training.

Trainees : Engineers and technicians concerned with water testing for bacteria attached to water treatment or water quality testing sections of water enterprises across the country.

Course on Heavy Metal Analysis

Description : Specialized knowledge and technology on conducting analysis for heavy metals in raw water, water treated and hydrant water.

Methods : Lecture plus audio-visual, computer training, laboratory training, practical outdoor training.

Trainees : Engineers and technicians involved with heavy metal analysis for water attached to water treatment or water quality testing sections of water enterprises across the country.

Course on Heavy Metal Analysis

- Discription : Specialized knowledge and technology on conducting analysis for heavy metals in raw water, water treated and hydrant water.
- Methods : Lecture plus audio-visual, computer training, laboratory training, practical outdoor training.
- Trainees : Engineers and technicians involved with heavy metal analysis for water attached to water treatment or water quality testing sections of water enterprises throughout the country.

Course on Micro-organic Substance Analysis

- Discription : Specialized knowledge and technology on concerning analysis of micro organic substances in raw water treated water and hydrant water.
- Methods : Lecture plus audio-visual, computer training, laboratory training, practical outdoor training.
- Trainees : Engineers and technicians involved in daily testing of water for organic substances attached to water quality testing sections of water enterprises accross the country.

b. Technical Courses on Water Treatment

Course on Water Treatment Technology

- Discription : Specialized knowledge and technology for water treatment.
- Methods : Lecture plus audio-visual, laboratory training, practical training at the water treatment workshop, outdoor training.
- Trainees : Engineers and technicians concerned with water quality control at water enterprises and certain operators concerned with the operation of water treatment plants around the country.

Course on Water Parameter Technology

- Discription : Specialized knowledge and technology regarding water treatment parameters required for the operation of water treatment plants.
- Methods : Lecture plus audio-visual, laboratory training, practical training at the water treatment workshop, outdoor training.

Trainees : Engineers and technicians concerned with water quality control at water enterprises and certain operators concerned with the operation of water treatment plants around the country.

c. Technical Course on Electrical and Mechanical Technology

Electrical Facility Course

Description : Specialized knowledge and technology on electrical installations of water supply systems.

Methods : Practical training at the electro-mechanical and pump workshop, outdoor training.

Trainees : Electrical engineers concerned with the operation and maintenance of electrical/mechanical facilities at water enterprises throughout the country and electricians who have completed the skill development course.

Mechanical Facility Course

Description : Specialized knowledge and technology on mechanical facilities in water supply networks.

Methods : Practical training at the electro-mechanical and pump workshops, outdoor training.

Trainees : Mechanical engineers concerned with the operation and maintenance of electrical/mechanical facilities at water enterprises throughout the country and electricians who have completed the skill development course.

d. Technical Course in Distribution Technology and Hydraulics

Course in Pipelaying Technology

Description : Specialized knowledge and technology for pipelaying of water transmission, distribution, and supply systems.

Methods : Practical training at the piping workshop and outdoor training.

Trainees : Engineers involved in construction work on piping networks and pipelayers who have completed the skill development course.

Course on Leakage Technology

- Description : Specialized knowledge and technology concerning leakage detection and prevention.
- Methods : Practical training at the pump workshop, piping workshop, outdoor training in the leakage yard.
- Trainees : Engineers responsible for leakage control in water enterprises throughout the country; other technicians who have completed the skill development course for leakage control.

Course on Water Testing Technology

- Description : Specialized knowledge and training in the area of water meters.
- Methods : Lectures plus audio-visual, practical training in the electrical, mechanical, and pump workshop, outdoor training.
- Trainees : Engineers and technicians attached to maintenance or distribution sections in water enterprises across the country.

Course in Design/Distribution Systems.

- Description : Specialized knowledge and technology in the planning and design of systems and facilities for water distribution.
- Methods : Lectures plus exercises, computer training, outdoor training.
- Trainees : Engineers and technicians involved in the planning and design of water supply facilities at water enterprises throughout the country.

2. Environmental Sanitation.

a. Technical Courses on Solid Waste

Course on Sanitary Landfill Technology

- Description : Specialized knowledge and technology on sanitary landfill for solid waste
- Method : Lectures, workshop training, analytical training, outdoor training

Trainees : Engineers and technicians concerned with sanitary landfill for solid waste in local governments throughout the country.

Course on Collection and Transport Management

Description : Specialized knowledge and technology concerning operations planning for the collection and transport of solid waste.

Method : Lectures, audio visual, exercises, outdoor training

Trainees : Engineers and technicians concerned with the collection and transport of solid waste at local governments around the country.

b. Course on Night Soil Disposal

Description : Specialized knowledge and technology regarding the collection, transport, and treatment of night soil.

Method : Lectures, workshop training, analytical training, outdoor training

Trainees : Technicians involved in night soil treatment operations in local government.

Table Training load of general courses on water supply

No	Course for	Size of Class	Duration (week)	Frequency (time)	Total Number of Trainees	Training Load (man* week)
1	General Manager	20	2	1	20	40
2	General Manager(advance)	19	2	2	38	76
3	Director	20	2	2	40	80
4	Technical Director(advance)	28	2	1	28	56
5	Administrative Director	24 or 25	2	2	49	98
6	Bookkeeping Section	25	2	1	25	50
7	Production Section	23	2	1	23	46
8	Trans./Distrib. Section	16	2	1	16	32
9	Planning/Supervision	25	2	2	50	100
10	Workshop/Maintenance	20	2	1	20	40
11	General Adm. Section	18	1	1	18	18
12	Customer Relation	26	1	1	26	26
13	Head of Unit BPAM/PDAM	19 or 20	2	2	39	78
14	Part time Instructor					
15	Full time Instructor					
16	Training Officer	20	1	1	20	20
17	Electrical & Mechanical	10	2	6	60	120
18	Pipe Laying	10	2	2	20	40
19	Unaccounted Water	10	2	5	50	100
Total				32	542	1020

Table Annual Training Programme of advanced courses on water supply

No	Course for	Size of Class	Duration (week)	Frequency (time)	Total Number of Trainees	Training Load (man* week)
1	Water	10	4	2	20	80
2	Quality	10	4	2	20	80
3	Analysis	10	4	1	10	40
4		10	8	1	10	80
5	Water	10	8	2	20	160
6	Treatment	10	4	2	20	80
7	Electrical	10	2	4	40	80
8	Mechanical	10	2	4	40	80
9		10	2	8	80	160
10	Distribution	10	4	3	30	120
11	Hydraulics	10	2	2	20	40
12	Design/Distribn. System	10	3	3	30	90
Total				34	340	1090

Table Annual Training Programme of the Courses on environmental sanitation

Course for	Size of Class	Duration (week)	Frequency (time)	Total Number of Trainees	Training Load (man* week)
I. General Course					
Freshman	20	1	4	80	80
Solid Waste Supervisory Manager	20	2	3	60	120
Planner	20	3	1	20	60
Human Freshman	20	1	5	100	100
Wastewater Supervisory Manager	20	2	4	80	160
Planner	20	3	2	40	120
Training Motivator	30	2	5	150	300
II. Advanced Course					
Sanitary Landfill Operation	10	3	2	20	60
Collection and Transportation	10	3	4	40	120
Night Soil Treatment	10	3	2	20	60
Total			32	610	1180

Table Summary of the magnitude of the planned training activities

Training Course	Number of Training Courses	Course * Time	Total Number of Trainees	Training Load (man* week)
<hr/>				
I. Water Supply				
1. General Course	17	32	542	1,020
2. Advanced Course	12	34	340	1,090
Sub-Total	29	66	882	2,110
	=====	=====	=====	=====
<hr/>				
II. Environmental Sanitation				
1. General Course	7	24	530	940
2. Advanced Course	3	8	80	240
Sub-Total	10	32	610	1,180
	=====	=====	=====	=====
<hr/>				
Total	39	98	1,512	3,290
	=====	=====	=====	=====
<hr/>				

CURRICULUM VITAE

- (1) Full name : Nasroen D.W.
- (2) Sex : Male (3) Nationality : Indonesia
- (4) Birth date : Semarang, 10-5-1936 (5) Marital Status : Married
- (6) Present mailing address : Jalan PAM Baru Raya No.1, Pejompongan Jak-Pus.
Tel. No.:
- (7) Institution or organization and its address (and cable address,
if any) : Directorate of Water Supply, DGHIS, MPW
Cable: Telex : 47149 DIT AB 1A Tel.No.: 713093
- (8) Position in the institution or organization : Electrical/Mechanical
Expert.
- (9) Education (primary, secondary, HSC level) :

Name and location of institution	Year	Certificate obtain
Primary School	6	
Junior High School	3	
Senior High School	3	

Education (university level) :

Name and location of institution	Major field of study	from		to		degree or qualification obtained
		month	year	month	year	

(10) Employment :

Name and location of employer	from		to		occupation position
	month	year	month	year	
Ir. Tri Harsono, MSc Jl. PAM Baru II No.3 Jakarta Pusat.	Jan	1979	Jan	1990	

(11) Knowledge of languages :

Language (mother tongue first)	level of knowledge		
	excellent	good	fair
English			v
Franch			v

CURRICULUM VITAE

- (1) Full name : Kustian S. BE.
- (2) Sex : Male (3) Nationality : Indonesia
- (4) Birth date : 30 - 11 - 1947 (5) Marital Status : Married
- (6) Present mailing address : Kompleks PU Pasar Jum'at Rt.008/010 Jak-Sel.
Tel. No.:
- (7) Institution or organization and its address (and cable address,
if any) : Directorate of Water Supply
Cable: Telex : 47149 DIT AB 1A Tel.No.: 713093
- (8) Position in the institution or organization : Tech.Coordinator
- (9) Education (primary, secondary, IISC level) :

Name and location of institution	Year	Certificate obtain
Primary School	1959	
Junior High School	1962	
Senior High School	1965	
Academy of Public Works	1970	

Education (university level) :

Name and location of institution	Major field of study	from		to		degree or qualification obtained
		month	year	month	year	
Academy of Public Works	Mechanical Eng.					

(10) Employment :

Name and location of employer	from		to		occupation position
	month	year	month	year	
Ir. Tri Harsono, MSc Jl. PAM Baru II No.3 Jakarta Pusat.	Jan	1974	Jan	1990	

(11) Knowledge of languages :

Language (mother tongue first)	level of knowledge		
	excellent	good	fair
English		V	

CURRICULUM VITAE

- (1) Full name : Harun Umar, BE.
- (2) Sex : Male (3) Nationality : Indonesia
- (4) Birth date : 02 - 07 - 1942 (5) Marital Status : Married
- (6) Present mailing address : Jalan Muara No.5 Tanjung Darat Ps. Minggu
Tel. No.:
- (7) Institution or organization and its address (and cable address,
if any) : Directorate of Water Supply, DJCK.
- Cable: Telex : 47149 DIT AB 1A Tel.No.: 713093
- (8) Position in the institution or organization : Tech. Coordinator
- (9) Education (primary, secondary, HSC level) :

Name and location of institution	Year	Certificate obtain
Primary School	1957	
High School	1963	
Senior High School	1966	

Education (university level) :

Name and location of institution	Major field of study	from		to		degree or qualification obtained
		month	year	month	year	
Academy of Public Works	Elect. Eng.	Jan	1966	Jan	1970	BE.

(10) Employment :

Name and location of employer	from		to		occupation position
	month	year	month	year	
Ir. Tri Harsono, MSc Jl. PAM Baru II No.3 Jakarta Pusat.	Jan	1966	August		

(11) Knowledge of languages :

Language (mother tongue first)	level of knowledge		
	excellent	good	fair
English		V	
Japanese			V

CURRICULUM VITAE

- (1) Full name : Mochamat Soleh, BE.
- (2) Sex : Male (3) Nationality : Indonesia
- (4) Birth date : Mei 20, 1946 (5) Marital Status : Married
- (6) Present mailing address : Jalan PAM Baru Raya No.2, Pejompongan Jak-Pus.
Tel. No.:
- (7) Institution or organization and its address (and cable address,
if any) : Directorate of Water Supply
Jakarta Selatan.
Cable: Telex : 47149 DIT AB 1A Tel.No.: 713093
- (8) Position in the institution or organization : Electrical/Mechanical
Expert.
- (9) Education (primary, secondary, IISC level) :

Name and location of institution	Year	Certificate obtain
Primary School	6	
High School	3	
Senior High School	3	

Education (university level) :

Name and location of institution	Major field of study	from		to		degree or qualification obtained
		month	year	month	year	
Academy of Public Works	San. Eng.	Juli	1983	Des	1986	BE.

(10) Employment :

Name and location of employer	from		to		occupation position
	month	year	month	year	
Ir. Tri Harsono, MSc Jl. PAM Baru II No.3 Jakarta Pusat.	Jan	1979	Jan	1990	

(11) Knowledge of languages :

Language (mother tongue first)	level of knowledge		
	excellent	good	fair
English		V	

CURRICULUM VITAE

- (1) Full name : Dedy Surdiat, BSc.
- (2) Sex : Male (3) Nationality : Indonesia
- (4) Birth dae : 1 January 1953 (5) Marital Status : Married
- (6) Present mailing address : Jalan Haryono I F/AT
Tel. No.:
- (7) Institution or organization and its address (and cable address,
if any) : Directorate of Water Supply
Jakarta Selatan.
Cable: Telex : 47149 DIT AB 1A Tel.No.: 713093
- (8) Position in the institution or organization : Water Treatment Expert
- (9) Education (primary, acoondary, HSC level) :

Name and location of institution	Year	Certificate obtain

Education (university level) :

Name and location of institution	Major field of study	from		to		degree or qualification obtained
		month	year	month	year	
Academy of Chemistry	Cham.Analist					B.Sc

(10) Employment :

Name and location of employer	from		to		occupation position
	month	year	month	year	
Ir. Tri Harsono, MSc Jl. PAM Baru II No.3 Jakarta Pusat.	Jan	1988	Jan	1990	

(11) Knowledge of languages :

Language (mother tongue first)	level of knowledge		
	excellent	good	fair
English		v	

CURRICULUM VITAE

- (1) Full name : Susanto Sijoatmodjo.
- (2) Sex : Male (3) Nationality : Indonesia
- (4) Birth date : 1 January 1953 (5) Marital Status : Married
- (6) Present mailing address : Jalan Penjernihan I/19 D Pejompongan Jak-Pus.
Tel. No.:
- (7) Institution or organization and its address (and cable address,
if any) : Directorate of water Supply Jl. R.Patah I/1, 8 floor Keb-baru
Jakarta Selatan.
Cable: Telex : 47149 DTP 1A Tel.No.: 713093
- (8) Position in the institution or organization : Project Manager
- (9) Education (primary, secondary, HSC level) :

Name and location of institution	Year	Certificate obtain
Elementary School, Malang	6	1965
Secondary School, Malang	3	1968
Senior Secondary School, Malang	3	1971

Education (university level) :

Name and location of institution	Major field of study	from		to		degree or qualification obtained
		month	year	month	year	
Brawijaya Univ. Malang	Civil Engineering	-	1972	March	1978	Engineer
IHE, Delft	Sanitary Engineering	Sept	1988	Sept	1989	Diploma Sanitary Engineering

(10) Employment :

Name and location of employer	from		to		occupation position
	month	year	month	year	
Directorate of Sanitary Engineering Jakarta	Oct	1978	Dec	1980	Staff
Balikpapan Water Supply Project	Jan	1981	Oct	1989	Sub Project Manager
Rural Water Supply Project, JKT	Nov	1989	Apr	1990	Assistant Manager
Directorate of Water Supply, JKT	Apr	1990			Project Manager

(11) Knowledge of languages :

Language (mother tongue first)	level of knowledge		
	excellent	good	fair
Indonesia	Excellent	good.	

CURRICULUM VITAE

- (1) Full name : Ir. Ida Dhaliawati Dipl.SE.
- (2) Sex : Female (3) Nationality : Indonesia
- (4) Birth date : 2 August 1946 (5) Marital Status : Married
- (6) Present mailing address : Jl.Wisjaya No.2 Rawamangun Jakarta
Tel.No.: 4892158.
- (7) Institution or organization and its address (and cable address,
if any) : The Water Supply and Env. Sanitation Training Centre
Jakarta Selatan.
Cable: Telex : Tel.No.:
- (8) Position in the institution or organization : Chief of the Laboratory
- (9) Education (primary, secondary, IISC level) :

Name and location of institution	Year	Certificate obtain
1. SDN 3 Subang Jawa Barat	1959	v
2. SMP N I Subang - Jawa Barat	1962	v
3. SMA N V Jakarta	1965	v

Education (university level) :

Name and location of institution	Major field of study	from		to		degree or qualification obtained
		month	year	month	year	
Academic of Textile	Textile Chemistry		1965		1969	
Muhammaddiyah Univ	Chemical Engineering		1974		1984	Engineer
IHE-Netherland	Sanitary Engineering	Okt	1988	Sept	1989	Diploma

(10) Employment :

Name and location of employer	from		to		occupation position
	month	year	month	year	
Lab of Sanitary Engineering Directorate of Water Supply	April	1974		Now	Staff
TC - Bekasi		1990		Now	Chief of Laboratory

(11) Knowledge of languages :

Language (mother tongue first)	level of knowledge		
	excellent	good	fair
Indonesia		V	
English			V

CURRICULUM VITAE

- (1) Full name : Ir. Darlis Darwis
- (2) Sex : Male (3) Nationality : Indonesia
- (4) Birth date : Sept, 19, 1950 (5) Marital Status : Married
- (6) Present mailing address : KB. Pala II/33, T. Abang Jakarta - 10230
Tel. No.: 336421.
- (7) Institution or organization and its address (and cable address, if any) : Training Center for Water Supply & Sanitation
- Cable: Telex : Tel. No.:
- (8) Position in the institution or organization : Chief of Workshop of Water Supply
- (9) Education (primary, secondary, HSC level) :

Name and location of institution	Year	Certificate obtain
1. SD Mexico Jakarta	1964	v
2. SMP N II Jakarta	1967	v
3. SMA N III Jakarta	1970	v

Education (university level) :

Name and location of institution	Major field of study	from month	from year	to month	to year	degree or qualification obtained
ITB, Bandung	Sanitary Chemistry	March	1971	March	1979	Engineer
IHS, Rotterdam	IUDM	August	1987	Des	1987	Certifikate

(10) Employment :

Name and location of employer	from		to		occupation position
	month	year	month	year	
Dit.of Sanitary Engineering Jkt	April	1980	Jan	1981	Staff
WIO/UNDP/DEPKES/NTT	April	1981	Des	1982	Expert
Dit. of S.E Jakarta	Jan	1983	Feb	1984	Staff
WIO/UNDP/DEPKES/SUL-SIL.	Mar	1984	Des	1984	National Project Coordinator
Water Supply Project PU	Jan	1985	Mar	1989	Ass.Manager
Dit. of SE Jakarta	April	1989	Mar	1990	Staff
Training Center for WS & S	April	1990	-	-	Chief of Work Shop

(11) Knowledge of languages :

Language (mother tongue first)	level of knowledge		
	excellent	good	fair
Indonesia	V		
English		V	

CURRICULUM VITAE

- (1) Full name : Krnapura BE.
- (2) Sex : Male (3) Nationality : Indonesia
- (4) Birth dae : 6 Desember 1956 (5) Marital Status : Married
- (6) Present mailing address : Jl.Karet Raya Blok 8 No.73 Perumnas Karawaci
Tangerang Tel.No.:
- (7) Institution or organization and its address (and cable address,
if any) : Directorate of water Supply Jl. R.Patah I/1, 8 floor Keb-baru
Jakarta Selatan.
Cable: Telex : 47149 DTP 1A Tel.No.: 713093
- (8) Position in the institution or organization : Technical Operation
Section Water Supply
Expert.
- (9) Education (primary, accondary, HSC level) :

Name and location of institution	Year	Certificate obtain
Primary School,	1969	SD
Secondary School,	1972	SMP
Technical High School	1975	STM

Education (university level) :

Name and location of institution	Major field of study	from		to		degree or qualification obtained
		month	year	month	year	
Sanitary Engineer	Water Supply	July	1986	Decemb	1989	BE.

(10) Employment :

Name and location of employer	from		to		occupation position
	month	year	month	year	
Directorate of Water Supply		1980		1990	

(11) Knowledge of languages :

Language (mother tongue first)	level of knowledge		
	excellent	good	fair
English		good	

