DIRECTORATE OF WATER SUPPLY
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DIRECTORATE GENERAL
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MINISTRY OF FOREIGN AFFAIRS
KINGDOM OF THE NETHERLANDS

MDP PRODUCTION TEAM

TRAINING MATERIALS FOR WATER ENTERPRISES

VOLUME 1

- GUIDE FOR USERS OF TRAINING MATERIALS
- TRAINING MODULES
  - GENERAL
  - ORGANISATIONAL
    - Basic knowledge / skills
    - Processes/procedures
    - Equipment/materials
  - TECHNICAL
    - Basic knowledge/skills
    - Processes/procedures
      - withdrawal
      - treatment
      - distribution
      - consumption
    - Equipment/materials
- TAPE / SLIDE PROGRAMMES

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TRAINING MATERIALS FOR WATER ENTERPRISES

VOLUME 1
GUIDE FOR USERS OF TRAINING MATERIALS

DHV CONSULTING ENGINEERS
IWACO B.V.
T.G. INTERNATIONAL

JAKARTA
APRIL 1985

P R E F A C E

This volume is part of the Final Report of the MDP Production Team which produced Training Materials for Water Enterprises as part of a project under the bilateral cooperation programme between the Government of the Republic of Indonesia and the Government of the Kingdom of the Netherlands.

This Final Report contains the following volumes:

Volume 1	Guide for users of training materials	
Volume 2A	Training Modules,	GENERAL + ORGANIZATIONAL (basic knowledge/skills)
Volume 2B	Training Modules,	GENERAL + ORGANIZATIONAL (basic knowledge/skills)
Volume 3	Training Modules,	ORGANIZATIONAL (processes/procedures; equipment/materials)
Volume 4	Training Modules,	TECHNICAL (basic knowledge/skills)
Volume 5A	Training Modules,	TECHNICAL (processes/procedures)
Volume 5B	Training Modules,	TECHNICAL (processes/procedures)
Volume 6A	Training Modules,	TECHNICAL (Withdrawal + Treatment)
Volume 6B	Training Modules,	TECHNICAL (Withdrawal + Treatment)
Volume 7	Training Modules,	TECHNICAL (Distribution + Consumption)
Volume 8	Training Modules,	TECHNICAL (equipment/materials)
Volume 9	Tape/slide programmes	

GUIDE FOR USERS OF TRAINING MATERIALS

The available training materials have been developed and arranged in the form of training modules and tape/slide presentations. These training materials are explained and described in the following sections:

PART I TRAINING MODULES

PART II TAPE/SLIDE PRESENTATIONS

PART I TRAINING MODULES

Table of contents

The appendices are:

1. INTRODUCTION

This guide for users of training modules, especially for those involved in training staff of water enterprises, forms the key to the 105 training modules that have been produced by the MDPP Project.

It answers questions such as:
- what is a training module;
- who can be trained with these modules;
- where can we find the module we need.

The large quantity of training modules available can pose several handling problems. In dealing with large amounts of material always the problem crops up: where can we find what we need? We expect that this problem will be solved once you have read this guide.

The guide contains five chapters and eight appendices.

In chapter 2 we first explain what a training module is in terms of concept, format, layout, and purpose. Moreover, we describe the different sections of each training module: the information sheet, the session notes, the training aids and the handout.

In chapter 3 we describe for which jobtitles in the water enterprise training materials have been developed. It will be clear, that training materials developed for training of employees with one jobtitle, may also be used for training of employees with other jobtitles. However, that is the responsibility of the trainer, or of the training course designer. In a few cases, training materials have been developed, that are intended for all jobtitles. Everybody may be trained in that, including people from outside the water enterprise.

In chapter 4 we first explain in what way the different training modules are grouped together. We have done this systematically according to the different subjects that are of relevance to a water enterprise. A major division is the distinction between General training modules, Organization/Management training modules, and Technical training modules. And within this major division a further division is made according to:
(i) basic knowledge/skills;
(ii) working methods, or procedures and processes, and
(iii) equipment and materials required.

Although complicated at first view, the table presented makes very clear how the division is made. And after that we present a complete list of the available training modules, grouped to the above system.

In chapter 5 we give a description of the different kinds of Manuals that are available. Not all manuals contain training modules. For example the manual you are now reading, is an introductory manual, not a training manual.

In the Appendices, 8 in total, we give more detailed information about jobtitles in water enterprises, the module format, the coding system, available training modules, keywords in relation to the training modules, some statistics on available modules per jobtitle, and a matrix on training modules versus key jobtitles.

* * *

We do hope, that you make extensive use of the training materials. However, the training materials by themselves are not THE solution to all problems you may incur during training sessions. Training modules are just one - though important - means you need. Training may also involve field visits, practical demonstrations, etc. Besides, the training modules do not affect the responsibility of the trainer. He or she remains ultimately responsible for the quality of the training delivered. For example, the pump that is used during a training session, does not decide the quality of the training. Instead it is the explanation, adstruction, demonstration, i.e. the training performance of the trainer who uses the pump. For the trainer the pump is a means, not an end. The same holds for the training modules!

2. WHAT IS A TRAINING MODULE?

A training module is a standardized unit of training material that may be used by a trainer during one or more training sessions. If a course has a duration of, for example, 2 working days, the course will probably cover a number of subjects. And each subject may be discussed in a couple of sessions. The material required for a particular subject is contained in a module. And since a session basically lasts for 45 minutes, the training modules have been so designed, that they normally cover 45 minutes of training. In some cases they require 90 or 135 minutes. This is indicated on the first page of the module.

So the modules developed by MDPP contain the information the trainer may use during training preparation, programming, or even design. However, in the first instance they are intended for use during the training sessions. For that purpose they contain instructions for the presentation of the training module, and the training aids to support the presentation.

What is included in a training module?

A training module consists of 4 sections and 1 annex, each printed on differently coloured paper. The sections are:

- Section 1 : INFORMATION SHEET

  The information sheet (on blue paper) provides you with relevant specifications of the training module. It gives:
  . the title;
  . the code;
  . the edition date or date of latest revision;
  . the number of pages;
  . the duration;
  . the objectives of the training module;
  . the jobtitles for which it is written;
  . the training aids that can be used;
  . the special features of the module;
  . the keywords of the module.

The information sheet specifies a number of keywords for the subjects discussed in the module. The index of all keywords is given in Appendix 1, providing for a quick reference to all modules discussing a particular topic.

- Section 2 : SESSION NOTES

  The session notes (on pink paper) contain the topics to be discussed during a training session. The paper is divided in a left-hand and in a right-hand column. The left-hand column indicates what the trainer has to say, and the right-hand column what the trainer has to do, e.g. show viewfoil, or show photo or wall chart, or give exercise, or demonstrate model.

So the session notes outline the session. A well-trained trainer will study this section thoroughly during the preparation of the session and use it during the training sessions to check whether he has discussed all subjects or topics.

- Section 3 : TRAINING AIDS

  During the training sessions a large variety of training aids can be used. They are normally mentioned in the right-hand column of section 2 but a creative trainer may introduce additional training aids. Training aids mentioned in Section 2 are usually reproduced in a reduced version in Section 3, and printed (on yellow paper) in such a way, that you obtain an idea of the material to be used during the session and evaluate whether it serves your purpose.

  The training aids can be e.g.:
  . equipment;
  . exercises;
  . handouts;
  . models;
  . photos and wall charts;
  . reference materials;
  . tape/slide presentations;
  . viewfoils.

- Section 4 : HANDOUT

  The handout (on white paper) is the text the trainer may use during the training session. And it is also the text the trainees will be given for further study and reference after the training session. Where appropriate the relevant tables, drawings, etc. discussed during the training session are included in the handout.

- Annex : VIEWFOILS

  The annex on viewfoils (on green paper) presents a listing of all viewfoils available for the presentation of the module and is followed by reproductions (on white paper) of the viewfoil originals. These reproductions can be used to prepare new viewfoils.

For a more detailed description of a training module reference is made to Appendix 2 to this guide.

3. WHO CAN BE TRAINED WITH MDPP-TRAINING MODULES?

Relevance of trainee selection

To decide on the persons to be trained, also means to decide on the complexity, level, etc. of the training materials to be used. A director requires a different training in planning, than a bookkeeper. On the other hand, the bookkeeper needs much more training in bookkeeping than a manager.

To decide on the persons to be trained, also means to decide on the subjects for which material needs to be developed. The tasks and responsibilities of a meter tester are quite different from those of a pipelayer. The knowledge and skills required differ considerably in this case.

So the subject, the level, the complexity, etc. of training materials, and also the appropriate training methods are influenced by the selection of persons to be trained.

How are target groups identified

The persons to be trained have been identified in previous and recent studies on training needs for staff of water enterprises in Indonesia. The jobs, tasks, duties and responsibilities, of these employees have been analyzed. And on the basis of these analyses, course designs and training materials have been developed.

Does the training material solve individual training needs?

Training material of the kind contained in the manuals is of course never completely meant to solve individual training needs. The material is based on general information and assumptions about the performance required of employees working in a water enterprise. Of course it is also based on the actual situation in the water enterprise and on the actual laws, rules, and regulations. For example, for bookkeeping the existing procedures as described in the "Buku Pedoman Sistem Akuntansi" have been used. International and national norms and standards also play a role.

So, to make things clear: the jobtitles for which the training materials in the manuals have been compiled, are the jobtitles (and consequently the tasks and responsibilities) of the jobs to be found in a normal, medium-sized water enterprise with 2000-7500 connections.

Where do we read for whom a training module is designed?

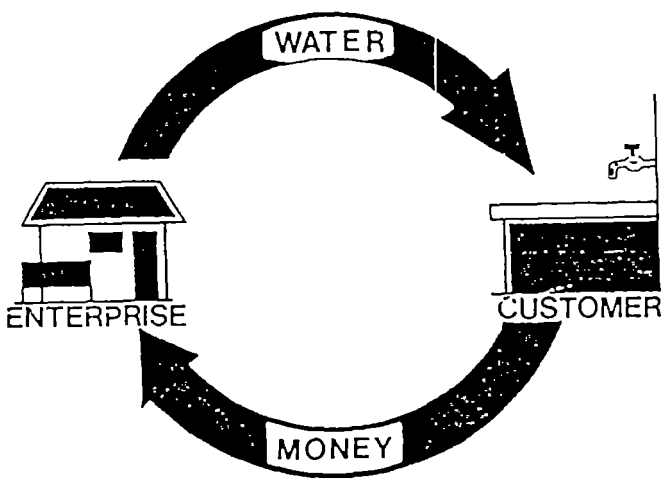
The information sheet specifies the target groups or trainee selection for which the module is written. A list of identified jobtitles in the water enterprise, complete with corresponding job codes is presented in Appendix 3 to this Guide. It could be considered to use the module for other employees too. That, however, depends on the training planner/programmer. In such cases it has to be assessed in what way the information contained in a training module has to be adapted.

4. WHICH TRAINING MODULES ARE AVAILABLE, WHICH SUBJECTS ARE COVERED BY THESE TRAINING MODULES AND WHERE CAN WE FIND THEM?

The training modules that are produced by MDPP cover a wide range of subjects. Therefore an overview of available modules is needed, so that you can easily find the module you want.

Which subjects are covered?

Water enterprise operations basically comprise two flows: a flow of water to the consumer, and a flow of money from the consumer to the water enterprise. The two flows are two entirely different flows: one flow is technical, and the other is more administrative in nature.



To produce water, water enterprise operations involve many technical aspects. Many different kinds of equipment are used. Water enterprise operations also include many systems, processes and procedures. Not only to produce water, but also to obtain money from the customer.

All these different operations are carried out by different kinds of people. These people have different jobs, and need different knowledge and skills, expertise, working methods, materials, and a different working environment.

In the office, different kinds of people work. Again, different kinds of people work at the treatment plant. The customer is visited by different kinds of water enterprise employees. Different people are needed for the construction of new networks, for the maintenance of pumps, etc. etc.

All these people have different jobs. And these different jobs are all needed by the water enterprise. If these jobs are not fulfilled adequately, the water enterprise does not produce sufficient water, or the water is not of the required quality. Or the enterprise does not obtain enough money to cover the cost of the enterprise, and goes bankrupt.

The people that fulfill these jobs are therefore a necessary, indispensable asset to the water enterprise. Without these people the enterprise would not be able to function adequately.

So, it is important that these people perform their jobs well. Regardless whether they work in the office, near the source, at the treatment, in a management position, in an operator position, in a technical position, or in administrative position. They all need:
- knowledge and skills;
- to apply this knowledge and skills in their work;
- equipment and materials to perform their work.

Employees working in the office are engaged in a number of different types of activities, such as:
- management;
- finance;
- administration;
- personnel;
- customer relations.

Employees engaged in a technical position, are also engaged in different types of activities, such as:
- survey;
- design;
- construction;
- operation;
- maintenance;
- inspection;
- research and development.

In grouping the training modules, we have taken all of the above activities into account, and made one comprehensive schedule of water enterprise operation/activities, comprising a large number of 'boxes.'

This schedule is presented below. Each module belongs in one of the boxes, and each box represents a group of subjects, or a group of modules.

G	GENERAL	GGG (3)

O	ORGANIZATIONAL	General	Management	Finance	Administration	Personnel	Consumers
	Basic knowledge/ skills	OBG (3)	OBM (15)	OBF (0)	OBA (3)	OBP (4)	OBC (1)
	Processes/ Procedures	OPG (0)	OPM (0)	OPF (11)	OPA (0)	OPP (0)	OPC (0)
	Equipment/ Materials	OEG (0)	OEM (0)	OEF (0)	OEA (1)	OEP (0)	OEC (0)

T	TECHNICAL	General	Survey	Design	Construction	Operation	Maintenance	Inspection	R & D
	Basic knowledge/ skills	TBG (8)	TBS (0)	TBD (0)	TBC (0)	TBO (0)	TBM (0)	TBI (0)	TBR (0)
	Processes/ Procedures (Gen.)	TPG (6)	TPS (0)	TPD (0)	TPC (16)	TPO (0)	TPM (0)	TPI (0)	TPR (0)
	. Withdrawal	TWG (3)	TWS (0)	TWD (0)	TWC (0)	TWO (0)	TWM (0)	TWI (0)	TWR (0)
	. Treatment	TTG (8)	TTS (0)	TTD (0)	TTC (0)	TTO (2)	TTM (1)	TTI (0)	TTR (0)
	. Distribution	TDG (1)	TDS (0)	TDD (1)	TDC (0)	TDO (7)	TDM (0)	TDI (0)	TDR (0)
	. Consumption	TCG (0)	TCS (0)	TCD (0)	TCC (3)	TCO (0)	TCM (0)	TCI (0)	TCR (0)
	Equipment/ Materials	TEG (3)	TES (0)	TED (0)	TEC (0)	TEO (4)	TEM (1)	TEI (0)	TER (0)

Where is a particular subject located in the coding system?

So now you know which subjects are treated and how they are grouped. In finding the right box, always ask yourself the following questions:

- Is it extremely General, is it Organizational, or is it Technical (is it G, O or T);
- If it is General: then other General items follow: GG;
- If it is Organizational, ask yourself:
  . is it about Basic organizational knowledge/skills, about Procedures, or about Equipment/materials (is it B, P, or E);
  . and then ask yourself: is it about Management, Administration, Finance, Personnel, or Customers (is it M, A, F, P, or C);
- If it is Technical, ask yourself:
  . is it about Basic technical/skills, or about Processes in general or about Withdrawal, Treatment, Distribution or Consumption in particular, or is it about Equipment/materials (is it B, P, W, T, D, C, or E);
  . and then ask yourself: is it about Survey, Design, Construction, Operation, Maintenance, Supervision, Inspection, or Research and development (is it S, D, C, O, M, I, or R).

In this way, you will find the box in which your subject is dealth with. A few examples of matrix-boxes:

OBM = Organisation - Basic knowledge/skills - Management

Or, in other words: the box contains modules on Basic Managerial skills needed in Organization.

OPA = Organisation - Procedures - Administration

Or, in other words: the box contains modules on Administrative Procedures in the Organization.

TTC = Technical - Treatment - Construction

Or, in other words: the box deals with modules on Technical Construction of Treatment facilities.

TEM = Technical - Equipment - Maintenance

Or, in other words: the box deals with modules on Technical Maintenance of Equipment.

All letter codes stand for a subject. However, each letter code is also followed by a number ranging from 000 to 999. And that is because most subjects can not be treated in one single module, and because many subjects can be split up in a number of sub-subjects. The 0xy numbers are reserved for introductory, general training modules; the x00 numbers are used for main groups of subjects within a particular box. And as the number becomes more specific, say 321, the training module in question will deal with a very specific item.

So 000 - main title of matrix field
0xy - very general subjects;
x00 - general;
xy0 - specific;
xyz - very specific.

The training aids are coded in the same way, so that you know to which module they belong.

For a more detailed description of the coding system reference is made to Appendix 4.

The overview of all available MDPP modules is given in Appendix 5. Please notice, that some numbers have been skipped, because in the future other modules may be made. So, the numbering is not sequential 1, 2, 3, 4, 5, but is according to the subject under review. The coding is systematic.

As mentioned earlier the search for modules which discuss a specific topic is facilitated by the index of keywords presented in Appendix 1.

5. WHICH MANUALS ARE AVAILABLE AND WHAT IS INCLUDED IN EACH MANUAL?

The MDPP training modules are grouped systematically in training documentation manuals in accordance with the developed coding system. These training documentation manuals, or **Master Manuals**, serve as a training material resource library for the training courses to be implemented.

There are different kinds of **Master Manuals**:

- Information manuals, providing general information;
- Training module manuals, containing training modules. The training module manuals are arranged according to the coding system: general, organization & management, technical;
- Training aids manuals, containing the different training aids which are to be used during the training sessions;

The MDPP **Master Manuals** include the following volumes:

- **Information manuals**

  Volume 1 Guide for users;

- **Training module manuals**

  Volume 2A General + Organizational (basic knowledge/skills);
  Volume 2B General + Organizational (basic knowledge/skills);
  Volume 3 Organizational (processes/procedures; equipment/materials);
  Volume 4 Technical (basic knowledge/skills);
  Volume 5A Technical (processes/procedures);
  Volume 5B Technical (processes/procedures);
  Volume 6A Technical (Withdrawal + Treatment);
  Volume 6B Technical (Withdrawal + Treatment);
  Volume 7 Technical (Distribution + Consumption);
  Volume 8 Technical (equipment/materials);

- **Training aids manuals**

  Volume 9 Tape/slide programmes.

This systematic set-up of Master Manuals allows for incorporation of existing training documentation, e.g. the MDP Training of Trainers Manual could be part of the Information Manuals, training aids such as photos, wallcharts, models and the like would be documented under the training aids manuals.
Use of MDPP training materials in combination with training materials from other sources (STD and in particular HRDP) will enable the compilation of specific jobtitle oriented **Training Manuals** containing all modules required for the implementation of a particular training course.

6. APPENDICES

Appendix 1. INDEX OF KEYWORDS IN MDP TRAINING MODULES

Appendix 2. DESCRIPTION OF MODULE FORMAT

In training situations trainers not only use texts, they also make use of supporting material. They use classrooms, whiteboards, flipovers, view-foils, wall charts, exercises, etc. All this material - or rather these materials - are used to support trainers in getting their messages accross.

The MDPP project has developed a number of 105 Training Modules. Each training module contains the material the trainer may use in training water enterprise staff. So a training module is a set of training material which can be used in training people in the skills and the processes and procedures required in water supply enterprises.

It has been decided that training sessions should in principle last 45 minutes. So the training modules contain the training material a trainer may use during a training session of 45 minutes. And in some cases, during 90 or 135 minutes. Each training module consists of four sections. We will discuss this below.

1. Section 1 : **Information sheet** (light blue paper)

   Each training module contains an information sheet. This sheet can be used by the trainer in preparing a training session. The sheet gives all the information the trainer needs:
   - the title of the module;
   - the module code;
   - the actuality (date);
   - the page;
   - the total number of pages;
   - the duration;
   - the training objectives;
   - the trainee selection;
   - the training aids;
   - the special features;
   - the keywords.

   Although most of these elements need no further explanation, we will shortly discuss them.

   - Module title: Full name of the module. Preferably the title already indicates the subject and the contents of the module. For example: if the title is water supply, we will not know what is in the module. This title is too general. But if the title is how to repair a submersible pump, we will know what is in the module.

   - Module code: Full code. This subject has been dealt with extensively in the chapter on coding (Chapter 4).

   - Edition: Date of production or latest revision. This is an information item, as it is expected that the module content needs to be updated in a number of cases. For example, if the

module title is: Repelita objectives for water supply, and the Edition is 30-03-1984, we will know that the module is outdated and that updating is required.

- Page: Each section has one or more pages. This is indicated in the form of page 01 of 02 pages, page 02 of 02 pages. On the information sheet also is indicated the total number of pages of the training module: 01 of 01/10 means that the module has 10 pages.

- Section: Name of the module element. There are four sections:
  1. Information sheet;
  2. Session notes;
  3. Training aids;
  4. Handout.

- Duration: Time in minutes. The training will last 45, 90, 135, etc. minutes. This item is important during training design. The designer will now how many modules he can include in his training programmes.

- Training objectives: Here are mentioned the objectives the training pursues. These objectives have to be phrased in a measurable way. The item starts with the sentence: After the session the trainees will be able to .....

- Trainee selection: Here are mentioned the jobtitles for which the module is intended. So the formulation will be: Head of Finance/Administration Department. And not: Any person with administrative responsibilities. Of course more than one jobtitle can be indicated.

- Training aids: This item includes the codes of all training aids that may be used during the training session. Since some training aids need no coding, e.g. Sand, Water, these aids will be mentioned in full. The codes used are: Full module code + first letter of training aid + sequential number. The item has been discussed in the chapter on coding.

- Special features: Here are indicated references to other modules, and all other elements that may be of interest during training design, such as the location of the training.

- Keywords: In this item the most important words of the training module are mentioned. In this way some kind of abstract of the module content is made. For example, the keywords in the module Principles of management are: Management; Planning; Directing; Organizing; Coordinating; Controlling.
  For the index on keywords see Appendix 1.

2. Section 2 : **Session notes** (pink paper)

This section contains the training outline and the media the trainer has to use during the training session. The media are coded in a simple way. Viewfoil OBM 100/V 1 will be indicated as V 1. Etc. The pages contain at the left what the trainer has to say, and at the right what the trainer should do and which media he has to use.

3. Section 3 : **Training aids** (yellow paper)

This section contains reduced copies of all training aids to be used during the training session (these aids are of course mentioned in the right column of section). The sequence of the training aids during the session decides their placement in this section. The same code is used as in the previous section.

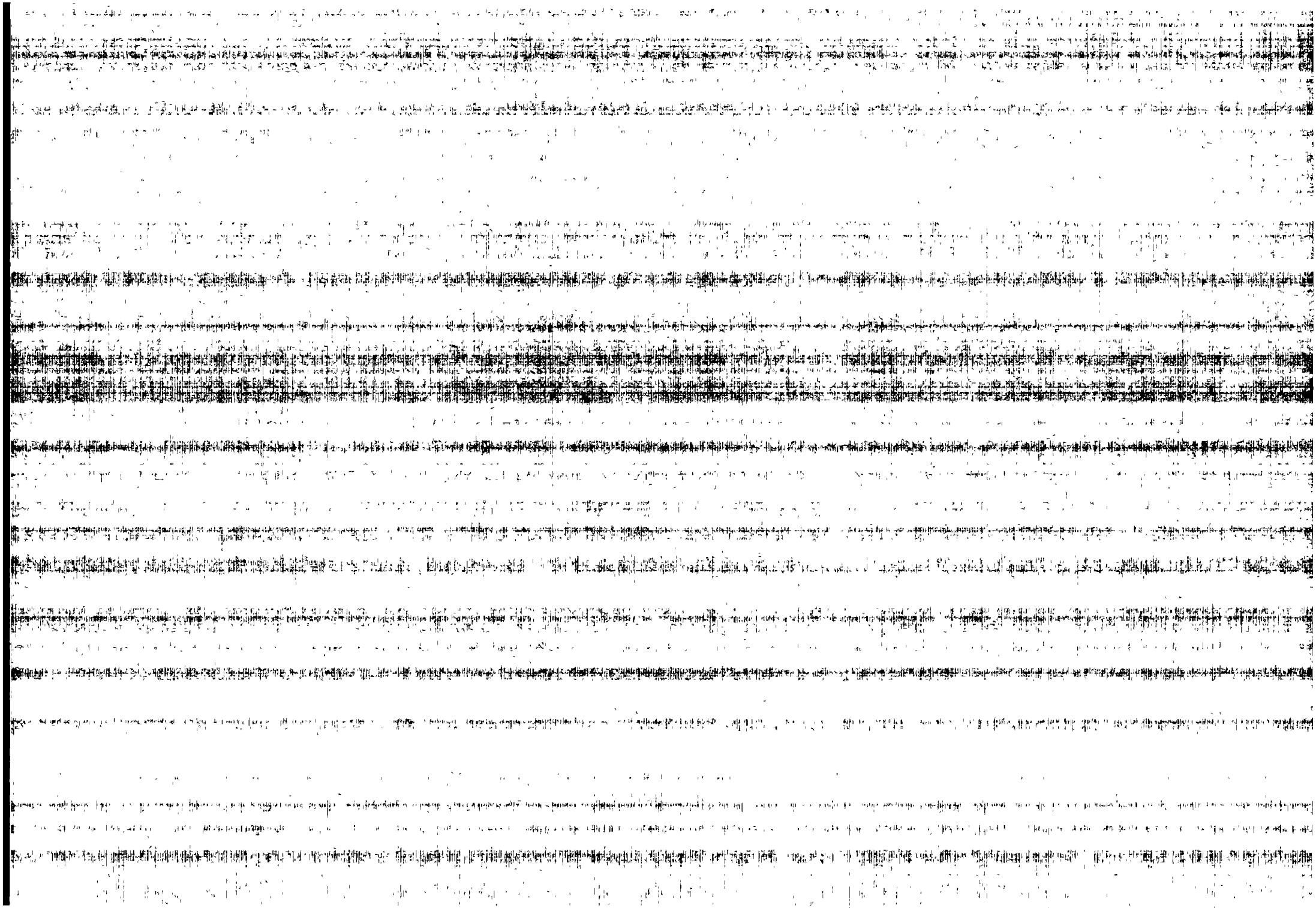
4. Section 4 : **Handout** (white paper)

In this section the complete text, including figures, drawings, and the like is reproduced. The tainer may use full text during training preparation. After the session, the full text may be handed out to the trainees for further reference.

5. Annex : **Viewfoils** (green/white paper)

The annex contains a listing (on green paper) of all viewfoils to be used during the training session, and original size reproductions (on white paper) of the viewfoils. These reproductions can be used to prepare new viewfoils. The same codes are used as in the previous section.

* * *



Appendix 3. **LIST OF JOBTITLES IN A WATER ENTERPRISE**
(2000-7500 CONNECTIONS)

	JOBCODE	JOBTITLE
I.		GENERAL MANAGEMENT
	CBS	Chairman of Board of Supervisors (Bupati/Walikota)
	MBS	Member of Board of Supervisors
	DIR	Director PDAM/Head BPAM
II.		FINANCE & ADMINISTRATION DEPARTMENT
II.a		KEY JOBTITLES
	HDF	Head of Finance & Administration Department
	HCB	Head of Section Cash & Bill Collection
	SCA	Head of Sub-section Cash
	CAS	Cashier
	SBC	Head of Sub-section Bill Collection
	MOC	Money Collector
	HBB	Head of Section Bookkeeping & Billing
	SBO	Head of Sub-section Bookkeeping
	BKE	Bookkeeper
	BAS	Bookkeeping Assistant
	SBI	Head of Sub-section Billing
	BIL	Biller
	BCL	Billing Clerk
	SFP	Head of Sub-section Financial Planning
	HAP	Head of Section General Administration & Personnel
	SAP	Head of Sub-section General Administration & Personnel
	POF	Personnel Officer
	CLE	Clerk
	SPU	Head of Sub-section Purchasing
	PUF	Purchasing Officer
	SWA	Head of Sub-section Warehousing
	WOF	Warehouse Officer
	HCR	Head of Section Consumer Relations
	SCS	Head of Sub-section Consumer Services
	CSO	Consumer Services Officer
	SMR	Head of Sub-section Meter Reading
	MRE	Meter Reader
II.b		OTHER JOBTITLES
		Secretary
		Clerk
		Typist
		Receptionist
		Office Boy
		Office Attendant
		Cleaner

III. TECHNICAL DEPARTMENT

III.a KEY JOBTITLES

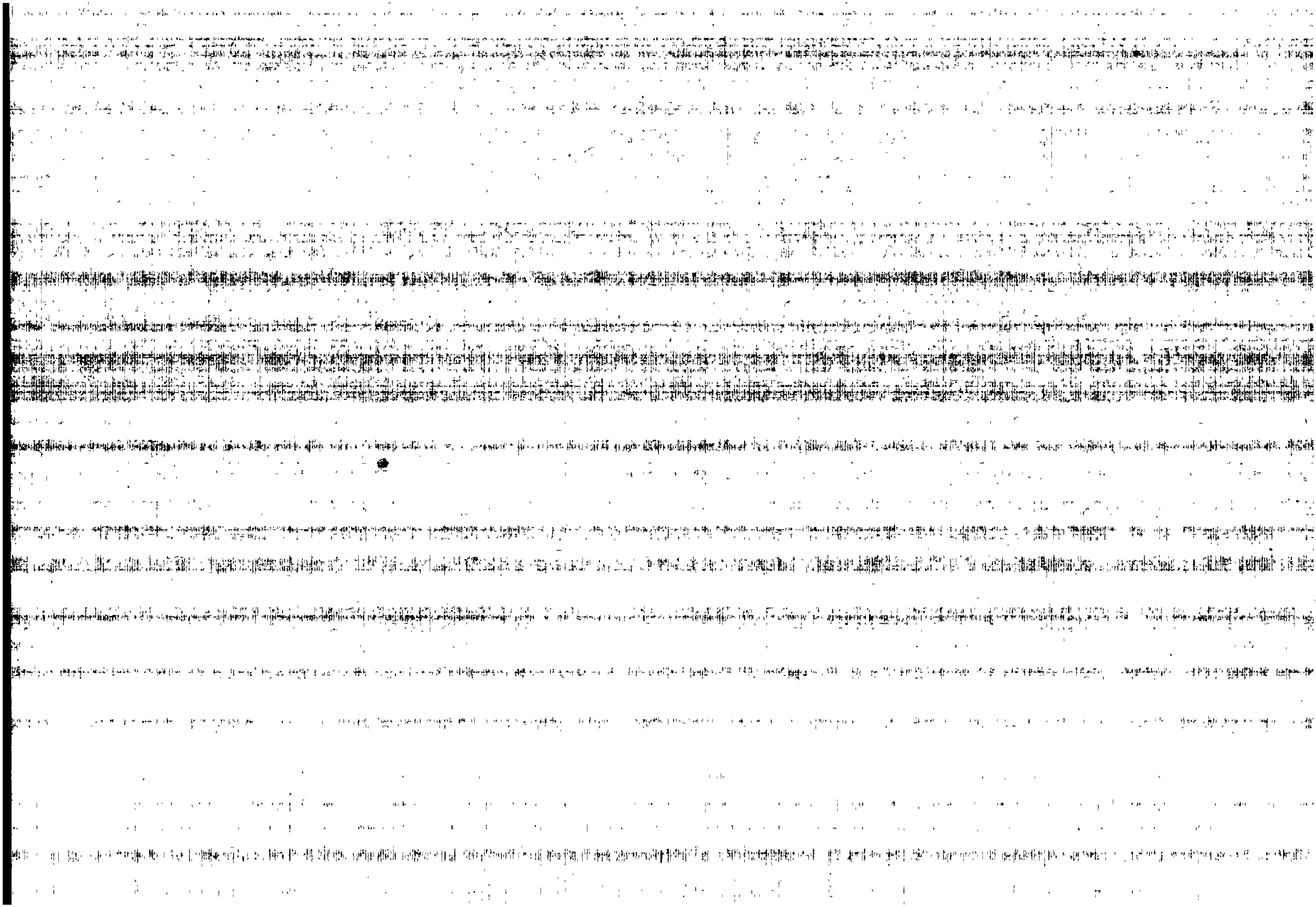
HDT	Head of Technical Department
HPR	Head of Section Production
SWT	Head of Sub-section Water Treatment
TPO	Water Treatment Plant Operator
PAT	Plant Attendant
IAT	Intake Attendant
SLA	Head of Sub-section Laboratory
LAS	Laboratory Assistant
HTD	Head of Section Transmission & Distribution
SDC	Head of Sub-section Distribution & Connections
PLA	Pipelayer
PIN	Pipeline Inspector
LOF	Leakage Officer
SWM	Head of Sub-section Water Meters
MTE	Meter Tester
MRE	Meter Repairer
MSE	Meter Sealer
HPS	Head of Section Planning & Supervision
SPL	Head of Sub-section Planning
PSU	Surveyor
DRA	Draughtsman
TPA	Technical Planning Assistant
SSU	Head of Sub-section Supervision
CSU	Construction Supervisor
HMR	Head of Section Maintenance & Repairs
SGM	Head of Sub-section General (Building) Maintenance
BMT	Building Maintenance Technician
SEM	Head of Subsection Electrical/Mechanical Maintenance
MEL	Electrician
MME	Mechanic

III.b OTHER JOBTITLES

Mason
Plumber
Carpenter
Painter
Patrolman
Labourer

OTHER ABBREVIATIONS USED FOR JOBTITLES:

JOBCODE	DESCRPTION
ALL	All Staff of Water Enterprise
ADE	All Heads of Department
ASE	All Heads of Section
AST	All Heads of Section in the Technical Department
ASF	All Heads of Section in the Financial/Administrative Department
SST	All Heads of Sub-section in the Technical Department
JNE	Junior Engineer



Appendix 4. DESCRIPTION OF CODING SYSTEM

1. WHAT IS A CODING SYSTEM

A coding system will consist of a number of codes. A code consists of a number of letters and/or figures. If it only consists of letters, it is called an alphabetical coding system. If it only consists of figures, it is called a numerical coding system. If it consists of a combination of letters and figures, it is called an alpha-numerical coding system.

A coding system for training modules, which contain different kinds of materials, must meet a number of specific requirements:

- the system should indicate the type of training for which the module is designed (general, organizational, technical);
- the system should indicate the nature of the know how contained in the module (skills, procedures, equipment);
- the system should indicate the activity for which the module can be applied (management, administration, finance);
- the system should indicate the subject of the module (pipe laying, cutting);
- the system should indicate the type of training material (viewfoil, handout, chart, drawing).

A coding system that meets all the above requirements to a large extent, can be used by different categories of people. It can be used by trainers for training design and training preparation. It can be used by the administrative staff of training centre for filing, recording, and adapting the training material. And it can also be used by module developers during module production, and - last but not least - by consultants to test coverage of available material. Such a system will clearly identify blank spots, i.e. areas that are not yet or not sufficiently covered, etc.

2. DESCRIPTION OF MDPP CODING SYSTEM

The coding system developed for use in the MDPP as well as HRDP training material production is of an alpha-numerical nature. This means that the codes consist of a combination of letters and figures. The letters indicate the type of training (letter 1), the nature of the know how (letter 2), and the activity (letter 3). The figures indicate the specific subjects. This will be explained below (see also attached code matrixes):

a. Letter code

As has been described above, the letter code consists of three letters:

- letter_1 indicates the general type of training for which the training module is designed:
  - general training - G
  - organizational training - O
  - technical training - T

- letter_2 indicates the nature of the know how contained in the training module:
  - general - G
  - basic knowledge/skills - B
  - processes/procedures - P
    - withdrawal - W
    - treatment - T
    - distribution - D
    - consumption - C
  - equipment/materials - E

- letter_3 indicates the activity for which the module can be applied:
  - within_G:
    - general - G
  - within_O:
    - general - G
    - management - M
    - finance - F
    - administration - A
    - personnel - P
    - consumer relation - C
  - within_T:
    - survey - S
    - design - D
    - construction/repair - C
    - operation - O
    - maintenance - M
    - inspection/supervision - I
    - research/development - R

Now, if you take the three letters of the coding system, it must become clear what kind of module it is. Some examples are given below in section 4. However, the code also consists of a number of figures.

b. **Figure code**

This part of the code consists of three figures, ranging from 000 - 999. These figures indicate the specific subject dealt with in the module.

c. **Letter/figure code for training aids**

With the above, nearly all requirements for the coding system have been met. Only the type of training aids contained in a training module still has to be indicated. To that end, the

full code will be completed with a letter and a sequential number:
A - for all Audio-visual presentations and slides;
D - for all Demonstration models, regardless whether they are simple taps or complicated cut-away models, or pipe/distribution systems;
E - for all Exercises and exhibitis;
H - for all Handouts;
M - for all Materials and equipment (machines, etc.);
P - for all Photos, posters, and wallcharts;
Q - for all Questionnaires tests, etc.;
R - for all Reference materials, books, report, etc.;
T - for all Tools;
V - for all Viewfoils.

So, if the module OBM 100 also contains one viewfoil, the code number of the viewfoil will be : OBM 100/V 1. The first chart in this module will have the full code : OBM 100/P 1. Etc.

3. EXAMPLES OF CODES

As has been mentioned before, if you take the three letters of the module code, it must be clear what kind of module it is. This will be illustrated with a few examples:

- module code: OBM; This means:
  . O = Organizational (type of training)
  . B = Basic knowledge/ skills (nature of know how)
  . M = Management (activity)

- module code: TCC; This means:
  . T = Technical
  . C = Consumption
  . C = Construction

- module code: TEM; This means:
  . T = Technical
  . E = Equipment/material
  . M = Maintenance

- module code: GGG; This means :
  . G = General
  . G = General
  . G = General

Of course the full code also includes the three figures to indicate a specific subject.

* * *

Appendix 5. LIST OF AVAILABLE MDPP TRAINING MODULES

CODE	TITLE
GGG 100	Water supply and public health
GGG 210	Water supply development targets in Indonesia
GGG 300	Principles of water supply
OBG 101	The water enterprise - its functions
OBG 300	Establishment of a water enterprise
OBG 610	The water enterprise - its environment
OBM 001	Principles of management
OBM 100	Planning
OBM 200	Organizing
OBM 210	Delegation
OBM 220	Coordination
OBM 300	Directing
OBM 310	Motivation
OBM 320	Authority
OBM 330	Communication - the process
OBM 331	Effective communication
OBM 332	Written communication
OBM 333	How to write a report
OBM 334	How to hold a meeting
OBM 400	Controlling
OBM 650	Office management - introduction
OBA 110	Filing
OBA 300	Working climate
OBA 400	Office layout
OBP 100	Job descriptions
OBP 200	Recruitment and selection
OBP 300	Training for new staff
OBP 400	Job performance and training
OBC 300	Customer information
OPF 010	Introduction to the Accounting Procedures
OPF 011	Introduction to the Procedure for Preparing water bills
OPF 012	Introduction to the Procedure for collecting water bills
OPF 013	Intr. to Procedure for req. purchase and ord.of mat.& sup.
OPF 014	Introduction to Procedure for receiving mat. and supplies
OPF 015	Introduction to Procedure for Paying Materials and Supplies
OPF 016	Introduction to Procedure for issuing materials and supplies
OPF 017	Introduction to Procedure for receiving new customers
OPF 018	Introduction to Procedure for installing service connections
OPF 019	Introduction to the procedure for salary payments
OPF 020	Introduction to the Procedure for Petty Cash
OEA 001	Office equipment - introduction
TBG 360	Fundamental equations of pipeline hydraulics
TBG 365	Local losses in pipelines
TBG 508	Progress reports in construction
TBG 509	Engineering drawings
TBG 512	Concrete technology
TBG 513	Concrete testing
TBG 514	Plans
TBG 701	Maps
TPG 110	Water quality standards
TPG 120	Water quality control

TPG 121 Water quality control - quality parameters
TPG 125 Clear water quality control
TPG 135 Water qual. control inform. routing for water treat. proc.
TPG 400 Water treatment
TPC 110 Setting out
TPC 120 Excavation, bedding, and backfilling
TPC 151 Pipe cutting - uPVC pipes
TPC 152 Pipe cutting - asbestos cement pipes
TPC 153 Pipe cutting - GI pipes
TPC 155 Pipe cutting - grey cast iron pipes
TPC 156 Pipe cutting - ductile iron pipe
TPC 160 Pipe jointing - introduction
TPC 161 Pipe jointing - uPVC pipes
TPC 162 Pipe jointing - AC pipes
TPC 163 Pipe jointing - GI pipes
TPC 164 Pipe jointing - spun and ductile iron pipes
TPC 170 Mainlaying - introduction
TPC 179 Mainlaying safety
TPC 180 Pressure testing pipes
TPC 190 Tapping mains
TWG 010 The water cycle
TWG 023 Surface water intake methods
TWG 030 Evaluation of water sources
TTG 051 Water treatment facilities - surface water
TTG 060 Water treatment efficiency
TTG 150 Disinfection
TTG 200 Coagulation/flocculation
TTG 250 Sedimentation
TTG 311 Rapid gravity sand filtration
TTG 400 Neutralization
TTG 500 Chemicals handling, mixing and dosing
TTO 051 Operation of water treatment facilities - surface water
TTO 205 Jar test
TTM 050 Maintenance of water treatment facilities
TDG 001 Principles of water transmission, storage and distribution
TDD 260 Anchor blocks
TDO 170 Flushing water mains
TDO 610 Causes of leakage
TDO 620 Reasons for leakage control
TDO 630 Methods of leakage control
TDO 631 Determination of leakage control
TDO 634 Step Testing
TDO 635 Listening surveys
TCC 100 Introduction to service connections
TCC 170 Laying service pipes
TCC 210 Installation of water meters
TEG 100 Identification of pipes and fittings
TEG 120 Handling and stacking of pipes
TEG 501 Hydrophore
TEO 222 Operation of gate valves and butterfly valves
TEO 320 Centrifugal pump operation and maintenance
TEO 330 Submersible pump operation and maintenance
TEO 620 Compressor operation and maintenance
TEM 222 Maintenance of gate valves

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F.EDIT	L DATE	CODE	MODULE TITLE	TRAINING SELECTION*	D	P	I	S	T	H	VF**
120784	120784	GGG 100	Water supply and public health	ALL	45	8	1	2	2	3	11
030784	030784	GGG 210	Water supply development targets in Indonesia	ALL	45	7	1	2	1	3	5
120784	250285	GGG 300	Principles of water supply	ALL	45	6	1	2	2	1	7
110784	110784	OBG 101	The water enterprise - its functions	DIR HDT HDF	45	7	1	2	1	3	2
030385	030385	OBG 300	Establishment of a water enterprise	DIR HDT HDF	45	8	1	3	1	3	2
090784	090784	OBG 610	The water enterprise - its environment	DIR HDT HDF	45	8	1	2	2	3	6
110784	110784	OBM 001	Principles of management	DIR HDT HDF	45	10	1	3	2	4	10
090784	090784	OBM 100	Planning	DIR HDT HDF	90	9	1	2	1	5	3
110784	260285	OBM 200	Organizing	DIR HDT HDF	45	6	1	1	2	2	6
120784	120784	OBM 210	Delegation	DIR HDT HDF	45	7	1	2	1	3	1
120784	260285	OBM 220	Coordination	DIR HDT HDF	90	7	1	2	1	3	3
110784	260285	OBM 300	Directing	DIR HDT HDF	45	5	1	2	1	1	3
120784	260285	OBM 310	Motivation	DIR HDT HDF	45	6	1	2	1	2	2
120784	260285	OBM 320	Authority	DIR HDT HDF	45	6	1	2	1	2	1
110784	260285	OBM 330	Communication - the process	DIR HDF HDT ASE	90	8	1	2	1	4	1
110784	260285	OBM 331	Effective communication	DIR HDT HDF ASE	45	7	1	2	1	3	1
130784	260285	OBM 332	Written communication	DIR HDT HDF	45	5	1	1	1	2	3
120784	260285	OBM 333	How to write a report	DIR	45	7	1	2	1	3	1
120784	030385	OBM 334	How to hold a meeting	DIR HDT HDF	90	8	1	2	1	4	4
120784	260285	OBM 400	Controlling	DIR HDT HDF	45	8	1	2	1	4	2
120784	060485	OBM 650	Office management introduction	DIR HDT HDF	45	6	1	2	1	2	4
110784	260285	OBA 110	Filing	DIR HDF HAP HBB HCH HCR	45	7	1	1	2	3	6
030385	030385	OBA 300	Working climate	DIR HDT HDF	45	8	1	2	1	4	1
110784	260285	OBA 400	Office layout	DIR HDF HAP	90	8	1	1	1	5	0
120784	260285	OBP 100	Job descriptions	DIR HDT HDF ASE	45	7	1	2	1	3	2
120784	250285	OBP 200	Recruitment and selection	DIR HDT HDF	45	6	1	2	1	2	4
250285	250285	OBP 300	Training for new staff	DIR HDT HDF HAP	45	8	1	2	1	4	1
250285	250285	OBP 400	Job performance and training	DIR HDT HDF HAP	45	6	1	2	1	2	3
250285	250285	OBC 300	Customer information	DIR HDF HCR	45	7	1	2	1	3	1
090385	090385	OPF 010	Introduction to the Accounting Procedures	DIR HDT ASE	45	15	1	6	2	6	6
090385	090385	OPF 011	Introduction to the Procedure for Preparing water bills	DIR HDT HDF ASE	45	11	1	5	1	4	4
090385	090385	OPF 012	Introduction to the Procedure for collecting water bills	DIR HDT HDF ASE	45	10	1	4	1	4	3
090385	090385	OPF 013	Intr to Procedure for req. purchase and ord.of mat.& sup.	DIR HDT HDF ASE	45	11	1	4	1	5	5
110385	110385	OPF 014	Introduction to Procedure for receiving mat. and supplies	DIR HDT HDF ASE	45	13	1	6	1	5	5
270285	270285	OPF 015	Introduction to Procedure for Paying Materials and Supplies	DIR HDT HDF ASE	45	9	1	4	1	3	3
070385	070385	OPF 016	Introduction to Procedure for issuing materials and supplies	DIR HDT HDF ASE	45	11	1	5	1	4	4
080385	080385	OPF 017	Introduction to Procedure for receiving new customers	DIR HDT HDF ASE	45	10	1	5	1	4	3
080385	080385	OPF 018	Introduction to Procedure for installing service connections	DIR HDT HDF ASE	45	10	1	4	1	4	4
090385	090385	OPF 019	Introduction to the procedure for salary payments	DIR HDT HDF ASE	45	8	1	3	1	3	2
070385	070385	OPF 020	Introduction to the Procedure for Petty Cash	DIR HDT HDF ASE	45	11	1	5	1	4	3
250285	250285	OEA 001	Office equipment - introduction	DIR HDF HAP	45	6	1	2	1	2	1
260984	260984	TBG 360	Fundamental equations of pipeline hydraulics	HDT HTD HPS SPL	135	14	1	1	2	10	6
270884	270884	TBG 365	Local losses in pipelines	HDT HTD SDC HPS SPL TPA	90	17	1	1	3	12	12
170984	170984	TBG 508	Progress reports in construction	HPS SSU CSU	45	6	1	2	1	2	4
170984	170984	TBG 509	Engineering drawings	AST SST PIN DRA TPA CSU	90	29	1	3	3	22	11
200984	200984	TBG 512	Concrete technology	HPS SSU CSU	135	21	1	3	2	15	8
190984	190984	TBG 513	Concrete testing	HPS SSU CSU	45	6	1	1	1	3	2
170984	170984	TBG 514	Plans	MBS HDT AST SST PLA PIN DRA TPA CSU	45	16	1	2	2	11	7
170984	170984	TBG 701	Maps	MBS HDT HTD SDC PIN HPS SPL TPA JNE	90	13	1	2	2	8	7
281284	281284	TPG 110	Water quality standards	DIR HDT HTD SDC SWT SLA	45	8	1	2	1	4	1
291284	291284	TPG 120	Water quality control	DIR HDT HMR SWT HTD SDC HPS SLA	45	14	1	3	1	9	5
281284	281284	TPG 121	Water quality control - quality parameters	DIR HDT HPR SLA	45	10	1	3	1	5	5
281284	281284	TPG 125	Clear water quality control	HPR SWT SLA	45	10	1	3	1	5	3

* For description of jobcodes see Appendix 3;

** D - duration (min), P - total pages; I = pages Information Sheet; S pages Session Notes; T = pages Training Aids, H = pages Handout; VF = number of viewfoils

F EDIT	L DATE	CODE	MODULE TITLE	TRAINING SELECTION*	D	P	I	S	T	H	VF**
291284	291284	TPG 135	Water qual control inform. routing for water treat. proc.	DIR HPR SWT HTD SDC HPS SLA	45	11	1	4	1	5	2
100185	100185	TPG 400	Water treatment	ALL	90	16	1	5	2	8	8
280784	280784	TPC 110	Setting out	HTD SDC PLA PIN SSU CSU	45	8	1	2	1	4	2
280984	280984	TPC 120	Excavation, bedding, and backfilling	HDT HTD SDC PLA PIN SSU CSU	45	11	1	2	2	6	6
190984	190984	TPC 151	Pipe cutting - uPVC pipes	PLA PIN CSU	90	5	1	1	1	2	1
200984	200984	TPC 152	Pipe cutting - asbestos cement pipes	PLA PIN CSU	45	5	1		1	1	2	1
210984	210984	TPC 153	Pipe cutting - GI pipes	PLA PIN CSU	90	5	1		1	1	2	1
190984	190984	TPC 155	Pipe cutting - grey cast iron pipes	PLA PIN CSU	90	10	1	3	1	5	1
200984	200984	TPC 156	Pipe cutting - ductile iron pipe	PLA PIN CSU	90	9	1	2	1	5	1
200984	200984	TPC 160	Pipe jointing - introduction	PLA PIN CSU SDC SSU	45	5	1	2	1	5	2
190984	190984	TPC 161	Pipe jointing - uPVC pipes	PLA PIN CSU	135	11	1	3	1	6	3
200984	200984	TPC 162	Pipe jointing - AC pipes	PLA PIN CSU	135	10	1	2	1	6	1
210984	210984	TPC 163	Pipe jointing - GI pipes	PLA PIN CSU	135	10	1	2	1	6	3
200984	200984	TPC 164	Pipe jointing - spun and ductile iron pipes	PLA PIN CSU	135	10	1	3	1	5	2
180984	180984	TPC 170	Mainlaying - introduction	HTD SDC PLA PIN SSU CSU	45	6	1	2	1	2	1
180984	180984	TPC 179	Mainlaying safety	HTD SDC PLA PIN SSU CSU	45	4	1	1	1	1	1
200984	200984	TPC 180	Pressure testing pipes	PIN CSU SDC	90	6	1	2	1	2	2
180984	180984	TPC 190	Tapping mains	SDC PLA PIN	135	8	1	1	1	5	4
210984	210984	TWG 010	The water cycle	ALL	45	4	1	1	1	1	1
270884	270884	TWG 023	Surface water intake methods	HPR SWT TPO IAT	45	13	1	2	2	8	6
291284	291284	TWG 030	Evaluation of water sources	HDT HPS HPR SWT SPL	45	10	1	2	2	6	2
230884	230884	TTG 051	Water treatment facilities - surface water	ALL	90	9	1	4	1	3	1
291284	291284	TTG 060	Water treatment efficiency	DIR HDT HPS SLA	45	12	1	4	1	7	4
240984	180385	TTG 150	Disinfection	HDT HPR SWT TPO SLA LAS	90	13	1	4	1	7	4
240984	240984	TTG 200	Coagulation/flocculation	HDT HPR SWT SLA	90	22	1	7	2	12	10
280984	280984	TTG 250	Sedimentation	HDT HPR SWT TPO SLA	90	14	1	4	1	8	5
311284	311284	TTG 311	Rapid gravity sand filtration	HDT HPR SWT TPO	45	19	1	5	2	11	8
030385	030385	TTG 400	Neutralization	HDT HPR SWT TPO SLA	90	10	1	2	1	6	4
280984	180385	TTG 500	Chemicals handling, mixing and dosing	HDT HPR SWT TPO SLA	135	21	1	4	2	14	10
240885	180385	TTO 051	Operation of water treatment facilities surface water	SWT TPO PAT IAT	90	15	1	4	2	8	7
180385	180385	TTO 205	Jar test	HDT HPR SWT TPO SLA LAS	45	20	1	3	2	14	9
160385	160385	TTM 050	Maintenance of water treatment facilities	HDT	45	18	1	5	1	11	0
190385	190385	TDG 001	Principles of water transmission, storage and distribution	DIR HDT HPR HTD HPS HMR	45	13	1	3	2	7	6
210984	210984	TDB 260	Anchor blocks	HDT HPR SDC PIN HPS SPL TPA SSU CSU	45	10	1	2	1	6	5
290984	190385	TDO 170	Flushing water mains	HDT HTD SDC PLA PIN	45	5	1	1	1	2	3
290984	190385	TDO 610	Causes of leakage	HDT HTD SDC PIN LOF	45	7	1	2	1	3	1
290984	290984	TDO 620	Reasons for leakage control	HDT HTD SDC PIN LOF	45	6	1			1	2	1
190984	190984	TDO 630	Methods of leakage control	HDT HTD SDC PIN LOF	45	7	1			1	4	5
190984	190984	TDO 631	Determination of leakage control	HDT HTD SDC PIN PLA	45	8	1	2	1	4	4
190984	190984	TDO 634	Step Testing	HDT HTD SDC PIN LOF	45	8	1	2	1	4	4
260984	190385	TDO 635	Listening surveys	HTD SDC PIN	45	12	1	2	2	7	7
260984	260984	TCC 100	Introduction to service connections	HTD SDC PLA PIN SWM HCR SCS SMR	45	11	1	2	2	6	8
180984	180984	TCC 170	Laying service pipes	SDC PLA PIN	135	7	1	1	1	4	4
180984	180984	TCC 210	Installation of water meters	SDC PLA PIN	90	4	1	1	1	1	1
200385	200385	TEG 100	Identification of pipes and fittings	PLA PIN CSU SPU SWA HTD SDC SSU	90	11	1	2	1	7	0
210984	210984	TEG 120	Handling and stacking of pipes	PLA PIN CSU SWA	90	11	1	3	1	6	3
080485	080485	TEG 501	Hydrophore	HMR HTD MME	45	15	1	2	2	10	6
200385	200385	TEO 222	Operation of gate valves and butterfly valves	TPO PAT IAT PIN LOF	45	8	1	2	1	4	2
180385	180385	TEO 320	Centrifugal pump operation and maintenance	HPR HMR HPS	45	11	1	2	3	5	15
190385	190385	TEO 330	Submersible pump operation and maintenance	HMR	45	14	1	3	3	7	17
180385	180385	TEO 620	Compressor operation and maintenance	HMR	45	15	1	3	2	9	8
200385	200385	TEM 222	Maintenance of gate valves	SDC PLA PIN	90	5	1	1	1	2	2

* For description of jobcodes see Appendix 3,

** D = duration (min); P = total pages, I = pages Information Sheet, S = pages Session Notes, T = pages Training Aids, H = pages Handout; VF = number of viewfoils

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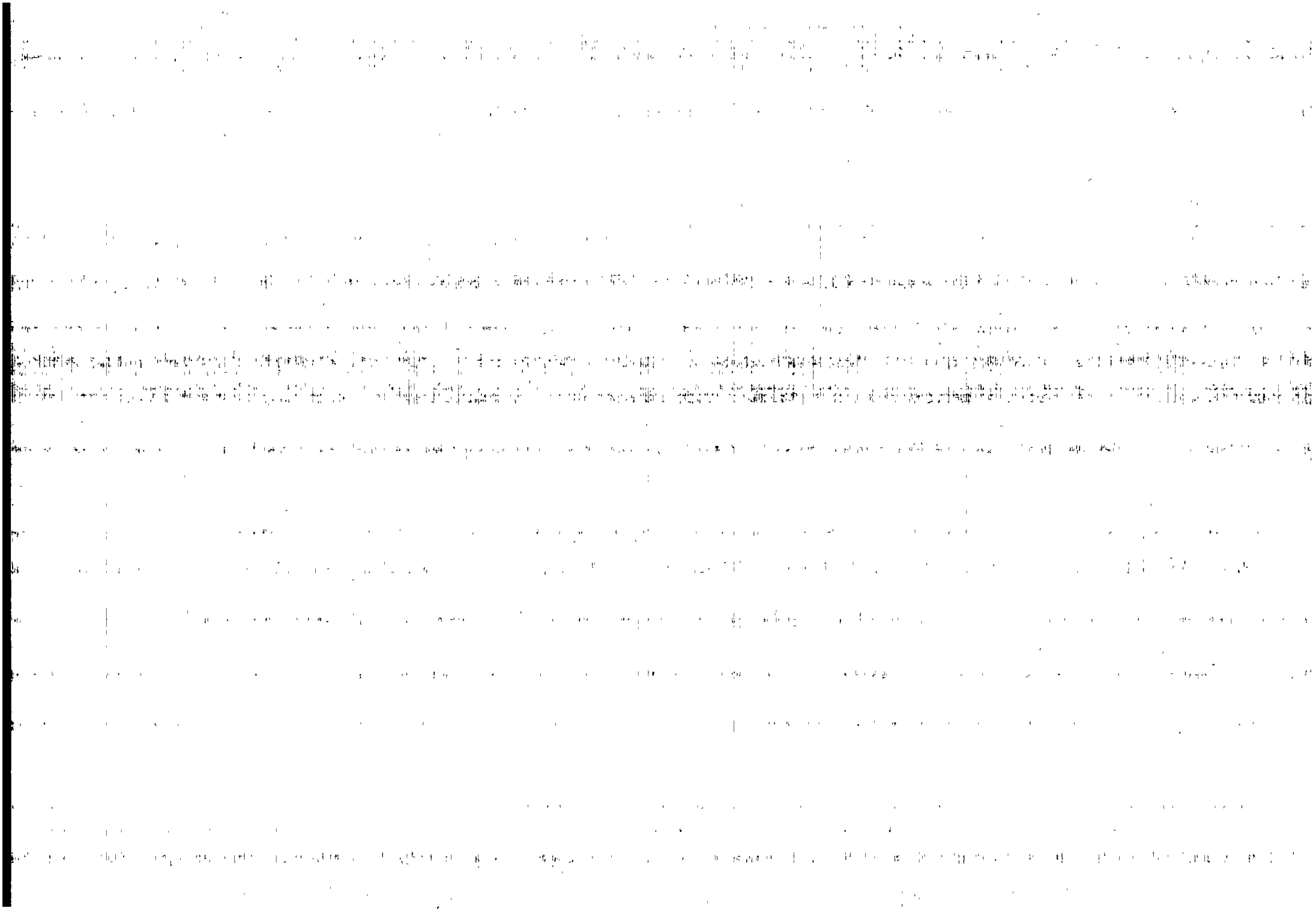
Appendix 7. STATISTICAL DATA ON AMOUNT OF MODULES FOR VARIOUS JOB-TITLES

JOB CODE	JOBTITLE	AMOUNT MODULES
	GENERAL MANAGEMENT	
MBS	Member of Board of Supervisors	2
DIR	Director PDAM/Head BPAM	50
	TECHNICAL DEPARTMENT	
HDT	Head of Technical Department	78
HPR	Head of Section Production	55
HTD	Head of Section Transmission & Distribution	66
HPS	Head of Section Planning & Supervision	78
HMR	Head of Section Maintenance & Repairs	38
SWT	Head of Sub-section Water Treatment	15
TPO	Water Treatment Plant Operator	9
PAT	Plant Attendant	1
IAT	Intake Attendant	3
SLA	Head of Sub-section Laboratory	13
LAS	Laboratory Assistant	2
SDC	Head of Sub-section Distribution & Connections	26
PLA	Pipelayer	22
PIN	Pipeline Inspector	34
LOF	Leakage Officer	5
SWM	Head of Sub-section Water Meters	2
SPL	Head of Sub-section Planning	6
DRA	Draughtsman	2
TPA	Technical Planning Assistant	5
SSU	Head of Sub-section Supervision	11
CSU	Construction Supervisor	23
MME	Mechanic	1
	FINANCE & ADMINISTRATION DEPARTMENT	
HDF	Head of Finance & Administration Department	44
HCB	Head of Section Cash & Bill Collection	21
HBB	Head of Section Bookkeeping & Billing	21
HAP	Head of Section General Administration & Personnel	28
HCR	Head of Section Consumer Relations	22
SPU	Head of Sub-section Purchasing	1
SWA	Head of Sub-section Warehousing	2
SCS	Head of Sub-section Consumer Services	1
SMR	Head of Sub-section Meter Reading	1
	OTHERS	
JNE	Junior Engineer	1



CODE	TITLE	DIR	HDT	HPR	HTD	HPS	HMR	HDF	HBB	HAP	HCB	HCR	*
GGG 100	Water supply and public health	x	x	x	x	x	x	x	x	x	x	x	ALL
GGG 210	Water supply development targets in Indonesia	x	x	x	x	x	x	x	x	x	x	x	ALL
GGG 300	Principles of water supply	x	x	x	x	x	x	x	x	x	x	x	ALL
OBG 101	The water enterprise - its functions	x	x					x					
OBG 300	Establishment of a water enterprise	x	x					x					
OBG 610	The water enterprise - its environment	x	x					x					
OBM 001	Principles of management	x	x					x					
OBM 100	Planning	x	x					x					
OBM 200	Organizing	x	x					x					
OBM 210	Delegation	x	x					x					
OBM 220	Coordination	x	x					x					
OBM 300	Directing	x	x					x					
OBM 310	Motivation	x	x					x					
OBM 320	Authority	x	x					x					
OBM 330	Communication - the process	x	x	x	x	x	x	x	x	x	x	x	
OBM 331	Effective communication	x	x	x	x	x	x	x	x	x	x	x	
OBM 332	Written communication	x	x					x		x			
OBM 333	How to write a report	x											
OBM 334	How to hold a meeting	x	x					x					
OBM 400	Controlling	x	x					x					
OBM 650	Office management - introduction	x	x					x		x			
OBA 110	Filing	x						x	x	x	x	x	
OBA 300	Working climate	x	x					x		x			
OBA 400	Office layout	x						x		x			
OBP 100	Job descriptions	x	x	x	x	x	x	x	x	x	x	x	
OBP 200	Recruitment and selection	x	x					x		x			
OBP 300	Training for new staff	x	x					x		x			
OBP 400	Job performance and training	x	x					x		x			
OBC 300	Customer information	x						x				x	
OPF 010	Introduction to the Accounting Procedures	x	x	x	x	x	x	x	x	x	x	x	
OPF 011	Introduction to the Procedure for Preparing water bills	x	x	x	x	x	x	x	x	x	x	x	
OPF 012	Introduction to the Procedure for collecting water bills	x	x	x	x	x	x	x	x	x	x	x	
OPF 013	Intr. to Procedure for req. purchase and ord.of mat & sup	x	x	x	x	x	x	x	x	x	x	x	
OPF 014	Introduction to Procedure for receiving mat. and supplies	x	x	x	x	x	x	x	x	x	x	x	
OPF 015	Introduction to Procedure for Paying Materials and Supplies	x	x	x	x	x	x	x	x	x	x	x	
OPF 016	Introduction to Procedure for issuing materials and supplies	x	x	x	x	x	x	x	x	x	x	x	
OPF 017	Introduction to Procedure for receiving new customers	x	x	x	x	x	x	x	x	x	x	x	
OPF 018	Introduction to Procedure for installing service connections	x	x	x	x	x	x	x	x	x	x	x	
OPF 019	Introduction to the procedure for salary payments	x	x	x	x	x	x	x	x	x	x	x	
OPF 020	Introduction to the Procedure for Petty Cash	x	x	x	x	x	x	x	x	x	x	x	
OBA 001	Office equipment - introduction	x	x					x					
TBG 360	Fundamental equations of pipeline hydraulics		x		x	x							SPL
TBG 365	Local losses in pipelines		x		x	x							SDC SPL TPA
TBG 508	Progress reports in construction							x					SSU CSU
TBG 509	Engineering drawings		x	x	x	x	x						SST PIN DRA TPA CSU
TBG 512	Concrete technology		x			x							SSU CSU
TBG 513	Concrete testing		x			x							SSU CSU
TBG 514	Plans		x	x	x	x	x	x					MBS SST PLA PIN DRA TPA CSU
TBG 701	Maps		x		x	x							MBS SDC PIN SPL TPA JNE
TPG 110	Water quality standards	x	x	x	x								SDC SWT SLA
TPG 120	Water quality control	x	x	x	x	x	x						SWT SDC SLA

* For description of jobcodes see Appendix 3

CODE	TITLE	DIR	HDT	HDR	HTD	HPS	HMH	HDF	HBB	HAP	HCB	HCR	*						
TPG 121	Water quality control - quality parameters	x	x	x	x								SLA						
TPG 125	Clear water quality control		x	x	x								SWT	SLA					
TPG 135	Water qual. control inform routing for water treat proc.	x	x	x	x	x							SWT	SDC	SLA				
TPG 400	Water treatment	x	x	x	x	x	x	x	x	x	x	x	ALL						
TPC 110	Setting out				x	x							SDC	PLA	PIN	SSU	CSU		
TPC 120	Excavation, bedding, and backfilling	x		x	x								SDC	PLA	PIN	SSU	CSU		
TPC 151	Pipe cutting - uPVC pipes		x	x	x	x							PLA	PIN	CSU				
TPC 152	Pipe cutting - asbestos cement pipes		x	x	x								PLA	PIN	CSU				
TPC 153	Pipe cutting - GI pipes		x	x	x	x							PLA	PIN	CSU				
TPC 155	Pipe cutting - grey cast iron pipes		x	x	x								PLA	PIN	CSU				
TPC 156	Pipe cutting - ductile iron pipe		x	x	x								PLA	PIN	CSU				
TPC 160	Pipe jointing introduction		x	x	x	x							PLA	PIN	CSU	SDC	SSU		
TPC 161	Pipe jointing uPVC pipes		x	x	x	x							PLA	PIN	CSU				
TPC 162	Pipe jointing AC pipes		x	x	x								PLA	PIN	CSU				
TPC 163	Pipe jointing - GI pipes		x	x	x	x							PLA	PIN	CSU				
TPC 164	Pipe jointing - spun and ductile iron pipes		x	x	x								PLA	PIN	CSU				
TPC 170	Mainlaying - introduction		x		x	x							SDC	PLA	PIN	SSU	CSU		
TPC 179	Mainlaying safety		x		x	x							SDC	PLA	PIN	SSU	CSU		
TPC 180	Pressure testing pipes		x		x	x							PIN	CSU	SDC				
TPC 190	Tapping mains		x		x	x							SDC	PLA	PIN				
TWG 010	The water cycle	x	x	x	x	x	x	x	x	x	x	x	ALL						
TWG 023	Surface water intake methods		x		x	x							SWT	TPO	IAT				
TWG 030	Evaluation of water sources		x		x	x							SWT	SPL					
TTG 051	Water treatment facilities - surface water	x	x	x	x	x	x	x	x	x	x	x	ALL						
TTG 060	Water treatment efficiency	x	x	x	x	x							SLA						
TTG 150	Disinfection		x	x									SWT	TPO	SLA	LAS			
TTG 200	Coagulation/flocculation		x	x									SWT	SLA					
TTG 250	Sedimentation		x	x									SWT	TPO	SLA				
TTG 311	Rapid gravity sand filtration		x	x									SWT	TPO					
TTG 400	Neutralization		x	x									SWT	TPO	SLA				
TTG 500	Chemicals handling, mixing and dosing		x	x									SWT	TPO	SLA				
TTO 051	Operation of water treatment facilities - surface water		x	x									SWT	TPO	PAT	IAT			
TTO 205	Jartest		x	x									SWT	TPO	SLA	LAS			
TTM 050	Maintenance of water treatment facilities		x	x			x												
TDG 001	Principles of water transmission, storage and distribution	x	x	x	x	x	x	x	x	x									
TDD 260	Anchor blocks		x	x	x	x	x						SDC	PIN	SPL	TPA	SSU	CSU	
TDO 170	Flushing water mains		x	x	x								SDC		PIN				
TDO 610	Causes of leakage		x		x								SDC	PIN	LOF				
TDO 620	Reasons for leakage control		x	x	x								SDC	PIN	LOF				
TDO 630	Methods of leakage control		x		x								SDC	PIN	LOF				
TDO 631	Determination of leakage control		x		x								SDC	PIN	PLA				
TDO 634	Step Testing		x		x								SDC	PIN	LOF				
TDO 635	Listening surveys				x								SDC	PIN					
TCC 100	Introduction to service connections				x	x						x	SDC	PLA	PIN	SWM	SCS	SMR	
TCC 170	Laying service pipes				x								SDC	PLA	PIN				
TCC 210	Installation of water meters				x	x							SDC	PLA	PIN				
TEG 100	Identification of pipes and fittings				x	x	x						PLA	PIN	CSU	SPU	SWA	SDC	SSU
TEG 120	Handling and stacking of pipes				x	x							PLA	PIN	CSU	SWA			
TEG 501	Hydrophore	x	x	x	x	x	x						MMH						
TEO 222	Operation of gate valves and butterfly valves				x		x						TPO	PAT	IAT	PIN	LOF		
TEO 320	Centrifugal pump operation and maintenance			x	x	x	x												
TEO 330	Submersible pump operation and maintenance			x	x		x												
TEO 620	Compressor operation and maintenance			x	x		x												
TEM 222	Maintenance of gate valves				x		x						SDC	PLA	PIN				

* For description of jobcodes see Appendix 3.

PART II TAPE/SLIDE PROGRAMMES

Table of contents

1. INTRODUCTION

During the course of the MDPP project four tape/slide presentations have been produced on different subjects. These tape/slide presentations form an integral part of the training materials as developed by the MDPP project. They are referred to in the modules which deal with the same subjects and are supposed to be taken up into the lesson-plans.

Tape/slide presentations have particular physical characteristics which make it necessary to plan ahead their use within the lesson. This short guide will give some hints and recommendations on the use of tape/slide presentations in order to increase both the effectiveness of the presentation and its impact on the lesson.

2. WHAT ARE THE PHYSICAL CHARACTERISTICS OF TAPE/SLIDE PROGRAMMES?

Slides

Slides are actually photographically created images on transparent film-material of 35 mm width. The actual image-size is 24 mm by 35 mm. This size is too small to be of any practical use and therefore slides must be enlarged by projection. A projector consists of a light-source and an optical system which projects an enlarged image of the slide on a surface. Any surface will show the projection but the best results are obtained when a screen is used, or at least a white wall. The brightness of the projected image comes from the light-source. This means that in order to obtain a clear and bright picture the light in the room in which the projection takes place should be brought back to a minimum level.

Projectors

Projectors need electrical power. Therefore a power-source with the appropriate voltage must be available in or near the projection-room.

The size of the projected image depends on different factors:
- the optical system (the lens);
- the distance between the projector and the screen.

Many modern projectors have "zoom-lenses", which means that the focal length of the lens is adjustable. In practice this means that the projected image can be enlarged or reduced without changing the position of the projector but by rotating a ring on the lens. Of course there are limits to this adjustability and if the resulting image is still too small or too large a lens with a different focal length must be used.
Although long and complicated tables are available the easiest way to find the best combination of the focal length of the lens and the distance between the projector and the screen is by experimenting. Obviously this experimenting should be done a good deal of time before the actual lesson during which the proper presentation is given.

Dissolved tape/slide presentations

The presentations produced by the MDPP project are of the "dissolved slides with synchronous sound"- type. These presentations need two projectors and a special steering unit which includes a cassette-recorder. Special pulses on the sound-cassette are translated to electro-mechanical pulses by the steering unit which drives the slide-transportation of the two projectors.
The soundtrack (a combination of the narration and music-fragments, sometimes sounds recorded on location are included) plays a vital role in these presentations. Therefore proper attention should be given to the sound-reproduction quality during the projection. The steering unit (or the "dissolve unit") very

often has a built-in amplifier of 10 to 15 watts, which is enough for average classrooms. A high-quality set of loudspeakers is essential for audibility and brightness of the sound.
If the projection takes place in a larger than normal room the sound should be amplified through an external amplifier connected to a public adress system with adequate power.

N.B. When setting up the complete set (two projectors and the dissolve unit) it is important that the "line-up"-procedure which is described in the users manual of the dissolve-unit, is closely followed. The effect on the screen will be that of one continuous picture with changing images, an almost film-like effect.

All MDPP-presentations start with the slide-magazines on position "1": place the magazines on the projectors on position "0", then manually transport both magazines to position "1". Then the presentation can be started.

Tape/slide presentations on video

Since the equipment needed for dissolved slide-presentations with synchronous sound is not everywhere available the presentations have also been recorded on video-tape. The type of video-cassettes used is "Betamax".
When a presentation on video is necessary some aspects must be kept in mind:

- the limits of the group-size, because of the relatively small size of the television-screen. In general a television-tube of approx. 65 cm diameter will be sufficient for 10 to 15 people. If a group is larger two or more television-receivers should be connected to the video-player-set.

- a dependable power-source must be available; the video-signal is steered by the net-pulses of the power-sources so any fluctuations in the power will affect the quality and stability of the video-picture.

- most of the brightness and sharpness of the original slides is lost on the video-screen because of its relatively low resolution; therefore the screen-picture should be adjusted very carefully giving proper attention to contrast, brightness and color-rendition.

3. HOW TO USE THE TAPE/SLIDE PRESENTATIONS

All tape/slide presentations produced have an introductory character. They show large outlines, general concepts, relations between activities and ideas, etc.
They are by no means intended to be used as "stand-alone"-programmes, or as teacher/instructor-replacing media. The time of presentation is always within the lesson, as an integral part of the lesson.
It should be remarked that projection of the tape/slide presentations, or of any audiovisual media for that matter, as an "extra", as a relaxing time-filler of a break or interlude, is contradictory to their objectives and didactical purposes and hence should not be encouraged.

Therefore the instructor using a tape/slide presentation in his lesson, should do the following:

He should have a pre-view of the complete presentation, at least one or two days before he will give the actual lesson. If a projection of the presentation is difficult to organise the booklet supplied with the tape/slide presentations which contains prints of all slides and the accompanying text in full should be read carefully. For further reference see Volume 9.

He should carefully study the lesson-plan given in the module and select the best place within the plan for the tape/slide presentation. This largely depends on the way the instructor structures his lesson. However a generally used method for tape-slide presentations is: have a short oral introduction into the subject, then project the presentation. After the presentation, give the actual lesson, using and building on the concepts and ideas given in the presentation. When the lesson (or series of lessons on one subject) is over, evaluate by questioning whether the trainees have understood the message(s).
It is good practice to project the complete tape/slide presentation again at the end of the lesson: the trainees recognise the elements they heard before, and they can easily give all ideas and concepts a proper place in the structure of the presented matter. This second projection can dramatically increase the impact of both the lesson(s) and the effect of the tape/slide presentation.

4. WHICH TAPE/SLIDE PRESENTATIONS ARE AVAILABLE?

During the MDPP project four tape/slide presentations have been prepared. These are:
- Information to Regional Authorities;
- Financial/Administrative procedures in water supply.
- Water Supply (general);
- Water Treatment;

A brief description of each of these tape/slide presentations is given below. The full text and reproductions of all slides for each tape/slide presentation are presented in volume 9 of the MDPP Master Manuals.

The four presentations were originally produced in the Indonesian language and carry the following titles:

- "Peranan Pemda" (The role of the local government in the development of water enterprises);
- "Prosedur Administratif dan Keuangan" (Administrative and financial procedures);
- "Pokok Pokok Penyediaan Air" (Principles of water supply);
- "Bangunan Pengolahan Air" (Water treatment facilities).

(All presentations are available in both Bahasa Indonesia and English)

"PERANAN PEMDA"

Availability of clean and reliable water is important for public health. All over Indonesia hundreds of water enterprises are set up. Especially the starting-up phase of these enterprises is difficult and asks special attention from all parties involved, in particular the local government.
During this phase a number of problems should be overcome and a number of questions should be answered.
Setting up a water supply system is preceded by the selection of a proper location, if possible as near as possible to an available water source. Therefore water availability and water quality are investigated as well as suitability of the area for the construction of a distribution system.
Buildings and financial support are needed during the period wherein the enterprise has no income. Staff must be recruited, salaries must be paid, water must be treated and distributed to the consumers, which should be connected to the system. For all these elements support is needed from the local government.
The local government is needed as a judge when interests of different water users become conflicting: industries pollute the water, irrigation abstracts large amounts of water. The water enterprise could be hurt seriously by these competitors.
Creating a water enterprise and thus making consumers dependant on the availability of clean water is a responsible task. It also demands a considerable financial investment.

To make this investment worthwhile and to provide the consumers with a reliable water supply system, thus increasing their standards of living and health situation, demands solving the problems mentioned before.
Success is only possible with full and enthousiastic support of the local government.

(length: approx. 17 minutes)

"PROSEDUR ADMINISTRASI DAN KEUANGAN"

Water enterprises have to deal with large amounts of financial transactions: expenditures on operating cost and income from water sales. By itself these financial transactions are not very complicated. The sheer quantity makes it necessary to create an effective financial and administrative system within the enterprise. Procedures are created to ease this financial/administrative traffic. Procedures are ready-made chains of actions which make clear to all people and sections involved who should do what and on what particular moment. Five types of procedures are distinguished, of which two are explained in detail in the presentation: the new connection procedure and the billing procedure complete with their accounting activities. Both procedures are demonstrated "life" as well as in a series of animated built-up diagrams which make these complicated chains-of-action clear and understandable.

(length: approx. 16 minutes)

"POKOK POKOK PENYEDIAAN AIR"

A water supply system is composed of four major components. These major components are:
- the intake where the raw water is abstracted from the source;
- the treatment where the raw water is treated in such a way that it becomes safe and reliable for human use and consumption;
- the transmission-system which brings the treated water to the supply areas;, and
- the distribution-system which delivers the water to the consumers.

Some attention is given to the importance of a proper maintenance and leakage control programme for the water distribution system.
All components are touched briefly and illustrated with various pictures of both large and small systems.

(length: approx. 6 minutes)

"BANGUNAN PENGOLAHAN AIR"

Although water treatment installations vary much in detail and design they are all based on the execution of all or several of the steps needed for water treatment. For conventional surface water treatment installations these steps are:

- straining;
- coagulation and flocculation;
- sedimentation;
- filtration;
- neutralisation, and
- disinfection.

The water treatment process is demonstrated in a beaker glass: the different steps of adding chemicals and their effect on the water are clearly shown. Then all technical components of the water treatment plant including the intake are shown. Examples are taken from both big and small installations. Supporting facilities such as a laboratory, a storage-room, a pump-house etc. are also shown.

(length: approx. 15 minutes)