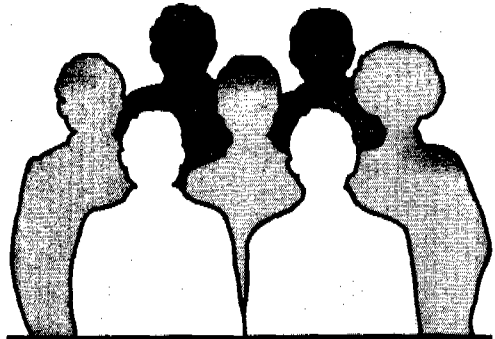


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Human Resources Development

CASE STUDY **2**

Job descriptions prove their worth

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Job descriptions prove their worth

How a training package was developed during an Organization-Management-Training Project for 11 Indonesian cities and is now being applied nationwide.

A Human
Resources
Development
Case Study
No: 2 in a series

in 5108
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Foreword

The World Health Organization (WHO) and the Swedish International Development Authority (SIDA) are jointly producing a thematic series of case studies focussing on Human Resources Development.

Our intention is to both illustrate and document various methods, used in different parts of the world, which aim at improving human performance.

Activities and projects selected for this series are all of an innovative nature. They show that there are usually a variety of methods other than classical classroom training to help people do their jobs better.

While country reports and project descriptions are common, one seldom finds detailed descriptions of techniques used. "What was done?" is answered more often than "How was it done?". In this case studies series we aim to provide the reader with a total perspective of what was done, how it was done, why it was done and an assessment of its effectiveness.

These collected experiences should give the reader ideas, which can be adapted to improve other activities and projects in his or her own environment. We believe this series will be a source of inspiration for action and deliberate change.

This specific case was selected by the Government of the Netherlands which submitted a text written by Mr Alan J. Vincent from DHV Consulting Engineers. Additional information was collected during a field visit to Indonesia in March 1988. Interviews with trainers, trainees and administrators of the 11Cities OMT Project, visits to several water companies and other written material also form the basis for this case study. We thank DHV Consulting Engineers in particular for its assistance.

Alice Petré, 21 December 1988

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Les opinions exprimées dans les documents par des auteurs cités nommément n'engagent que lesdits auteurs.

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Summary

Providing training at short notice

**Trainees attractive
for others**

Indonesia's 11 cities Organization-Management-Training (OMT) Project has been a milestone in the country's water supply development. Designed and implemented in the period 1982-85, it linked institutional and manpower development to water project implementation for the first time.

While new water supply systems were installed, people were trained to meet the requirements of administrative reorganization and new routines. Staff training needs were analyzed on the basis of job descriptions and data collected in the field. These job descriptions were essential in preparing the training package.

The impact of the Dutch-supported OMT approach can now be detected nationwide in a country with 180 million inhabitants. Based on the project's design of training curricula and materials, a standard training programme has been developed for the whole of Indonesia. Training manuals have been compiled, so that training can take place anywhere with a minimum of prior planning.

A lot of money has been saved, first by cutting down planning and preparation time, and second by replacing consultants with regional trainers. Using the standard package, Cipta Karya, the Human Settlements Directorate of the Indonesian Ministry of Public Works, reckons that the cost of training one manager or operator on a two week course amounts to just US\$ 250 (400,000 Rupiah), excluding any travel costs.

The resulting water enterprises in the eleven cities vary in their effectiveness. Some are working well while others suffer from a high turnover of staff. So highly regarded is the training that other industries have come in and, with the offer of higher salaries, attracted personnel away from the water enterprises. The government has not taken any steps to try to prevent this. Nevertheless, the approach used by the OMT Project has been applied all over Indonesia and stands as an encouraging example of demonstration projects. ♦



Children delighting in a quick splash. Official sources say some 40% of Indonesia's urban population have access to piped water in the home or through public taps.



Setting the scene

New expertise for new water systems

Benefits realized

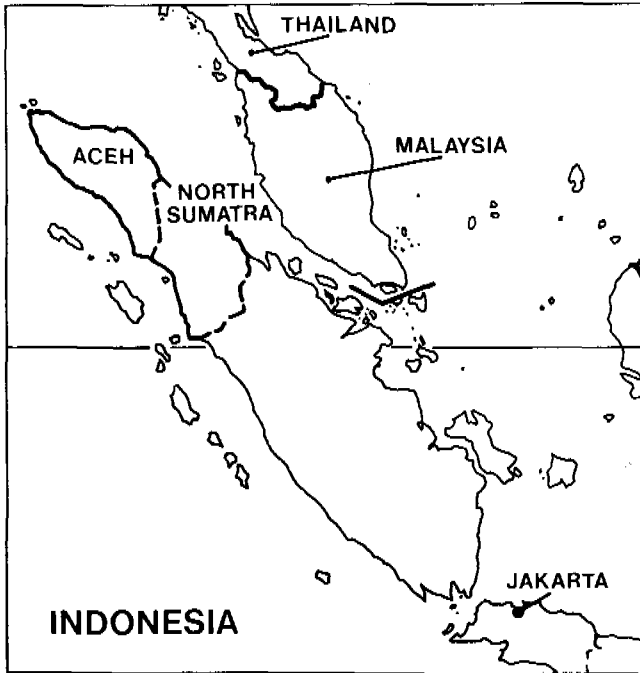
During Indonesia's third five-year plan (1979-84), water production capacity in urban areas grew from a national coverage level of 35% of the population to 60%. In rural areas the rise was from 18% to 32%. However, building new facilities was one thing; operating and maintaining them was something else.

Though production capacity almost doubled, the amount of water actually produced did not keep pace. The coverage figures have therefore had to be revised. According to official figures, 40% of the urban population are now considered to be served. The situation in rural areas is not recorded. Others involved in Indonesia's water development sector estimate that only 20% of the installed capacity is actually being used, indicating an even lower level of coverage.

Lack of trained manpower, technical expertise and management skills have been important constraints hindering improved operation and maintenance of constructed facilities. Management and manpower requirements became a major issue for the Indonesian Ministry of Public Works.

The 11 Cities Organization-Management-Training (OMT) Project was a turning point. It was designed and implemented over the period 1982 to 1985, as a complement to a new water supply project in the same eleven cities. While providing the cities with new water supply systems, the government recognized that benefits would not be fully realized unless the right organization, management skills and training were provided as well. The pipe systems had to be part of a well-structured organization and run by a trained and skilled staff.

The water supply sector in Indonesia is divided into three levels of responsibility. The 11 cities OMT Project involved water enterprises in smaller cities, usually with populations of 20,000 and above. These cities serve their customers through piped systems with individual house connections or public taps. They have central production facilities.



The eleven cities involved in the OMT Project are all in North Sumatra and Aceh.

production facilities.

The eleven cities directly involved in the OMT Project are located in the provinces of North Sumatra and Aceh. In the course of the project, two water enterprises were merged, so that the programme in fact covers ten individual utilities.

Some cities already had water enterprises, but they were usually somewhat embryonic and unsuited to the new supply systems. So, in every city there was a need for a new organizational structure, for a development of management skills, and for a trained and motivated staff.

Fresh start

The government of the Netherlands supported the project, investing 2,25 million Dutch guilders (about US\$ 750,000) alongside a contribution of 176 million rupiah (US\$ 150,000) from the Indonesian government. The project was designed and implemented by DHV Consulting Engineers, TG International, and local consultants. In all, it took 53 man-months of expatriate time and 55 man-months from Indonesian staff between 1982 and 1985. ♦

Part 1

Project planned in four distinct phases

Significant exception

The 11 Cities OMT Project activities were divided into four phases:

1. **Data collection** relating to the existing water enterprises and their organizations, staffing, operational procedures, services and sources. Based on analyses of this information, the needs of each city could be identified and measured.
2. Support for **institutional development**. This included assistance in establishing new water enterprises with new organizational structures, recruiting staff and introducing routines for administration and financial accounting.
3. **Design and implementation of the training programme**. In this phase, the first action was to analyze training needs and identify the key jobs regarded as first in line for training. Based on the data collected in the field and government prepared job descriptions, revised job descriptions — which specifically suited the needs of the eleven cities — were prepared (See sample, page 23). Then curricula were developed, based on these job descriptions, trainers were trained and course material developed — all leading up to the actual training of the first recruits.
4. **Follow-up in-service training**. An individual approach was adopted for each water enterprise, and for each key job holder. During this stage, operational procedures could be adjusted and manuals for operation and maintenance were developed.

Data on the existing water enterprises were not extensive but revealed their weak condition. For the programme designers, the situation was almost like starting from scratch — with one significant exception. In Indonesia's rapid expansion of water supply systems in the early 1980's, national

guidelines had been adopted for the establishment of water enterprises. These included a basic organizational structure which was also to be applied in the eleven cities.

Job descriptions had already been formulated, on a national level, for each job title. These included information about tasks, duties and responsibilities, and were updated and used for curriculum development. One rule of thumb used was that normally one person could supervise up to nine others without a significant fall in efficiency. The national guidelines also used a staffing indicator to calculate the number of employees needed in relation to the number of house connections. The use of this indicator as a planning tool is featured in a separate case study in this series.

The revised job descriptions listed information under the following headings:

- Job title;
- Responsible to;
- Duties;
- Needs to know;
- Topic/session number.

They proved indispensable for developing curricula. As the status of the existing water enterprises was weak, careful analysis of each job and its requirements was the way to define the training content. ♦

**Job descriptions
indispensable**

Part 2

Coaching at work is a must

**Ability to transfer
knowledge**

The formal training programme was a major component of the OMT Project. Its implementation required a complete training delivery system, including courses, training facilities, training methods, trainers, and facilitators.

In defining the general training needs, project staff were given a flying start by the existence of relatively detailed job descriptions. These outlined the tasks for each job title, and so provided the basis for what knowledge and skills would be needed to perform the duties.

Assessment of the qualifications of the present staff and inventories of existing water systems, though necessary, only added some data for determining training needs. Many employees were new to their jobs, others not familiar with the new procedures and tasks.

Trainees were selected by the regional or municipal governments, together with the Director of the water enterprise. Some already held the key jobs, others were recruited or promoted. The training staff decided that it was not meaningful to personalize training needs at this stage. Curriculum development would be completely task and job-oriented. Additional needs on an individual basis would be identified and pursued during subsequent in-service training.

Aims of the formal training programme were to provide knowledge about the functions, duties and procedures of the water enterprise and develop skills to carry out the activities contained in the job descriptions for each job title.

Another critical objective was to develop the ability to transfer knowledge and skills to other employees of the water enterprise. In this way, training could be directed at those in key positions in the organizational chart: Director; Head of Financial and Administrative department; Head of Technical department; Bookkeeper; General Administration and Personnel Officer; Water Treatment Plant Supervisor; and Planning and Supervision Officer.

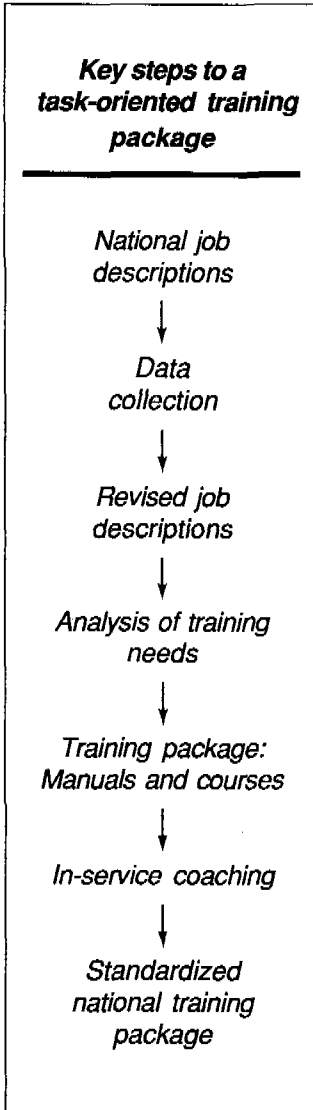


After formal training, the specific needs of individuals are tackled during periods of in-service training.

The first step in designing a course for one job title was to look at the government job descriptions in relation to the data collected about tasks and about the water enterprises. Based on this information, the curricula designers listed twelve subjects necessary for each of the seven key job titles:

- General information about water supply and health
- Survey techniques
- Design
- Construction
- Supervision
- Management
- Finance
- Administration
- Production
- Distribution
- Maintenance
- Water Supply Planning

For every job title, training would touch on each subject, but the mix and the emphasis would be different from job to job.



Relevant components were then selected from the twelve disciplines and written down, as modules where possible, on cards. The cards had different colours for each discipline. By attaching these cards to a display chart, it was possible to get an overview of the programme for any particular job title.

In this way, training staff could establish logical sequences of the training modules for each job title and time allocations for each session could be readily matched to availability of staff and facilities. Each course was supposed to last for two weeks. The display chart allowed for detailed weekly planning and for adjustments as training progressed.

The core of the trainers came from the consultancy firms involved in the project. Others, such as staff from institutions in Medan, were invited to teach on a part-time basis. Before the formal training programme began, the trainers themselves underwent training in instructional techniques, in Jakarta. A group of twelve people, local officials and staff from the 11 Cities OMT Project also followed a course at Medan, so that they could provide support and services to the core group.

The training style varied between courses because of the different nature of the jobs. Directors, for instance, would stay more in the classroom, while the Water Treatment Plant Supervisors made more field visits.

In general though, most of the time was spent in the classroom. Lectures, discussions, demonstrations, tape/slide presentations, case studies, and exercises were used. Today, when others use the training material generated by the project, some prefer to add more exercises and participatory activities.

To ensure continuous development of the curriculum, evaluation reports were prepared for each training period. These contained a brief evaluation by the training staff, data on the participants and information about the tests and homework exercises.



A customer looks on while the local water official repairs a public tap. Existing job descriptions in conjunction with data from the field formed a critical part of curricula development in the OMT Project.

Mr Achman Ramzan, an OMT Project trainee, tells how he benefited from the courses: "Although I was responsible for administration, I hardly knew any accountancy. I found the training quite difficult and was supposed to learn a lot during a short space of time. But, with the in-service training afterwards, I now work quite differently", he says.

Mr Ramzan is Administrative Chief of the water enterprise in Sigli, Aceh province in North Sumatra. He has held the post for many years.

Before the OMT Project he had no knowledge of accountancy routines. Now however, his situation is different. "In the classroom I remember I learnt things like not paying everything in cash, but rather to get a bank cheque when a large amount of money is involved. Or, for example, how to write an order letter when we need spare parts. Unfortunately I don't get to practise this routine very much – we seldom have enough money for big orders".



"The course was difficult but with the in-service training afterwards, I now work quite differently", says Achman Ramzan

On four occasions Mr Ramzan was coached on-the-job by a trainer. During the trainer's first visit they discussed the routines for keeping an accurate daybook. The second visit was used to check how he had dealt with this during the intervening period. Mistakes were corrected and Mr Ramzan improved.

During the third visit they reviewed the general routines set out for an Administrative Officer - those which Mr Ramzan was supposed to have learnt in the classroom. On the fourth visit, the trainer thought Mr Ramzan was doing well and since then no further training has been provided.

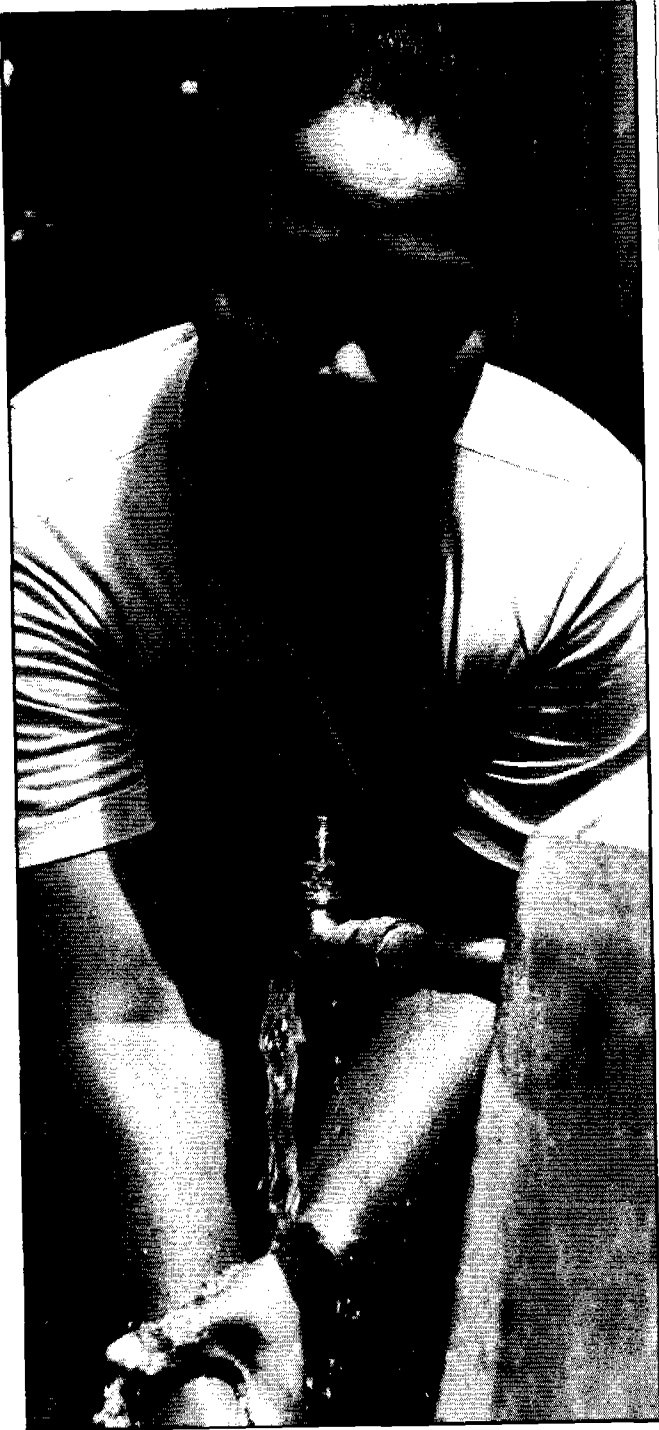
It is clear that Achman Ramzan has benefited from having committed himself to the training programme. He believes he could use more in-service training but instead says he regularly consults the manuals which are right there in his top drawer.

"When I encounter difficulties, I consult my manual, which happens a lot when it is time for budgeting."

A bookkeeper echoes similar sentiments to those of Mr Ramzan. "The in-service training was more efficient than the classroom training as we worked with my specific problems. It was also easier to understand and remember things when the trainer helped me to solve my problems on-the-job.

"Before the course I worked as an operator so I had no knowledge or experience whatsoever in preparing the books and balances".

Like Mr Ramzan, he says he needs more on-the-job training failing which, he uses the appropriate manuals. He doesn't think the job is difficult but that "there are certain routines to follow and once you have practised them things go quite smoothly". ♦



JOB DESCRIPTIONS PROVE THEIR WORTH 17

Part 3

Manuals for both instructor and trainee

Basic and advanced courses

Along with curriculum development, compilation of the OMT training manuals has proved extremely valuable from an instructional point of view. The manuals were compiled in such a way that any instructor should be able to take one down from the bookshelf and implement the module simply by following the text. As a result, the training can be conducted with little prior preparation by the trainers. The manuals are now being used in many parts of Indonesia.

The manual contains a full outline of the curriculum, with the required time for each module. The modules themselves are described in different formats, to suit different users. They are divided into five sections:

1. An information sheet about the subject treated in the particular module — blue paper
2. Session notes serving as guidelines for the trainer — pink paper
3. Training aids describing, for example, the overheads to be used — green paper
4. Handouts to be given to the trainees after the class (these were later compiled into a manual for each category of job) — white paper
5. View foils to be used in training

Today, the manuals exist both in Bahasa Indonesia, the national language, and in English. They have been produced for all the basic courses and for some of the advanced training programmes developed later, for directors for example. During the 11 Cities OMT Project, the training staff realized that manuals for trainees to use in the office would be of great value. Using the notes given out to students as a basis, they prepared a series of such manuals. There are operation and maintenance manuals for the technical staff, with instructions for daily, weekly, monthly and yearly activities, and other manuals covering finance and administration.

With Dutch Government and World Bank support, a project was launched on a national level

to improve standardization, presentation and quality of the manuals and modules. This Human Resources Development Project (HRDP) is still in process. It has not only refined existing manuals but also enlarged the amount of readily available training materials.

Formal classroom training offered few opportunities to consider very specific individual needs of the trainees or the water enterprises. The follow-up in-service training is just the opposite. The trainer tailors the training during a visit to the water enterprise; there is no predetermined training activity.

During the 11 Cities OMT Project, in-service training was given on 70 different occasions and totalled about 63 man-weeks between September 1983 and August 1985. This came after seven months of classroom training. Two-thirds of the in-service activities were in finance and administration; others involved development planning, management, or technical matters.

It became obvious during the in-service training that some problems were arising more than others. The OMT Project therefore decided to arrange further workshops on those specific topics. The topics chosen were: leak detection and control; distribution networks; water quality; and mechanical/electrical matters. There were also two follow-up workshops for directors.

Regular in-service training is still provided by the local government agencies running the projects. Trainers visit in groups of two or three, covering all aspects — financial, administrative and technical. Today they stay in the same water enterprise for up to a week.

Many of the key job holders in the water enterprises consider the in-service training to be more effective than the earlier formal training. However, most believe that without the theory learnt during the OMT Project at the beginning of the 1980's, it would have been difficult to absorb and profit from the in-service training. ♦

Individual needs considered

Further workshops

For the future

Lessons learned

The Organization-Management-Training concept has produced demonstrable benefits for Indonesia. The standard training package, already leading to replication of the OMT approach, at much reduced cost, is saving money and raising the chances of more sustainable water supply projects all over the country.

Integrating classroom training with coaching at work sites; developing training manuals and job routine reference manuals; and changing organizational structures are key ingredients which account for the success of the project. When documenting this, both positive and negative aspects are worth noting:

➤ **Carefully developed job descriptions are indispensable help for curriculum development.** In Indonesia job descriptions for the different key job holders, who were to be trained, had already been formulated on a national level. They included information about duties, responsibilities and tasks. Having these descriptions it was possible to see what the jobs required and compare it to existing status. In this way, it was possible to prepare revised job descriptions suited to the needs of the eleven cities.

➤ **Improvements require an honest will for change.** The OMT Project had varied success in raising the service level of drinking water in the cities involved because attitudes towards change differed considerably between the cities. Where people realized that the attitude "this is the way we have always done it" is no safeguard for results and were prepared to change attitudes, work style and routines, the water companies did develop.

➤ **Individuals must recognize a need for training to improve their performance.** The administrator, who we read about in this case study, for example, testifies to the positive effect of the training programme. Every time he got on-the-job training, he realized how much, and what, he did not know. Others interviewed, for example two directors, considered the training sufficient and, not

surprisingly, their respective water companies were not improving as much.

➤ **Support from the top-level is a prerequisite for sustainable change and development.** When the top management agrees to change work styles, routines and to train staff for example, it is likely that development will take place and water services will improve. The opposite is as much true – with no support from above, subordinates, although better trained, will not be able nor be motivated, to improve performance.

➤ **Motivation comes with adequate preparation.** It is apparent in this OMT Project, that those who considered the training relevant to their daily tasks became not only more motivated to learn, but also to improve their performance. The training was tailored to each position, but in those cases where routines were not followed as laid out, the trainees' new knowledge and skills were not optimally used.

➤ **Follow up is crucial.** Training in the OMT Project was divided into two phases - classroom training and on-the-job training. For most of the trainees, it was necessary to follow up not only with scheduled practising days in the office but several occasions of in-service training. Phase one in the classroom served more as an introduction and orientation. Although the project was completed in 1985, on-the-job training is ongoing. To follow-up on an individual basis has shown to be an essential task for instructors.

➤ **Personnel development must go hand in hand with institutional development.** In several cases in the OMT Project, it was obvious that the trainees had moved ahead of their organizations. They had realized, thanks to their training, that certain routines and procedures ought to change in their water companies if they were to develop services. Some tried to push their organizations to change and if this did not happen, they became frustrated and preoccupied with other things. Training may not necessarily ameliorate things if it is not adequately planned and supported.

➤ **Trainees must be carefully selected.** Several of those prepared in Indonesia improved their performance considerably and contributed to improved water services. Others were selected for reasons other than their professional merits and were moved into positions outside the water sector as soon as they were provided with the OMT Project preparation. It is unfortunate to select trainees who are planned for other jobs as this has a debilitating effect on the sector at which the training is aimed.

➤ **Personnel upgrading requires a plan beyond project termination.** The OMT Project has been hindered somewhat by a common problem: a high turnover of staff. Once better trained, staff found their market value had increased and so moved to other positions with higher salaries. Any personnel upgrading programme should, from the very start, include an attractive career plan for employees. ◆

Extract from a revised job description

PART I

JOB DESCRIPTION

JOB TITLE : Kepala Bagian/Seksi Produksi
(Management Level III)

RESPONSIBLE TO : Kepala Bagian/Wakil Direktur Teknik
(Management Level II)

DUTIES :

To plan, organise, direct and control the activities of the Seksi Produksi to ensure that water production, treatment, analysis and storage are carried out effectively and efficiently, especially :

Ensuring that Quantity of Water Produced Meets Planned Targets

1. To arrange, with Kasubseksi Produksi, an operating schedule for sourceworks and treatment plants which makes optimum use of water storage facilities, to meet water production targets.
2. To monitor water production and take appropriate action if the quantity produced falls below the targets.
3. In conjunction with Kaseksi Perencanaan, to ensure that sufficient measurements and records are made at all water resources to enable the long-term reliable yield of each source to be established.

Ensuring that Water Produced is of Satisfactory Quality

4. To ensure that a programme of a water quality monitoring is established for each source.
5. To ensure that all precautions are taken at water sources, especially springs and boreholes, to prevent pollution of the source.
6. To establish a strategy for temporarily shutting-down a water source in the event of sudden pollution at the source.
7. To ensure that a programme of water quality monitoring is established for water leaving the treatment plant.
8. To monitor the results of analyses of quality of water leaving the treatment plant, especially values of turbidity, chlorine concentration, and pH, to ensure that the treatment process is working effectively.
9. To take appropriate action to identify and rectify problems and faults if the treated water quality is found to be below an acceptable standard.
10. To ensure that all precautions are taken at water storage reservoirs to prevent pollution of the contents.

PART II

JOB ANALYSIS

JOB TITLE : HEAD OF PRODUCTION SECTION

DUTY NO.	NEEDS TO KNOW	SESSION NO.
1.	- Maximum yield available from each water sources)
	- Maximum capacity of all components of the production system (pumps, transmission mains, treatment plant, storage))
	- Production targets)16b
	- Daily pattern of fluctuations in water demand	16a)
	- How to match water production and storage to water demand	16b)
)
2.	- Daily totals of water production	16c
	- How yields of water sources (rivers, springs, boreholes) fluctuate through the year	4)
	- General appreciation of pumping equipment, how it operates and what can cause a drop in capacity (e.g. blockages, air locks, priming problems, pump wear problem, faulty valves)	14)
	- Appreciation of causes of reduced capacity of transmission pipelines (e.g. blockages/leakage, faulty valves, air locks))16d
	- Mechanical aspects of water treatment process (e.g. inlet arrangements, sedimentation and filtration processes)	13)
)
		10)
3.	- (How yields of water sources vary throughout the year and from year to year)	4)
	- Kinds of data required for water resources (yield) calculations)
	- Outline of methods of measuring water levels and flows	5)
	- Who will use the data (specialist consultant/DAB)	5)16e
4.	- Qualities (physical, chemical, bacteriological) of natural waters (surface water and groundwater) and variations in quality through the year)
	- Origins of impurities in water	6)
	- Water quality standard for water supply	6)17c
	- Impurities which can be removed in the treatment process	8) d
	- Impurities which can be harmful to man (names, max. allowable concentration, results of overdose)	8)
)

DUTY NO.	NEEDS TO KNOW	SESSION NO.
	- Impurities causing taste & smell	8)
	- Outline of laboratory activities :))
	. impurities which can be identified))
	. types of analysis))17c
	. equipment and materials required)12) d
	. water sampling techniques))
	. laboratory manpower requirements))
	- How to set up a quality monitoring programme for untreated water	17a
5.	- Ways in which pollution of springs and boreholes occurs	17b
	- How to minimise pollution of springs and boreholes	17b
6.	- Possible causes of sudden pollution of water source)
	- How to identify sudden pollution of source)
	- What action should be taken in the event of sudden pollution)17b
7.	- (Water impurities which are harmful to man)	8)
	- Water impurities which are harmful to the distribution system	8)17c
	- (Outline of laboratory activities)) d
	- How to set up a quality monitoring programme for treated water	12
		17a
8.	- Meaning of "turbidity", "chlorine concentration", "pH"	7)
	- Standards for turbidity, chlorine concentration, and pH)
	- (Water quality standards)	8)17c
) d
		8)
9.	- Chemical aspects of the water treatment process (coagulation/flocculation/neutralisation/disinfection/chemical mixing and dosing/problems with algae)	10, 11
10.	- How to prevent pollution of storage reservoirs	17b

PART III

TRAINING COURSE FOR HEAD OF PRODUCTION SECTION

SYLLABUS

Session No.

Topic

INTRODUCTORY SESSIONS :

1. The role and objectives of a water enterprise.
2. The role of the Seksi Produksi and the duties/ responsibilities of the Kaseksi Produksi.
3. Water supply and public health.

TECHNICAL BACKGROUND SESSIONS :

4. The water cycle :
 - variations in yields of rivers/springs/boreholes.
5. Data collection for yield assessment of water sources :
 - long-term data required
 - methods of collecting data (flow measurement and water level measurements).
6. Raw water quality :
 - physical, chemical and bacteriological
 - surface water and groundwater
 - origins of impurities
 - natural variations in water quality
7. Basic water chemistry :
 - atoms, molecules, ions
 - strengths of solutions
 - chemical reactions (reversible & irreversible)
 - meaning of turbidity and pH
 - oxidation and reduction.
8. Drinking water quality :
 - quality standards
 - impurities which can be harmful to man
 - impurities which can be harmful to the distribution pipework
 - impurities which can be removed in the water treatment process
 - impurities which cannot be removed in the water treatment process.

Some titles
in this series of
Human Resources
Development
case studies

Managing the managers

How the Philippines Local Water Utilities Administration monitors and supports General Managers of 350 Water Districts scattered all over the country.

Training programme gets a new profile

How the Water Resources Institute in Tanzania reshaped its curricula to meet the country's need for skilled technicians.

Strategic planning workshop sets project on its feet

How a workshop in Tanzania constituted the turning point for implementing a Health-Sanitation-Water programme.

A copy of any of the above can be obtained by writing to the WHO. If you want more information about a specific case study, or the project, or maybe have ideas about HRD activities to be shared with others, please contact:

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