

Applied organisation and management in water supply development in the third world

Voordracht gehouden tijdens de 32e vakantiecursus in drinkwatervoorziening 'De drinkwatervoorziening in de ontwikkelingslanden', die op 10 en 11 januari 1980 aan de TH Delft werd gehouden.

Introduction

Great thinkers of the East and West have agreed, for over two thousand five hundred years, that the definition of terms should be the first approach to any inquiry. For example, Confucius said, 'If names be not used correctly then speech gets tied up in knots, and if speech be so, then business comes to a halt'. Socrates took the matter a little further when he said, 'Until man knows the truth of the several particulars of which he is writing or speaking and is able to define them as



E. D. ROBERTSON
IWACO BV

they are and having defined them, again to divide them, until they are no longer divided, then he will be unable to handle arguments according to the rules of art'. Not wishing to argue with such learned men let me try and define some of the terms which we are using in the current jargon of the Organisation, Management, Training and Development specialism which I attempt to practice.

Organisation

We can define Organisation as the structuring and arrangement of individual activities to act as a corporate whole in relation to predetermined carefully defined objectives.

Management

There are almost as many definitions of management as there are managers. Many years ago it was defined as, 'Deciding what other people are to do, and then getting them to do it in the best possible way'. Nowadays that definition sounds remote and arbitrary but at least it does recognise that Management is about people, a fact overlooked in more recent definitions such as, 'Management consists of decision taking concerning the allocation of available resources to meet defined objectives', or even, 'Management consists of the effective realisation of a corporate plan'. Remembering that Management is a social process, something that people do in relation to other people, then I believe that the following four elements can be identified. (Fig. 1)

THE MANAGEMENT MENU

PLANNING

The Analysis and Identification of
Objectives
Resources
Constraints
Priorities

ORGANISATION

The Structuring and Arranging of
Supplies
Materials
Management
Supervision
Operation
Maintenance

DIRECTION

The Defining and Arranging of
Objectives
Duties
Motivation
Guidance

CONTROL

The Collection and Use of Information for
Monitoring
Correction
Replanning

Figure 1 - The Management Menu, the Four Elements of Management.

Planning

The analysis and identification of objectives, resources, constraints and priorities.

Organisation

The structuring of individual activities to act as a corporate whole.

Direction

The motivation of people, determining their duties and objectives, and guiding the organisation as a whole.

Control

Collecting and using information to identify and correct deviations from the desired course of events.

Now perhaps we know what Socrates was talking about !

Training and Development

Training and Development are two related activities which can be defined as the analysis of knowledge and skills in human activities and the devising of effective methods of communicating them as a means of enabling people to achieve assessable personal and corporate objectives more effectively.

Now that we have completed the 'Definitions' exercise let us now try and apply the principals embodied within the definitions to the subject under consideration, 'The

Development of Rural Water Supply in the Third World'.

The chain is only as strong as its weakest link

In Prof. Huisman's excellent paper covering the subject of, 'Water Supply in Rural Areas of Developing Countries' he briefly indicated that a number of technically competent solutions to rural water supply problems in the developing world had failed because of non-technical reasons. It is, therefore, in the non-technical areas of Organisation, Management, Training and Development that I wish to forge a strong link in the chain of events that lead to the provision of an effective long term solution to the problem of providing safe water supply systems in the developing world.

When I first started my working career overseas in Nigeria in 1953 it was put to me by my superiors that we must always teach the local population our way of thinking, our way of working, our way of behaving, our technology, our skills. The theme song I was to sing in my work was apparently to be 'My Way'. How naive, how inappropriate, with most of our assumptions, concerning the provision of safe water supplies in developing countries overseas, based on the historical perception and development of water supply in Europe.

Certainly there are some lessons to be learned, particularly in urban water supply development, but if we now start the 'Management' process by analysing the nature of the problem we may find that it is quite different and requires different solutions to those that were used in Europe in what is assumed to be a similar stage of development about one hundred and fifty years ago.

I am going to use figures related to Britain and Indonesia since I am more familiar with these and you may find them new and therefore more interesting. Since the same historical process occurred in the Netherlands as in Britain you can draw comparisons fairly easily.

Now these figures and others, clearly illustrate that the nature of a developing water supply need in Europe was predominantly urban. Indeed the great impetus in water supply, hygiene, and sanitation

TABLE I - Population in Britain.

Date	Population in Millions	Urban	Rural
1801	10.3	30 %	70 %
1891	33	70 %	30 %
1979	50	79 %	21 %

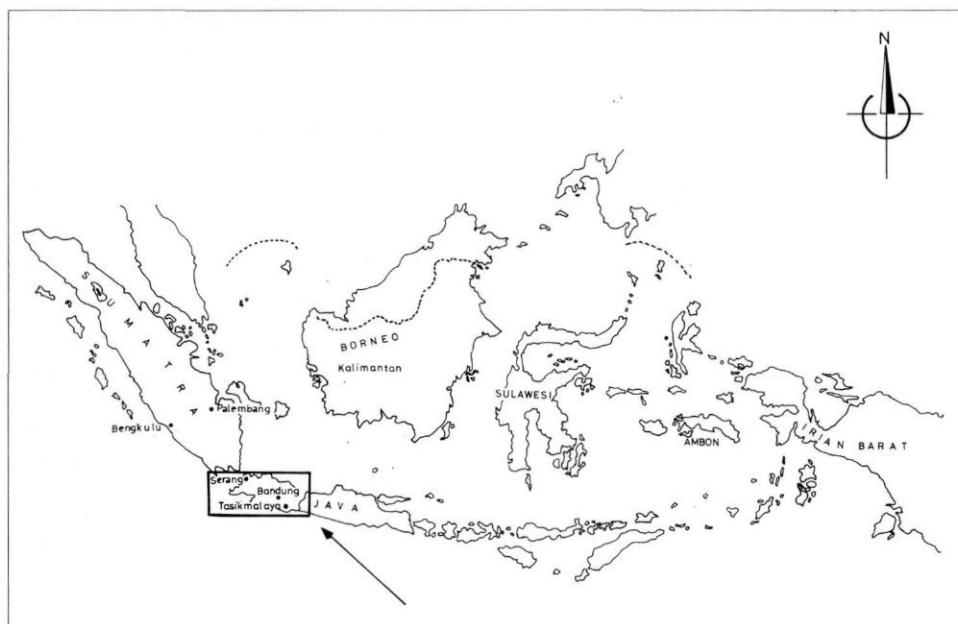


Figure 2 - Project area West Java Indonesia.

work which occurred in the middle of the 19th century was created when the increasing concentrations of working populations, arising from the Industrial Revolution, were decimated by typhoid and cholera. The social reformers, industrialists and their worker's increasing political muscle made governments put a high priority on the creation of a safe abundant water supply and effective sewage disposal systems.

If we now turn to an examination of the developing world, and in particular to Indonesia where I work, we find a very different situation (Fig. 2).

Indonesia, with a population of about 130 million and growing at an annual rate of 2.2 %, is the world's fifth ranking country in population. It comprises over 3000 inhabited islands, extends about 5000 km. East to West and 2000 km. North to South. The land area is about 1.9 million sq. km. and the four major islands are Java, Sumatra, Kalimantan and Sulawesi. The average population density of Indonesia as a whole is about 69 inhabitants per sq. km. About 24 million of the population are urban, living in cities of more than 5000 inhabitants, the big cities have populations in the millions. Urbanisation is

accelerating with potentially serious problems arising in consequence. About 55 % of the urban population are presently at or below the poverty level.

Java, which has about 65 % of the total population of Indonesia but only 7 % of the land area, has a population density of 565 people per sq. km., one of the highest in the World.

The province of West Java has a population of approximately 26 million people most of whom, about 20.8 million, live in the rural areas. About 80 % of the rural people are engaged in non-mechanised forms of agriculture supplemented by fishing in the Northern, Western and Southern coastal areas. An estimated 12 % of the rural people have access to safe water.

This analysis I hope convincingly establishes the nature of the problem and demonstrates that it is not in any way similar to the situation that existed in Europe which produced the impetus for water supply and sanitation development. Indeed the situation is almost the reverse. Methods of effectively developing rural water supply are partly aimed at improving the rural environment in order to stop the drift to the towns.

Having adopted the first 'Management' Planning stage of analysis let us continue the Planning process by examining the method whereby objectives, resources, constraints, and priorities are identified.

Planning for water supply development in the developing world

The objectives for water supply in the

developing world are established by Governments in much the same way as they are in Europe. The quality of the information used in determining the objectives is not as high or so reliable but the methods are similar. Once the objectives are established the resources, if available, are identified and the various governmental and other agencies are alerted. Almost certainly the resources will not match the needs and the inevitable constraints are identified. It is normally at this stage that outside advice and guidance is sought and various aid programmes are offered.

The identification of constraints naturally leads to the establishment of priorities and once these are established and agreed a process of using the available resources effectively produces a need for organisation development in both the rural and urban situations.

Organisation Development

The structuring of individual activities in water supply has been going on since man and his family group established itself and then formed communities. In the situation of the developing world the problem is largely one of population growth putting pressure on limited resources of safe water, producing increasing use of more and more poor quality water sources by a population that is lacking in knowledge concerning water related disease and its consequences. The problem is two-fold urban and rural.

Organisation Development in Urban Water Supply

The provision of adequate safe water supply has always been an easily recognised high priority for any urban communities' continued existence and expansion. The organisation created to meet those needs is the 'Water Works' with its technical plant and materials and a system of organisation with which I am sure you are already familiar. Now there is sometimes an assumption that when you have an urban community of a given size then the concentration of population produces a miraculous economy of scale in which a municipal or private water organisation, as a self-financing entity, equally magically appears. Well, we all know that it does not happen that way. For it to happen at all it has to be managed and directed. You need to have physical resources and you need to organise and plan the supply of a suitably qualified and skilled group of people who have to be motivated and rewarded at the going rate. They have to be guided and organised to work as a self

TABLE II - Population in Indonesia - 1979.

Area	Approximate Population in Millions	Urban	Rural
Indonesia	130	18 %	82 %
Java	84.5	19 %	81 %
Province of West Java	26	20 %	80 %

reliant and interdependant team. In the developing world these necessary and suitably qualified and skilled groups of people do not exist in the numbers required to maintain even the inadequate existing water supply installations, which were largely created during a much earlier period and, in consequence, require a high percentage input of repair and maintenance. Add to that situation the newly created or extended installations being rapidly constructed to meet the ever increasing size of towns and cities in the developing world. The manpower need for maintenance and repair which these installations will require, gives an indication of the scale of the problem.

In Palembang, South Sumatra, where IWACO is currently working on the rehabilitation and extension of the city water supply the most difficult problems are not technical. The creation of an effective organisation to manage, maintain and operate the system is undoubtedly the major problem area. Working with the Indonesian Authorities, IWACO is seeking to establish an effective introduction of a new organisation structure and accounting system upon which the future successful operation of the whole organisation will depend.

The training and development of existing and new staff presents a unique challenge for the management and the consultant. The existing staff consists of approximately 300 relatively unskilled civil servants who have almost total security of employment. To devise methods of motivation and training which will create the necessary range of skills to operate, maintain and repair the water supply system when it is completed and running in the future, presents special problems. The presence of petro-chemical and other new industries in the area has pushed up the local labour rates above those that the water undertaking can pay. The resulting apathy does not create the best conditions for trying to interest a workforce in accepting the demand for new knowledge and skills, or applying them in the future.

The scale of the problem was also well illustrated in an article written by Neil F. Carefoot in the AWWA Journal in which he reported on an inventory of the manpower and training resources for the Water and Waste Water Sector in Peru. The reasons for choosing Peru were threefold.

1. The perceptive utilities in the country were seriously concerned about the training deficit that was evident in the existing water and waste water organisations;
2. The situation in Peru was considered

to be fairly typical and representative of many countries in South America;

3. The data could be used on a comparison basis by other countries.

The main findings and conclusions were as follows and did not take into consideration any additional requirement from turnover and retirement.

1. 80 % of the present work force of 6523 some 5138 people required training to meet the demands of their jobs;
2. The top professionals in the industry some 2.8 % of the total work force have been the main focus of training;
3. The total number of workers occupying semi and unskilled positions represented 76 % of the total. No training institution offered courses for these employees;
4. There were isolated attempts at training within the water and waste water organisations but there were no programmes of training. There was no training policy or personnel directly employed in training;
5. Utilities lacked a personnel policy and job classification fundamental to a system of training and development;
6. The estimate of 6000 additional employees plus existing training needs required a training plan for over 11.000 people in five years;
7. Despite a marked shortage of appropriate manuals and teaching aids for this type of training the existing training institutions were receptive to adopting or adapting courses to serve the training needs of the water and waste water sectors.

What is most interesting about this study is that it took place at all. How many developing country governments were perceptive enough in 1975 to have someone look at the manpower needs of water and waste water sectors.

Let me round off this very brief look at the urban situation by illustrating the scale of

the current predicted population growth of some of the cities in the world. (Table III)

Rural Water Supply

Let me now turn to the biggest and most difficult problem of all. Most of the people in the developing world who have the greatest need for good water are to be found in rural areas. Is there any comparable organisation, management, or training and education experience available in the developed world which we can use and apply in these situations? I think not. We have never, to my knowledge, had to create, anywhere in Europe, a rural water supply system to serve, for example, 21 million people with 565 people per sq. km. in a geographical area with the topography and climate of West Java in Indonesia. If we draw on our existing knowledge of village and rural life and water and waste water practices as they applied in Europe we do find, however, that people provided themselves with very similar solutions – dug wells, springs, rain water collectors etc. but for a much smaller diminishing population which, incidentally, had similar problems to those experienced by rural communities in the developing world and who also shared the same prejudices against piped water supply for which they had to pay!

Turning again to Prof. Ir. Huisman's paper on this subject. Even if we had the money available for the hardware of water supply, the resources to use it in a competent way, and to organise the construction and maintenance of the system, do not exist. So we start on a process of phased improvement, but with a planned and accelerating momentum in which we have to solve the major part of the problem in a time scale of one quarter of the time it took to deal with a similar smaller scale situation in certain areas in Europe, in parts of which, even now, the problem has not been solved.

Once again, how, you may well ask, can we solve the problem. Well I think that

TABLE III - Population growth of cities.

City	Average annual rate of growth before 1975 %	Population 1975, millions	Predicted average annual rate of growth after 1975, %	Population 2000, millions
BOMBAY	3,7	7,1	4,2	19,8
CAIRO	4,3	6,9	3,6	16,9
LONDON	0,2	10,7	0,7	12,7
MEXICO	5,4	10,9	4,4	31,5
MOSCOW	1,8	7,6	1,4	10,8
NEW YORK	1,3	17,0	1,3	22,2
PEKING	5,8	8,9	3,7	22,0
SAO PAULO	5,7	9,9	3,9	26,0
SEOUL	8,3	7,3	3,8	18,7
TOKYO	3,9	17,5	2,0	28,7

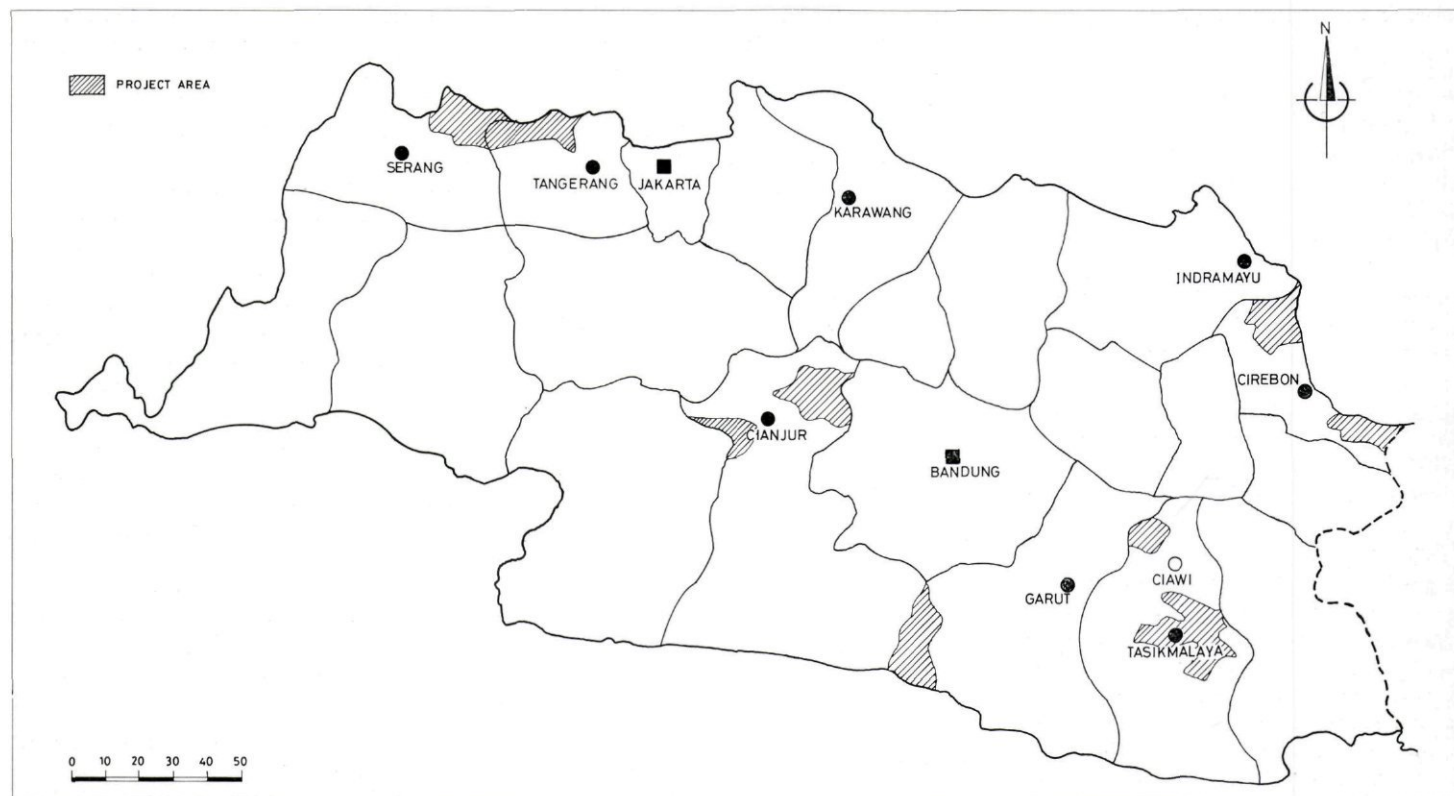


Figure 3 - Pilot project organisation and training Rural Water Supply Development in West-Java.

an objective and systematic use of the management elements I mentioned at the beginning of this article is a good way to start.

Planning

The analysis and identification of objectives, resources, constraints and priorities.

Analysis Rural Water Supply - West Java - Indonesia

Introduction

West Java is one of the 24 provinces of Indonesia. In the West Java situation in which I presently work there are 20, mainly rural, subdivisions called Kabupatens and 4 municipalities called Kotamadyas. These Kabupatens with Bupatis as leaders and Kotamadyas with Walikotas, are further subdivided into Kecamatans with Camats as leaders and then into Desas with Lurahs.

There are 386 Kecamatans and within these there are 3826 Desas (Rural, village based, communities).

Responsibility for water and waste water processes within the Province is shared between the Municipal Authorities who serve the Kotamadyas, with the representatives of the Directorate General of Communicable Diseases Control - (CDC) in the Ministry of Health, at the Provincial

and Kabupaten levels, covering the rural areas.

Population

The population of West Java is approximately 26 million, predominantly rural, and it increases at a rate of about 3 % per annum. The major part of the population is working in agriculture. The number of inhabitants in a typical rural community (desa) varies between one and ten thousand.

Health

With the establishment of Health Centres in nearly every Kecamatan general health conditions have improved in the last few years but water related diseases, especially gastro enteritis, are still a major health problem.

In most rural communities some of the water sources are heavily polluted by human excreta and this together with traditional bathing and washing practices and the obtaining of water from unprotected wells, ponds, streams and rivers, indicates the main cause of the problem.

Development

Since 1969 the Government of Indonesia, in responding to the situation, has incorporated rural water supply schemes and family latrine construction into its five year development programmes using the

agents of the Directorate General of CDC in the Ministry of Health and the Inpres (Instruction of the President) programmes as resources.

These programmes have had an effect but some of the methods adopted to provide rural water were found to be unacceptable to the communities who were not always properly consulted.

In addition to the indicated internal resources the Indonesian Government has also entered into arrangements with foreign countries and international agencies to provide additional help in improving the situation.

Since 1976, for example, the Dutch Government in co-operation with the Indonesian Authorities at National and Provincial level have established the Rural Water Supply Project-OTA-33 with which I work and which exists to assist the Province of West Java in the work of surveying, designing and constructing rural water supply resources.

A recent feature of the project work, within eight preselected water problem Kabupatens, is experimentation. In company with a limited number of Indonesian counterparts the expatriate project staff are attempting to develop appropriate and new designs, constructions, systems and organisations that really match the needs of the rural population. My particular interest is in Organisation, Management and Training Development.

Identification of objectives

Organisation – Kabupaten level

In 1977 and 1978, reviews carried out within the project identified a need for an organisation to be established at the Kabupaten level to be responsible for all rural water supply activities within the Kabupaten area. This proposal was accepted by the Indonesian Authorities on an experimental basis as a possible solution to the effective utilisation of very limited resources coming from the National and Provincial Government and the means of encouraging and promoting self-help programmes within the desa areas using the support of the Health Centres (Puskemas) established at Kecamatan level.

Resources

In the original reviews and assessments of the organisation development situation there had not been any in depth analysis of the resources available at the Kabupaten level for the creation and manning of a specialised rural water supply organisation using only the existing structure. It was therefore decided that a detailed organisational analysis of the existing structure would be carried out in which all sectors having involvement or influence on the existing or future rural water supply development effort would be identified and their resources assessed.

This resource analysis work consisted of using specially designed organisation charting forms which provided basic information on the function, qualification, experience and age of the incumbents in the range of jobs within each previously identified sector. These sectors were determined by establishing whether they had any financial involvement in, or knowledge of, rural water supply development, since either of these factors could be a potential resource for future use within the various levels of the planned organisation and its functions.

Constraints

The original proposal provided for full-time staff to be recruited but subsequent discussion with Indonesian Government Officials indicated that they were not able to make the necessary funds available for paying new, even if temporary, staff. They were prepared, however, to second people on a trial basis from existing departments within the Kabupaten. Despite this fundamental change in the original experimental concept, work had to start in order that the process of organisation development could at least begin.

Priorities

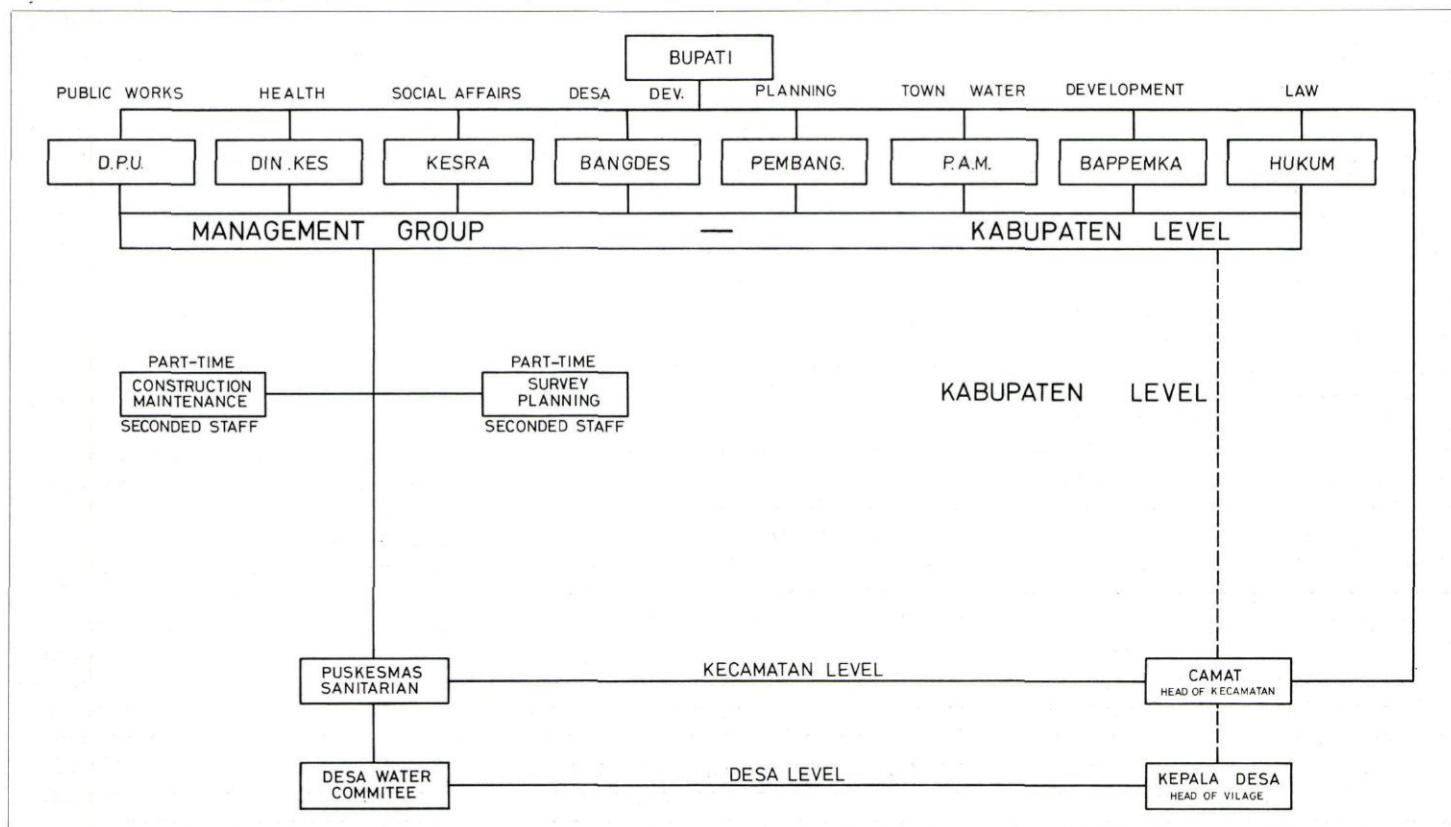
Following the organisational analysis work and a review of the information obtained

it became obvious that the original ideas would change. Discussions took place with all the Heads of the Sectors involved and it was finally agreed with them that they would organise along the lines indicated by our analysis, with the first priority being the creation of a 'Management Group'. This 'Management Group', within which all resources and interests were available for the purposes of management planning and decision making related to rural water supply, consisted of eight members as indicated in Fig. 4. Guidance was provided to the Management Group in terms of their proposed functions and the structure of the organisation necessary to fulfil them. The creation of an annual Rural Water Supply Development Plan to start in the 1980–81 financial year was made the first priority.

The resources necessary to achieve the objectives of the plan were the subject of discussion within the 'Management Group' and the following priorities were established.

1. The training of the new organisation's staff which was being provided by seconding staff on a part-time basis from within the departments of 'Management Group' members.
2. The creation of a 'Survey Plan' to take the form of a self-survey document for use by Desa (Village) Officials who were to

Figure 4 - Rural Water Supply Organisation - mark II (Actual result after review April/August 1979).



carry out the experimental survey under the guidance of the new organisation's staff who were to be trained in the objectives of the plan and the design and use of the forms together with the method of persuading, instructing and supervising desa officials in their use in identification of existing water sources and their condition.

3. The training of Sanitarians. During early organisational analysis work it was clearly evident that the only person within the Kabupaten having direct and exclusive responsibility for rural water supply in the rural areas was the Puskesmas (Kecamatan Health Centre) Sanitarian. An upgrading of knowledge and skill was considered a priority.

4. The development of an effective rural water health education policy and practice. Organisation analysis revealed that there was one person, a health educator, to deal with all of the health education aspects in a Kabupaten which had a population of approximately 1.2 million. While some work of a health educational type was carried out at the Puskesmas there was no manpower available to mount an intensive attitude and behaviour change programme aimed at altering rural population attitudes and behaviour in the direction of understanding that water was a potential health hazard as well as an essential element of life.

Support for the priority related to water health attitude and behavioural change is to be found with Bradley who states, 'Sufficient studies of poor communities have failed to demonstrate health benefits from simply improving water supplies. If our objective is better health, rather than just the existence of a new supply, then it is clear that additional inputs to change people's water using behaviour are needed.' This aspect of work in rural water supply development can never be too strongly emphasised. You can organise to produce the necessary supply of water but if there is not an effective method devised for educating people about water in all its aspects to the point where their attitudes and behaviour change then they will revert to traditional practices immediately an acceptable safe supply of water fails. They will not be motivated to accept the responsibility of maintenance of new installations to keep the supply continuously available if they don't know why the new supply of 'good' water is good! Nor will they accept a different and strange taste if they are not totally persuaded that the acceptance of change is fully justified for reasons which they completely understand and accept. Methods have to be found of

effective communication by careful study and experimentation. The resources to deliver the effective methods of communication have to be financed, trained and organised to be employed in this vital area of work in rural water supply development. Let us have some of the brilliant minds and enormous resources of the mass media persuasion systems of the developed world turn their attention to helping to solve this problem instead of creating needs in the minds of people who are already more than fully provided with the 'necessities' of life. It does seem entirely appropriate, despite the very limited resources presently available, that we should base our strategy for effective communication and persuasive education on a full scale involvement of all the media methods currently being so effectively used in the sale of patent and other medicines for the treatment of the illness largely produced by the consumption and use of polluted water.

If we tackle the water health education problem village by village at the time we manage to provide new or improved safe water supply then it should be possible to 'merchandise' and promote the use of only the 'new' water product and, at the same time push for a corresponding development in the other equally important aspect of sanitation which, unless dealt with at the same time, can negate any real benefit from improved water supply.

It is not possible to promote the 'Good health from safe water' campaign in villages which have not yet got access to good water. We can, however, through the processes of general water health education in schools try and teach in a more effective, attractive and dynamic way, the knowledge and understanding of how water borne, water washed, water based and water related diseases occur and how to prevent them. 'Prevention is always better than cure'.

Organisation Development

As will now be discernable we have started on a process of structuring the activities at the top and bottom of the rural water supply organisation in relation to a time scale of priorities to match the development of other sectors in the organisation. Our aim is to construct stage by stage an organisation that is integrated and largely autonomous. However, in July 1979, following the diagnostic and analytical review work in the Kabupaten we transferred our organisational attention temporarily to the Provincial Authorities to inform them of what we were trying to do at the Kabupaten level and to start a

process of thinking and planning which may lead to the establishment of a rural water supply group at the Provincial level, mirroring, to some extent, the type of organisation being established at the Kabupaten level. To what extent such a group can be fitted into the National Water Authority, being discussed at present, would be mere conjecture. Since writing the lecture, upon which this paper is based we have moved on a year and can now, at this stage, try and assess some of the results of our efforts relating them to the priorities and objectives set. The establishment of the Rural Water Supply Organisations in Indramayu and Karawang was achieved. The Management Groups were formed but their ability to perform effectively in the way required, to produce the rural water supply development desired, was affected by the following factors.

- a) The shortage of financial budgets for the appointment of full-time staff.
- b) The existing resources of finance and manpower were contained within an administrative system which could not yet allow the re-deployment of manpower and finance in more effective ways.
- c) The difficulty of integration of Sectors within the Government structure to work on problem solving in special need situations. When a concerted action plan is formulated the commitment of resources in manpower and finance is affected by the individual departmental priorities and sectoral interests.
- d) The ability of Kabupaten Government Sectors to initiate independent autonomous action appears possible when the Bupati's organisational and functional role is initially examined but in the reality of actual departmental work there is still some degree of control exercised by Provincial and National Government corresponding functionally at related levels.

Taking these constraints into consideration, and realising that all the members of the Management Groups already have full time jobs, it is not surprising that we experienced some difficulty occurring in initiating action and management thinking aimed at reorganisation and a higher priority of interest and involvement in rural water supply development.

It is significant to note that where related water supply activity was carried out, it was in those situations in which the Project had a direct financial input. In these situations an involvement was obtained and the results were gratifying. It demonstrates that where the correct conditions are created and finance and man-

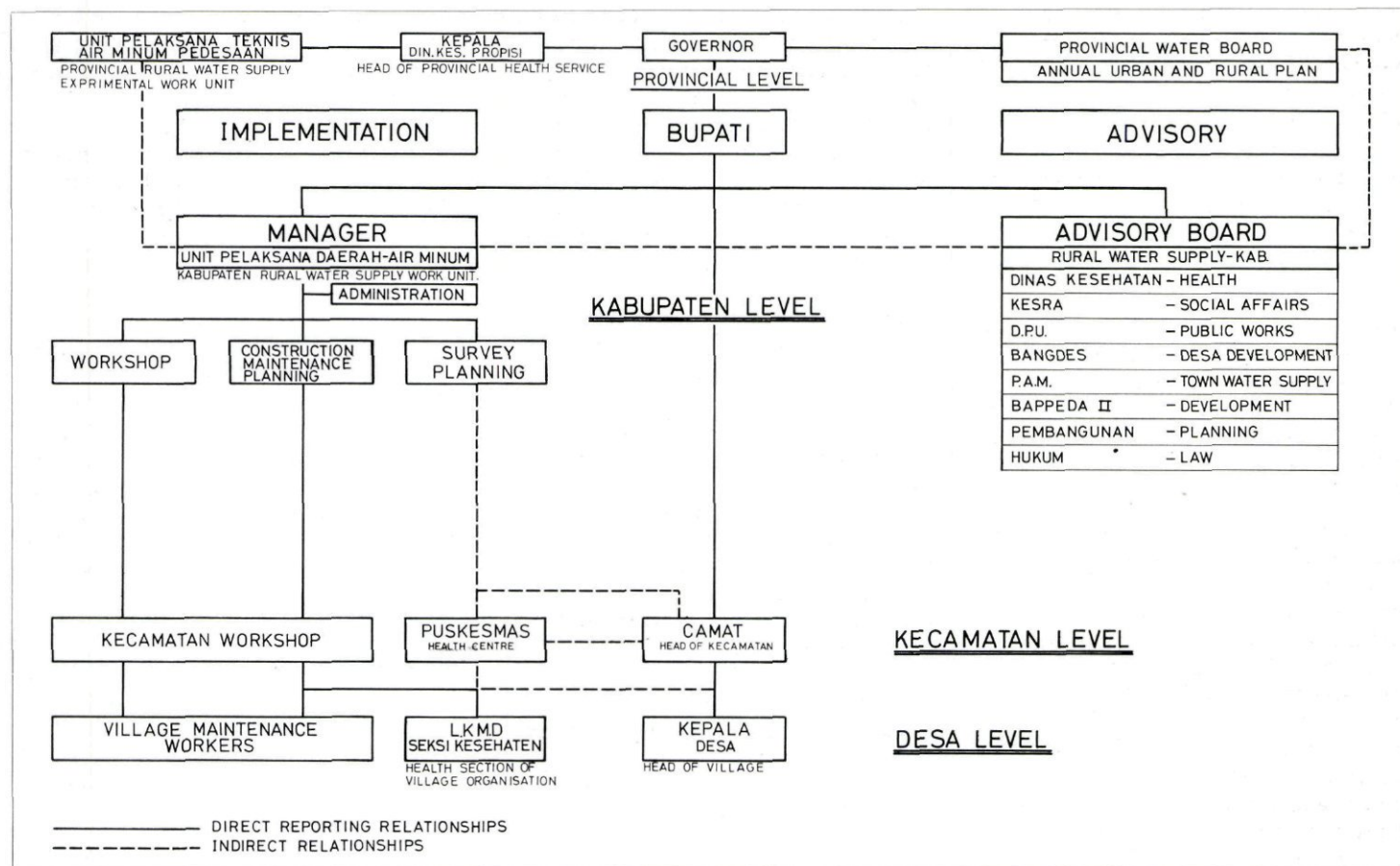


Figure 5 - Rural Water Supply Organisation - mark III (Present Proposal for re-organisation - February 1981).

power is made available then things get done. For example, after the training of sanitarians the Kabupaten Inpres funds were used to build seventy-two ferro-cement rainwater collectors in Indramayu. The provision of skilled manpower from the Project, paid from Government funds, was a significant factor in the achievement.

Conclusions from the experience indicate that if the necessary steps are taken to provide the legislation for the creation of a Unit Pelaksana Daerah - Air Minum at the Kabupaten level then it could become an effective means for a realistic programme for rural water supply development in the future. The type of reorganisation proposed is shown in Fig. 5 with the retention of the 'Management Group' as an 'Advisory Board' to provide annual planning inputs based on the interests of existing departments. The priority needs of the Kabupaten will be determined by the Bupati after consultation with the Advisory Board and other interested parties. The provision of a full-time manager charged with the responsibility for working to meet previously agreed plans for rural water supply development on an annual basis appears more realistic providing that the other indicated resources

are also provided.

Full-time employment of the Kabupaten based Design/Planning personnel will enable the appropriate type of water supply systems for the particular Kabupaten needs to be developed and subsequently constructed and maintained in a properly organised and equipped Rural Water Supply Workshop which would be responsible for the more technically demanding types of installation. The proposal for Kecamatan based Rural Water Supply Workshops is to provide the essential backup for the support of Desa (Village) based simple maintenance practice for which the workshop would supply technical guidance and spares as well as a supervisory function for the planned maintenance programmes which are an essential part of the system for the successful rural water supply development.

It is believed that there would be a much better self-help response from rural communities if they knew that there was a resource of skill and maintenance spares readily available at a reasonable distance from the village supply system, with a direct contact to the Kabupaten Workshop for the more complicated maintenance or repair needs.

Direction

Moving on in our previously stated system of management elements we come to direction, which, you will recall, is motivating people and determining their duties and targets.

Rural Water Supply Organisation - Management Group Training

In the management group's development, motivation has been a major factor particularly in circumstances where the members of the group are giving their time in addition to their normal duties.

In order that we obtain real involvement we have to emphasis aspects of interest to the group that gives each of them a 'personal' reward. The reward in this case is not money but that difficult to define element of status and identification with something new and potentially successful. Most of the important members of the Management Group have had previous involvement in the pilot project areas and a not too happy experience in providing successful rural water supply schemes. If, with help and guidance, they can form a new successful organisation and fulfil some of their principal job objectives in giving the rural community better health

and better facilities then they may become the object of praise and recognition both Provincially and Nationally. That kind of motivation is international.

Kecamatan Ciawi - a Rural Water Supply case study

Let me take you, as I was taken by curiosity about a water supply system, to a place called CIAWI. It is 509 metres above sea level, 199 kms east of Bandung in the mountains and hills of the central uplands of West Java. The Kecamatan CIAWI consists of twelve desas, the total population is 63000 people. The small rural town in desa CIAWI and two other desas adjoining it called MARGASARI and PAKEMITAN had suffered attacks of cholera in the early 1970's. The Health Service at Kabupaten level decided to include spring captations in the National Governmental financed Inpres programme. Between 1973 and 1975 two springs, both about 4 kms from CIAWI, were captated and fed through 3" and 4" diameter mains. The laying of the main pipelines from the springs was the responsibility of the Community Water Supply Committee, the financing and supervision of the work was by the Kabupaten Public Works Department in co-operation with the Dinas Kesehatan's (Health Service) Sanitation Section at Kabupaten Headquarters. The pipes were supplied by the INPRES programme and UNICEF.

At this stage the system's development, administration and operation was taken over by the Community Water Supply Committee formed in CIAWI on the 16th July 1975. The final stage of pipeline laying and the provision of three public hydrants was reached in 1977.

At the beginning the local organisation had no technical equipment or tools nor small diameter pipe stocks and fittings, but with a loan from the BKPD (Local Desa Development Bank) and inspired leadership and determination, work started.

The Committee laid down specific rules governing house connections with two main objectives:

1. To control the amount of water used;
2. To establish a charge for the convenience of private water supply which would generate funds for the maintenance, extension and development of the system.

The briefly described situation was not always easy to establish with the usual and some not so usual problems. Social status for example in the form of family fishponds is not normally associated with

public water supply systems but the strong desire to have a fishpond for either fish rearing in terms of consumption or commercial production or for home decoration or even social prestige caused both legal and illegal house connected taps to be left running continuously with extra plastic pipes connected to the ponds. The prospect of large scale private fishpond development causing serious pressure loss in the system caused the Committee to regulate against the practice with the support of the local police and military commandants who had been perceptively appointed at an early stage to the advisory board of the water committee.

It was not easy to persuade rural people to pay for water and no charge is made for the public hydrant supply. The people of CIAWI have, however, proved willingness to pay for the convenience of private house supply. Today there are 31 public hydrants and 130 metered house connections all of which were provided by self generated community funds.

The system is now working at full pipeline capacity and the development of supply to other local areas only awaits a capital input for further captation and main supply pipeline which will not be provided.

There are other areas in other parts of West Java which have nothing !

The reason I chose to tell you about CIAWI ?

Well, there was not an expatriate or any project input into this system, it was entirely Indonesian. It is well run with monthly water fee collections based on metered supply. It has most of the management features that you would want a rural water supply management group to see operating in an Indonesian situation. In consequence it seemed natural that a detailed study tour of this situation was made a first-priority in our motivation and teaching of the Management Group from Karawang. The result of this training and development exercise is a perceptible change of attitude within the Group who have gone on with our help to determine their own duties and targets in the process of organisation development aimed at doing the same in some of their own Kecamatans as has occurred in CIAWI. I sincerely hope they find the same type of quiet, unassuming, inspired leader and organiser who I met in CIAWI. Incidentally if there are any water medals awarded now, I know where one of them should go.

Well that has taken us through most of the 'management' process that I tried to define at the beginning with perhaps the

exception of control. Perhaps when we have enough rural water supply systems running that require control then I can write and tell you about it.

*Men work on earth at many things,
some plough the land, a few are kings,
But the finest work beneath the sun
is making good water, for people, run.*

References

1. *Appropriate Technologies for Developing Countries* by Prof. ir. L. Huisman. — Edited: W. Riedijk, Pub. Delft 1979.
2. *The Structure and Management of the British Water Industry*. Chapter 6 - Management - J. S. M. Willis and H. Speight. Edited: B. J. Dangerfield, Pub. Inst. W. E. & S. London 1979.
3. *Article - Journal AWWA*. Neil F. Carefoot - Pan American Health Organisation/WHO.
4. Bradley, David J. 'Infective Disease and Domestic Water Supplies' in 'Water Supply'. Edit. G. Tschannerl, University of Dar-es-Salaam, BRALUP Research Paper 20 pp. 115-133.

