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SUPPORT PROGRAMMES IN THE WATER FIELD

by

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SUMMARY

Development programmes in the water field should not be limited to problems of a technical nature. There is also a great need for programmes, that deal with more structural factors: organization, management, training, information, etc.

These programmes, *support programmes*, and their elements are discussed.

To illustrate the development of such a programme, one of the programmes of the International Reference Centre for Community Water Supply is described.

RESUME

Les programmes de développement dans le domaine de l'eau ne devraient pas être limités au problèmes de nature technique. Il y a également un grand besoin de programmes, qui concernent les facteurs plus structurels: organisation, gestion, formation, information, etc.

Ces derniers programmes, les *programmes de soutien*, et leurs composantes sont discutés.

Pour illustrer le développement d'un tel programme, un des programmes du Centre International de Référence pour l'Approvisionnement en Eau Collective (CIR) est décrit.

1. INTRODUCTION

The recommendations and the decisions of the United Nations Water Conference (March 1977, Mar del Plata, Argentina) will continue to influence those who are active in the water field in the forthcoming years.

When one looks at the various themes of this conference it becomes obvious that two subjects were particularly important:

- (a.) water for agriculture; and
- (b.) drinking water supply (and sanitation).

These two subjects have many common factors, for example:

- (1.) they are two essential components of rural development;
- (2.) they are both basic needs of the human being;
- (3.) for both subjects, rural areas are an important working field, if not of a prime necessity.

Starting from a common point: WATER, the two aforementioned subjects have so many tangent planes (quite often via cattle), that they are often inseparable.

The Water Conference has well defined the various problems as well as the necessary priorities (which are, again, often alike):

- (A.) starting points should be national planning, programming and project definition and the country should have (or create) organisms that are capable of carrying out these tasks, in the governmental sector, as well as the private sector;
- (B.) important stimulants in the field of training, education and community participation will be necessary;
- (C.) even more than before, attention will have to be paid

to financial and legislative structures, as well as to organization and management in the various countries; (D.) an important (and often even crucial) role will be played by various services and systems that will have to make existing knowledge and experience available to developing countries and by the development of applied research in case of gaps; these research activities will be needed most in the field of technology and will have to concern "hardware" (appropriate technology), as well as "software" (methodologies and structural systems).

2. BRIEF ACCOUNT OF THE PRESENT SITUATION IN THE WATER SUPPLY FIELD

The Water Conference has proposed the period 1981-1990 to become the "International Drinking Water Supply and Sanitation Decade".

One of the reasons that they pledged this proposition, was that these problems have drawn relatively little attention although they have a world wide importance. According to a statistical report of the World Health Organization (published in 1976), 77 per cent of the urban population had at least some sort of water supply; it should be added also that the quantity and the quality of the supplied water did not meet any norm, most of the time. In rural and urban fringe areas the situation was even worse: there the percentage was, on average, 15. Altogether, approximately 1.300 million human beings did not have an acceptable water supply.

In the field of sanitation, the situation was even worse.

These conditions imply a large number of serious disadvantages for public health, disease, mortality, etc.

They are the reasons - together with the necessary supplementary effort of the population to have at least a minimum of water that much labour potential (should be used for whatever production), as well as development possibilities are lost. Thus agricultural and industrial developments are decelerated.

It is becoming more and more evident that water supply is one of the most important components of integrated development in developing regions.

On the other hand, it should be underlined that developing countries have other problems apart from those of water supply and development of sanitation facilities.

Nevertheless, among all the priorities of those countries, water supply does not have the place it deserves as yet. On that account, the Water Conference seems to have a certain impact: there is a growing tendency to pay more attention to these basic needs. A problem of external nature - but equally a consequence of the sometimes insufficient initiatives of the governments of the developing countries concerned - is that many donor-countries have a relatively minor attention for the enormous needs in the water field.

Moreover, even where there is help from donor-countries there is no optimal coordination. The consequences are evident: a large variety of equipment is imported (with derived problems, such as maintenance problems and a lack of spare parts), projects are developed that are not harmonised and the coherence between short term projects and the necessary infrastructural methods that are needed in long term is lost.

Improvements can be anticipated, because the donor-countries have declared themselves ready to harmonize their

activities in a better way in the context of the Decade.

In the context of the preparations for the Decade, the United Nations bodies involved^{*)} have started extensive consultations. A *steering group* has been established; it consists of representatives of these organizations and will promote mutual cooperation on the basis of a "Cooperative Action Plan for the International Drinking Water Supply and Sanitation Decade" and will take care of a periodical exchange of information on the various policies and programmes. It has already been decided that the work of the various United Nations bodies in the context of the Decade will be coordinated at national level by the national representatives of UNDP and that "water and sanitation" will have a more important priority in the context of the "basic needs thesis".

In order to obtain a better understanding of the nature and size of the problems, the World Health Organization has made - together with the World Bank and the governments concerned - inventories of the present situation in more than one hundred countries.

These inventories have been the basis for recommendations for actions needed at short term. Actions at national level will be indispensable to reach the targets that have been formulated by the governments in the context of the Decade. This is why an emphasis has been given to the development of national plans and in their context, of projects that are well prepared and founded. Next to these national plans, programmes will be developed to contribute to an improve-

^{*)} the Secretariate of the United Nations, UNICEF, UNDP, the International Labour Organization, the United Nations Organization for Food and Agriculture, the World Bank, and the World Health Organization.

ment of the various programmes of a structural nature.

3. SUPPORT PROGRAMMES

At this moment, extensive consultations are taking place on ways and means to develop support programmes - directed to an improvement of structural conditions in the sector - in an optimal way, at national and international level.

Very recently, this subject has been discussed during a meeting that was organized in Great Britain jointly by the IRC and the Water Research Centre, under the auspices of the World Health Organization.

One of the conclusions of this meeting has been that the executing agencies, the water organizations, etc. in the developing countries are not sufficiently equipped to be able to take care - next to their daily work, such as planning, design, construction, and maintenance - of structural matters, such as the improvement of management capacities, training of personnel and the development of methodologies and techniques that are more adapted to local circumstances.

Support programmes in the fields of information and technology ("information and technology support", in other words the transfer of knowledge, experiences, techniques and technology from external sources) have played an important role in the development of the water supply sector in many countries; this has been the case, in former times, in the industrialized countries and later also in various developing countries.

In order to materialize such support programmes in other developing countries, the development of national cooperation will have to be stimulated and supported. The national centres involved

will be capable to play an essential role, ensuring an "informed" approach to the planning and implementation of programmes. They will also be capable to carry out programmes of a more structural nature such as the development of methodologies for professional training, the procurement of advice and assistance on planning and implementation of projects, the evaluation of programmes and of certain methods and techniques, the promotion of community participation and the integration of water supply programmes in other national plans.

One often realizes that many countries are at grips with the same problems. Besides, the water supply sector is not the only one; in many other sectors the exchange of knowledge and experiences shows gaps.

Recently another conference of the United Nations, namely the Conference on Technical Cooperation among Developing Countries, or "TCDC" (September 1978, Buenos Aires, Argentina) has put an emphasis on this aspect, in the water supply sector this implicates, that countries should collaborate more intensely, for instance in the fields of training, research, development of appropriate methodologies and the promotion of community participation.

4. APPROACH TO THE DEVELOPMENT OF SUPPORT PROGRAMMES

Support programmes could be developed in various ways, especially in the case of isolated programmes, where theory has to be adapted to local conditions (manpower resources, water resources, financial means, etc.).

Nevertheless, in almost all cases the following phases of development can be discerned:

(a.) *inventories*. It is impossible to start the development

a programme without having inventorized the existing knowledge and experiences at global level, for instance by way of regional and international seminars - workshops, literature research, evaluations of projects that were implemented earlier, etc.

(b.) *analysis*. Then the material gathered in phase (a.) has to be analysed. This allows for an identification of gaps in the existing knowledge.

(c.) *research*. Applied research is a step which follows logically. The research should be limited to the gaps identified and should take place - by preference - in one or more developing countries.

The results of the phases (a.), (b.) and (c.) enable the formulation of a (d.) *hypothesis*: a programme based on a theoretically appropriate approach, will be more or less developed.

(e.) *testing/transfer*. Before starting an extensive implementation of the programme, it will be necessary to test the hypothesis in practice; this can lead, again, to a need for supplementary research, and an identification of unexpected gaps, etc. Still, it will be useful to start a certain information transfer: the dissemination of the results of the phases (a.), (b.) and (c.) could already be very useful for e.g. other organisms that are planning programmes in developing countries; besides, this dissemination may evoke highly useful comments.

(f.) *synthesis*. The combination of the hypothesis, of the tests, the initial research, the comments received, etc. will result in the formulation of a synthesis, of which the validity will have been tested in practice. This synthesis, in fact generalized knowledge, is published as guidelines, technical manuals, standard designs, etc. This tested knowledge is now ready to be

used in training programmes as well.

(g.) *implementation*. Finally the afore-mentioned material can be disseminated and used in practice.

Some additional aspects of prime importance should be added to the afore-described phases.

Firstly, the construction of certain facilities and the development of public works should be accompanied by efforts to realise some infrastructural improvements so that these facilities will not be constructed only but will be maintained as well. Finally, it could be understood that the harmonization of international work and national efforts is highly important. National problems in developing countries will never be solved by international collaboration only. That is why the development of national capacities is of a central interest; after all, a situation of "*self-reliance*" will have to be reached. This implies that appropriate technologies will have to be developed in developing countries and not à priori in industrialized countries. This implies equally, that the higher involvement of the population, not only in meeting rooms but also in rural areas, will have to be pursued.

5. THE PROGRAMMES OF THE IRC

Against this background, the IRC develops its programmes in cooperation with a network of national institutes and with a large number of national and international organisms.

The following fields will be distinguished:

- (1.) infrastructural and institutional facilities related to water supply and sanitation;
- (2.) programme and project management and evaluation;
- (3.) education and training of personnel;

(4.) development and application of appropriate technology;

(5.) information and participation of local population.

As a support to the various programmes, an international programme for exchange and transfer of relevant information is being developed.

It may be useful to describe one of the programmes of the IRC - the research and demonstration programme on slow sand filtration - in a more detailed manner. This will illustrate at the same time the theory which has been described in the previous chapter.

6. THE INTEGRATED RESEARCH AND DEMONSTRATION PROJECT

"SLOW SAND FILTRATION"

In 1973 - during a meeting of Directors of Institutions collaborating with the IRC - it has been established that various developing countries urgently needed a simple system for surface water treatment.

After extensive research, the "Slow sand filtration" system (biological filtration, that had already been used successfully in certain highly industrialized cities, as well as in rural areas and in small agglomerations in various countries) has been selected.

To promote a larger application of this system, a number of developing countries have developed a programme on "slow sand filtration", in close collaboration with the IRC.

The inventory phase, described in the previous chapter, was not necessary thanks to the study "Slow sand filtration" (see Documentation), as far as the application of this system in various industrialized countries with moderate climates

is concerned.

The programme started in 1975. By way of applied research, demonstration projects and transfer and exchange of information and knowledge, the preparation of large scale slow sand filtration programmes has been stimulated and supported. All activities in the context of this programme have been carried out in and by the countries themselves.

The programme consists of the following phases:

- (1.) applied research (laboratory models) by a group of developing countries on the basis of international cooperation;
- (2.) development of demonstration programmes in the field in and by the countries involved, again on the basis of international cooperation;
- (3.) compilation of manuals, guidelines, etc. and introduction of the experiences in training programmes;
- (4.) transfer of information and demonstration activities in developing countries other than those which participated in the first two phases;
- (5.) preparation, by various countries, of large scale slow sand filtration programmes based on the results of the preceding phases.

The first phase was carried out in 1976 and 1977 by institutes in six countries: Ghana, India, Kenya, Sudan, Pakistan and Thailand.

In these countries the programmes aimed at - apart from gaining experience with the system - developing adapted criteria for planning, construction, management and maintenance of filtration installations under local conditions.

The results of these research activities have been reported by the countries (and have been compiled in various

syntheses/reports by the IRC).

At present, demonstration programmes are carried out in eight countries (the afore-mentioned six countries plus Columbia and Jamaica).

These programmes aim at:

- (a.) to develop and to test the various implementation strategies at village level, by way of implementing several local demonstration projects (2 to 4 projects per country);
- (b.) to develop infrastructural management models at national and local level which will be necessary to enable a more extensive repetition of these programmes.

The planning, implementation and evaluation of the programmes are done in and by the countries. The general responsibility, in each country, is carried by a Programme Management Committee. The Committee consists mainly of representatives of:

- water supply organizations at national and local level;
- public health organizations at national and local level including those who are active in the health education field;
- organizations (at both levels) that take care of rural education;
- national research and development institutes in the field of public health and environment.

The direct responsibility is carried by local committees: in these committees both the population and the organizations that carry out the programme are participating.

An important function of these committees is to create a multi-disciplinary cooperation at national and local level, to ensure a coordination with other development programmes

such as in the field of public hygiene and - at the same time - with integrated rural development.

Furthermore, these cooperative links and the annexed organizational and institutional infrastructure are a *conditio-sine-qua-non* for the successful follow up of the present demonstration programmes.

7. CONCLUSION

Evidently the best solution for water supply problems - and one imagines easily that this would be the case in the field of water for agriculture as well - in developing countries is to promote a policy of *self-reliance* in this field.

Next to the construction of water supply facilities and other public works, considerable attention must be paid to demonstration programmes on suitable technologies, systematic training programmes, the transfer of appropriate technology and the stimulation of community awareness and involvement, these are among the prerequisites for successful development programmes.

Policy makers and researchers should devote more attention to the coordination of research and development activities. This element - of equal importance to both industrialized and developing countries - should lead to more efficient and effective use of available manpower and funds. For the benefit of both industrialized and developing countries financing agencies should be urged to devote a larger part of their budgets to activities and programmes which contribute to the solution of fundamental and infrastructural problems and to coordination of activities initiated for this purpose.

In the field of water supply, this cooperative model is developing well. Part of this development consists of a growing cooperation in the following fields:

- development of technology;
- development of structural systems;
- training;
- information.

It will be in the interest of rural development to integrate as well as possible national planning in developing countries in the field of water for agriculture (and cattle breeding) and the planning in the field of water supply for human consumption.

The IRC is ready to make its contributions.

EPILOGUE

In a paper, prepared for the United Nations Water Conference, the United Nations Organization for Food and Agriculture put forward the following statement:

" Millions of hectares of land with a potential for agricultural production are undeveloped, or used only for extensive grazing, because of the lack of a water supply to support settlement. In general, this can be cited as a problem of countries bordering the arid regions of Africa and Latin America Decisions to open new land must be taken within the framework of national plans for agriculture, settlement and employment and call for comprehensive rural development programmes. It must be realized, though, that water supply, while constituting an element in the infrastructure together with many others such as communications, storage, credit facilities and markets, is also the essential catalyst without which no community development can take place".

It seems judicious to consider the possibilities of an intensive cooperation between those who are active in the potable water field and those who attend to water for agriculture and cattle breeding.

DOCUMENTATION

Proceedings of the United Nations Water Conference,
2369 p. (4 vol.), New York (1978)

United Nations, Report of the United Nations Water
Conference (E/CONF.70/29), 138 p., ann., New York (1977)

United Nations, Report of the United Nations Conference
on Technical Cooperation among Developing Countries
(A/CONF.79/13/Rev.1), 139 p., ann., New York (1978)

World Health Organization, Water and Sanitation, *World
Health Statistics Report*, vol. 29, nr. 10, pp. 544-632,
Geneva (1976)

IRC, Water supply support programmes (prepared for the
UN Water Conference), 26 p., Voorburg (1976)

IRC, Meeting of Directors of Institutions Collaborating
with the WHO International Reference Centre for Drinking
Water Supply, Bulletin Series nr. 5, 77 p., ann., Voor-
burg (1973)

Huisman, L. & Wood, W.E., Slow Sand Filtration, 122 p.,
ann., bibl., Geneva (1975)

Food and Agriculture Organization of the United Nations,
Water for Agriculture (prepared for the UN Water Confer-
ence), 17 p., ann., tab., Rome (1976)

IRC, Annual Report 1977, 70 p. ann., Voorburg (1978)

Santema, P., Van Damme, J.M.G., et al., Tien jaar Inter-
national Reference Centre (Ten years International Refer-
ence Centre), H_2O , vol. 11, nr. 26/78, pp. 590-608,
Rijswijk (1978)