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***water sector
cooperation programme***

Yemen Arab Republic

Kingdom of the Netherlands

evaluation report

***support rural water supply
department***

Yemen Arab Republic

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WATER SECTOR COOPERATION PROGRAMME
YEMEN ARAB REPUBLIC - KINGDOM OF THE NETHERLANDS

Report 3

evaluation report
SUPPORT RURAL WATER SUPPLY DEPARTMENT
YEMEN ARAB REPUBLIC

5497
Rural Water Supply Dept.
Yemen Arab Republic

The Hague, January 1985

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From September 8-25, 1984 a joint evaluation mission of the Governments of the Yemen Arab Republic and the Kingdom of the Netherlands evaluated the water sector activities of the Yemeni-Dutch development cooperation programme with the aim to advise on future water sector activities together with an assessment of priorities. To this end the following activities were evaluated:

Water Resources

- a. Water Resources Assessment Yemen Arab Republic
- b. Tihama Water Resources and Water Use Study
- c. Al Bayda Water Resources Study

Domestic Water Supply and Sanitation

- a. Support Rural Water Supply Department
- b. Water and Sewerage Dhamar/Ibb
- c. Water Supply and Sanitation Component "Rada Integrated Rural Development"

Irrigation

- a. Wadi Rima Supervision
- b. Irrigation component "Rada Integrated Rural Development"
- c. Irrigation component "Tihama Agricultural Extension"

The main findings, conclusions and recommendations of the mission are presented in a four-volume report:

- Report 1: Main report water sector cooperation programme Yemen Arab Republic - Kingdom of the Netherlands
- Report 2: Evaluation report Water Resources Assessment Yemen Arab Republic
- Report 3: Evaluation report Support Rural Water Supply Department
- Report 4: Review and recommendations Netherlands supported water sector activities in the Yemen Arab Republic

The rapporteurs have the pleasure to submit the draft reports for comments to the counterparts within the joint mission through the Central Planning Organization of the Yemen Arab Republic. After their reaction c.q. clearance these reports will officially be submitted to the Governments of the Yemen Arab Republic and the Kingdom of the Netherlands and through them to all projects concerned.

CONTENTS

Page

ABBREVIATIONS

1.	INTRODUCTION	1
2.	PROJECT DESCRIPTION	3
3.	HISTORY OF THE PROJECT	6
	3.1. Support Rural Water Supply Department	6
	3.2. Dhamar/Rada Rural Water Supply	6
4.	PROGRESS OF THE PROJECT	8
	4.1. Personnel	8
	4.2. Start of the project	8
	4.3. Strengthening RWSD	8
	4.4. Formalisation of contacts between RWSD and other Government agencies	8
	4.5. Links with bilateral and international agencies	8
	4.6. Improved sanitary conditions	9
	4.7. Monitoring of water resources	9
	4.9. Completion of three pilot schemes	9
	4.10 Financial progress	9
5.	SIGNIFICANCE, EFFECTIVENESS AND EFFICIENCY OF THE PROJECT	11
	5.1. Significance of the project	11
	5.2. Effectiveness and efficiency	12
6.	CONCLUSIONS AND RECOMMENDATIONS	15
7.	REFERENCES	19

ANNEXES

1.	Terms of reference
2.	Itinerary
3.	Project budget
4.	Overview project schemes Dhamar/Rada
5.	Financial situation of the project as per August 31, 1984
6.	Overview foreign donor assistance to RWSD

ABBREVIATIONS

CYDA	Confederation of Yemeni Development Associations
DGIS	Directorate General International Cooperation
DGHSP	Dhamar Governorate Health Services Programme
DOH	Department of Hydrology
LDA	Local Development Association
NGO	Non-Government Organisation
RIRD	Rada Integrated Rural Development Project
RWSD	Rural Water Supply Department
SRWSD	Support Rural Water Supply Department
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organisation
YAR	Yemen Arab Republic
YOMINCO	Yemen Oil and Mineral Corporation

1. INTRODUCTION

Within the framework of the development cooperation between the Yemen Arab Republic (YAR) and the Kingdom of the Netherlands a project is presently under implementation to support rural water supply development. The Rural Water Supply Department under the Ministry of Public Works is the executing agency from Yemeni side. The Netherlands contribution is executed through DGIS under the Ministry of Development Cooperation.

The Rural Water Supply Department (RWSD) was established in 1972 to design and construct domestic water supply systems outside of the urban areas. The present project to support the RWSD has been developed:

- to strengthen the RWSD with one project manager/civil engineer, two construction supervisors and two hydrogeologists;
- to complete 16 rural water supply schemes in the Dhamar/Rada area, for which the wells already have been drilled;
- to construct a few model water supply schemes with provisions for improved sanitary facilities and possibilities for a better water resources management.

The project started May 1, 1983 with the Administrative Arrangement being signed on October 3, 1983.

From September 8 to 25, 1984 a Dutch evaluation mission visited the YAR for a joint evaluation of the Netherlands supported water sector activities in the the YAR. The Dutch mission was composed as follows:

- W.A. Segeren, Land and Water Development Specialist, teamleader of the mission
- J. Blom, Water Sector Specialist DGIS
- M.T. Boot, Development Sociologist
- A. Kuyvenhoven, Economist
- E. Schultz, Civil Engineer/Hydrologist
- G.J. Tempelman, Rural Sociologist

J.L. IJzermans, desk officer YAR of the Netherlands Ministry of Foreign Affairs, accompanied the mission as a resource person.

The main tasks of the joint evaluation mission were:

- Evaluation Water sector cooperation programme Yemen Arab Republic - Netherlands;
- Project evaluation Water Resources Assessment YAR;
- Project evaluation Support Rural Water Supply Department.

This report describes the project evaluation of the Support Rural Water Supply Department to which the mission members J. Blom and M. Boot paid special attention. From Yemeni side the following persons took part in the evaluation:

- Mr. Ibrahim Al Shamy, Deputy Director General RWSD
- Mr. Mohammed Mahdi, Director Design Section RWSD
- Mr. Mazdi, Engineer RWSD
- Mr. Gazali, Engineer RWSD
- Mr. Abdulla A. Malik, Director Drilling and Hydrogeology Section RWSD.

For most of the time the mission members were accompanied by Mr. T. Haagsma, Project Manager SRWSD.

The terms of reference for this project evaluation of SRWSD is attached as Annex 1.

The mission paid field visits to the water supply schemes in Dhamar and Rada. At the RWSD lengthy meetings took place to discuss the present progress and the future of the project. The considerable time and effort as well as the helpful attitude and extensive information supplied by both the Yemeni staff of the RWSD and the Dutch project staff is very much appreciated by the members of the mission.

The itinerary of the mission is given in Annex 2.

2. PROJECT DESCRIPTION

Activity: Support Rural Water Supply Department (SRWD)
Place: Entire Yemen Arab Republic with headquarters in Sana'a and branch office in Dhamar
Executing authority: Rural Water Supply Department
Duration: 2½ years; starting date: May 1, 1983
Sector: Water sector
YAR contribution: YR 1,650,000.- or Dfl. 990,000.-
Neth. contribution: Dfl. 8,900,000.-

Summary of activity:

- Reinforcing the RWSD with one project manager/civil engineer, two construction supervisors, one hydrogeologist, one associate expert hydrogeologist;
- Completing 16 rural water supply schemes in the Dhamar/Rada region, for which the wells already have been drilled;
- Construction of a few model water supply schemes with provision for improved sanitary facilities and possibilities for a better water resource management.

Justification of the Project:

- As health conditions in the Y.A.R. are insufficient an increase and/or improvement of the rural drinking water facilities will have a positive influence on the health situation.
- A better utilisation of the scarce resource of water will have a positive influence on the economy of the country where 50% of the Gross Domestic Product is attributable to agriculture and prevent wasteful investments in drinking water supply.
- Within the LDA development programmes, rural water supply projects enjoy highest priority, while RWSD has the necessary know how. Cooperation between RWSD and LDA's/CYDA, and participation of LDA's in RWSD projects is therefore essential.

Long term objectives:

Improving the living conditions in rural areas by making available adequate quantities of clean water, thus:

- promoting better health and sanitary conditions;
- relieving villagers from carrying water over long distances;
- rational utilisation and management of the scarce resource of water.

Immediate objectives:

- A strengthened RWSD in managerial, operational and maintenance aspects;
- Formalised contacts between RWSD and other Government institutions involved in water supply.
- Established links with bilateral and international agencies in the field of rural water supply;

- Improved sanitary conditions in rural villages;
- Monitored water resources;
- Completed drinking water systems in Dhamar/Rada region according to available design;
- Completed drinking water systems as pilot schemes for future projects, especially in maintenance aspects.

Plan of activities

- a. Technical assistance, training and general support of RWSD in such matters as site selection of wells and design, preparation and construction of water supply schemes;
- b. Preparation of manuals, guidelines and procedures for incorporation in the RWSD organisation;
- c. Establishment of contacts with other government institutions involved in water supply and the formalisation of these;
- d. Establishment of contacts with bilateral and international agencies and donors in the field of rural water supply;
- e. Installation of sanitary facilities, which are normally not covered by systems under RWSD responsibility;
- f. Monitoring of water resources during the installation of the wells and after the wells are in use;
Geophysical measurements and setting up and adequate sampling of drilled formations;
- g. Checking of water quality at the moment of use and waste water disposal;
- h. Support of LDA's activities on design and construction of drinking water systems;
- i. Tendering and construction of the civil and mechanical works for 16 drinking water systems in the Dhamar/Rada area.
- j. Design and construction of a minimum of three drinking water systems based on the following criteria:
 - LDA's involved in choice;
 - YOMINCO involved in site selection;
 - Local population participates in and contributes to the project;
 - Creating good conditions for waste water disposal in cooperation with the Ministry of Health/Primary Health care;
 - Monitoring of wells during and after construction.

Inputs

- a. Inputs YAR
 - One project manager/civil engineer (part time), two construction supervisors and one hydrogeologist (part time);
 - Running costs (e.g. transport) and office facilities;
 - Contribution to construction costs by LDA's.
- b. Inputs Neth.
 - One project manager/civil engineer, two construction supervisors, one hydrogeologist, one hydrogeologist associate expert;
 - Equipment (landcruisers, hydrogeological equipment) and running costs (e.g. transport);
 - Financial assistance to the completion of the Dhamar and Rada water supply schemes, the construction of 3 pilot schemes and extra sanitary facilities.
(see annex 3 for details).

Workplan

The original workplan envisaged a gradual shift from the construction of the 16 water supply schemes to the development and implementation of supplementary sanitation activities and the three model water supply schemes.

3. HISTORY OF THE PROJECT

The present project resulted from the merging of two separate projects:

- a technical assistance project: Support Rural Water Supply Department;
- a financial assistance project: Dhamar/Rada Rural Water Supply.

3.1. Support Rural Water Supply Department

Since 1975 a UNDP/WHO executed project has been given extensive support to strengthen the RWSD. In view of a possible termination of this project the Yemeni and the Netherlands Governments, during their annual bilateral consultations of 1981, agreed that under the technical assistance a hydrologist and a civil engineer (water supply) would be made available by the Netherlands Government for a duration of two years, including some equipment. Apart from their contribution to the regular programme of RWSD, these experts would pay special attention to aspects of sanitation and public health, to water resources management, and LDA support. To enable the construction of necessary facilities (e.g. infiltration pits and monitoring wells) which do not form part of RWSD's standard designs and procedures and to carry out some schemes with a pilot character, an additional allocation would be provided. The total funds available for this project amount to:

- Dfl. 1,200,000.- technical assistance
- Dfl. 1,500,000.- financial assistance.

3.2. Dhamar/Rada Rural Water Supply

The history of this project goes back as far as 1975 when a team commissioned by the British Ministry of Overseas Development selected twelve villages where drinking water supply systems should be provided. The YAR and the Netherlands Governments agreed to include the financing of the construction of these 12 schemes in their joint cooperation programme.

During the same period six water supply systems were identified in the Rada area, where the Netherlands funded Rada Integrated Rural Development Project was working. It was decided to combine the 18 schemes in one project. Work would entail:

- well siting, drilling and pumping tests;
- design and construction of mains, reservoirs and distribution points.

Due to various reasons only the drilling of the wells and the design for the civil works were completed before the end of 1982. In the course of time there had been many changes in the selected villages to be provided with water supply systems and only 4 of the original selected villages were included in the drilling. Of 18 wells, 15 were drilled successfully.

As a result of the bilateral consultations of 1982 it was agreed that the supervision of the remaining civil works would be carried out by the civil engineer attached to the RWSD under the above mentioned project (SRWSD). For these works new contracts were to be arranged in

such a way that also locally operating contractors could qualify. To strengthen their execution capacity two construction supervisors would be added to the technical team mentioned before. To facilitate completion of the schemes after so many delays it was agreed not to ask for village contribution.

The works would entail the provision of 15 water distribution systems complete with pumphouses, pumps, water storage tanks, cattle troughs, water tap systems and pipelines.

The following funds were allocated during successive bilateral negotiations:

- 1976:	Dfl. 4,000,000.-
- 1977:	Dfl. 2,000,000.-
- 1978:	Dfl. 1.735,000.-
- 1979:	minus 40,000.-*
- 1981:	<u>Dfl. 3,500,000.-</u>
	Dfl.11,195,000.-

Subtracting payments for the study of the well locations, the drilling and the final design leave a total of Dfl. 6,200,000.- for the present project activities.

* In 1979 Dfl. 40,000.- was reallocated for road studies.

4. PROGRESS OF THE PROJECT

4.1. Personnel

The Dutch project staff is composed of one project manager/civil engineer, two construction supervisors, one expert hydrogeologist and one associate expert hydrogeologist. The arrival of the expert hydrogeologist was delayed until April 1984.

From Yemini side the Deputy Director General of RWSD has been assigned as part-time counterpart to the Dutch project manager. Up till the arrival of the evaluation team no other counterparts were appointed. The RWSD representative in Dhamar is acting counterpart for the construction supervisors but does not actually participate in the fieldwork of the latter.

4.2 Start of the project

Considerable delays in the signing of the Project Document (June 22, 1983) and the Administrative Arrangement (October 3, 1983) hampered the preparation and start of the project activities, especially the tendering of the construction works of the 15 water supply schemes.

4.3 Strengthening RWSD

In 1983 and the first months of 1984 support was given to the hydrogeological and drilling section of the RWSD but far less than envisaged by the project. Reason for this probably being a misunderstanding about the status and possible work inputs of the associate expert hydrogeologist. Since the arrival of the expert hydrogeologist there is a positive change to more cooperation between the hydrogeological section and the two Dutch hydrogeologists. However there is still scope to increase their workload.

As part of the hydrogeological activities the following document was prepared for incorporation in the RWSD organisation: "A favourable sequence of the workload of a hydrogeologist within RWSD".

4.4 Formalisation of contacts between RWSD and other Government agencies

At central level contacts were established with YOMINCO and the Survey Department under the Ministry of Public Works. Other contacts such as with CYDA, LDA, and health centres are still in a preliminary phase.

4.5 Links with bilateral and international agencies

Informal contacts have been developed with UNICEF, Transcentury (USA) and PGI (Japan), all contributing to the construction of water supply schemes in rural areas. Some informal assistance was given to UNICEF for water quality tests and will be given to Transcentury for pump testing. Furthermore Transcentury requested the assistance of the hydrogeologists for a future training programme for local RWSD staff. Relations with the WHO project team to strengthen the RWSD are mainly established at the level of the volunteers working within the design section of the RWSD.

4.6 Improved sanitary conditions

Improvement of sanitary conditions in selected villages has been planned to start in conjunction with the final stage of the water supply schemes in Dhamar and Rada e.g. through a safe disposal of waste water from the public fountains.

4.7 Monitoring of water resources

At regular intervals measurements are taken in 12 boreholes of the project schemes in Dhamar and Rada.

4.8 Completion of water supply systems Dhamar/Rada

Due to several earthquake waves in December 1982 all wells had to be retested (June/July 1983). One well proved to be unfit for use as it was blocked by stones (reason unknown); some other wells were used to provide victims of the earthquake with water.

On the other hand, one new well was included in the project, making a total of 12 wells (13 villages). A general overview of the wells included in the project is attached as Annex 4.

Only after the signing of the Administrative Arrangement (3 October 1983) an invitation for tender for the civil works could be published. Because of a low response on the side of the local contractors, the tender date had to be extended from December 1, 1983 to January 15, 1984. One contractor was awarded the 7 schemes (8 villages) around Dhamar and another the 5 schemes around Rada.

The contractors started work in April 1984. Performance proves to be poor, for one contractor even below acceptable standards. The labour force on the work is far from adequate, leading to serious delays. At present 9 water supply schemes are under construction. The general progress of the works varies from 22 to 30%.

Both contractors submitted a bank guarantee for the works. After long delays due to time consuming signing procedures the first progress payments could only be made in August 1984.

For the pumps to be installed in the Dhamar/Rada project villages a contract was signed with Sonidar Company in April 1984. The pumps are of the type "Caprari", the most economical and most used type of pump within the RWSD. As no bank guarantee could be submitted by the supplier no advance payment for the pumps was done by the Ministry of Public Works. (This will lead to delayed pump installments).

4.9 Completion of three pilot schemes

Because of delays in the construction of the Dhamar/Rada project schemes this activity has still to be started.

4.10 Financial progress

Out of the Technical Assistance funds of Dfl 2,400,000. some Dfl 1,117,000.- has been spent as per August 31, 1984. Out of the Financial Assistance funds of Dfl 6,500,000.- an amount of Dfl 2,151,000.- has been spent c.q. allocated for the construction of the

water supply schemes in Dhamar and Rada. An overview of the financial situation as per August 31, 1984 is presented in Annex 5.

As the construction works for the water supply schemes in Dhamar and Rada were tendered to local contractors instead of to the budgeted foreign contractors, a total amount of Dfl 2.8 million could be saved. Together with the funds for the 3 pilot schemes and the supplementary sanitary activities a total budget of Dfl 4.3 million will be still available after finishing the first two contracts for the twelve schemes in Dhamar and Rada.

5. SIGNIFICANCE, EFFECTIVENESS AND EFFICIENCY OF THE PROJECT

5.1 Significance of the project

It goes without saying that a safe and reliable domestic water supply is a basic human need and a precondition for socio-economic development. In the Yemeni Arab Republic, where some 90% of the total population is living in 16 to 25,000 villages, it is estimated that in 1981 about 14% and in 1983 about 20% of the rural population was served with some kind of a village water supply scheme. Although exact figures are generally lacking there are clear indications that the incidence of water and sanitation related diseases is high, contributing to a high rate of infant morbidity and mortality. Available data show a rapid increase in reported cases of malaria, bilharzia, and enteric and dysentery disorders (WHO, 1981).

For domestic water supplies, the population, apart from those living in the Tihama coastal plain area, relies largely on groundwater abstractions. Inhabitants of unserved villages often have to go far down the slopes of the mountains to haul the water from the bottom of a well. This implies a heavy and time consuming burden for women and girls who are the main water collectors.

Rural water supply development is shared by the RWSD and the LDA's working through CYDA as their coordinating body. The second five year plan of CYDA/LDA (1982-1986) aims at the construction of 1206 water supply schemes, all schemes being implemented with village contribution, some also with donor contribution. No exact information could be obtained on the actual CYDA/LDA involvement in financing and building of water supply schemes.

At present the RWSD is constructing some 145 water supply schemes with the assistance of foreign donors. An overview of the total donor assistance to RWSD is attached as Annex 6. The implementation capacity of the RWSD lacks far behind the need for new or improved water supply schemes. About 300 water supply sources (including 165 drilled wells, hand dug wells and springs) are awaiting exploitation but funds and manpower are lacking to do so. Another 900 villages surveyed by the RWSD cannot be provided with a water supply scheme within a reasonable period of time for the same reasons.

In view of the above the project to support the RWSD can be seen as a small but important contribution to rural water supply development. This not only because the project contributes to the provision of rural water supplies but also because in the later stage of the project attention will be paid to safe waste water disposal and related sanitary activities. It is the mission's opinion that the one activity cannot do without the other if the living conditions are to be improved and the incidence of water and sanitation related diseases reduced.

The project objectives also fit within the priorities set by as well the Yemeni and the Dutch Governments.

5.2 Effectiveness and Efficiency

As the project is only halfway, and none of the project activities have been fully developed or finalized yet, it is too early to give a more definite opinion about the project's effectiveness. That is why a description of the effectiveness and efficiency of the project has been combined in this paragraph.

Strengthening RWSD

As stated before the RWSD is facing serious manpower problems. This is not only due to a general shortage of sufficient qualified personnel but also to the low salaries the RWSD is paying compared to more independent organisations and agencies.

Within this situation it may be surprisingly as well as understandable that the project component to strengthen the RWSD has not been developed according to expectation. At the one hand a lack of Yemeni staff and counterparts gives less opportunity to training and general support activities whereas at the other hand the same situation may lead to many possibilities for technical assistance.

Therefore the mission is of the opinion that much more time and effort could be paid to the technical assistance of the RWSD, especially of the hydrogeological and drilling section. To this end a proper workplan for the two Dutch hydrogeologists should be made and put into practice. The newly appointed counterpart may aid to improve the present situation.

The appointment of field-counterparts for the construction supervisors would be beneficial to continuous on-the-job training and could contribute to decreasing the general lack of trained construction supervisors.

At present an effective use of aerial photographs for site selection of new boreholes has been hampered by the fact that every request to study aerial photographs from the Survey Department takes time before permission is granted and it is not allowed to take the photos into the field. That is why it is being considered to buy a set of aerial photographs for direct use within the RWSD.

The project budget for geophysical investigations was originally destined for subcontracting of certain works. The money is still available and it is now under consideration to use some of it for the procurement of own geophysical equipment for the RWSD.

Contacts with other agencies

The contacts that have been established between the SRWSD project and national, bilateral and international agencies are of an informal nature and as such not yet productive to a regular exchange of information, cooperation and coordination between the various agencies involved in water supply and sanitation activities. It is the opinion of the mission that much more could be done in this respect, especially with an eye to the selection of suitable villages for new project activities and to learn from experiences of other agencies in project planning and implementation.

Completion of schemes Dhamar/Rada

- Selection criteria villages:

Two of the project villages visited by the mission do not seem to fit within the Dutch selection criteria (no serious need for water). The mission is aware of the fact that the selection of suitable villages was complicated by serious delays in starting the construction works of the systems. Also the Dutch party omitted to check the final selection. For the future more care should be taken to select villages that are really in need of a water supply scheme.

- Delays in construction:

Three main factors contributed to delays in construction:

- a. Administrative procedures e.g. time consuming procedures to get payments signed or to receive formal approval for supplementary work not included in the contract but found necessary during the execution of the work
- b. Discussions with the local population on changes in design (see below).
- c. Slow progress of the constructors due to low attendance and poor performance.

In the discussions between the RWSD and the mission it was agreed to improve the signing procedures and to send a letter of warning to the contractor whose performance is below acceptable standards.

- Design of the scheme:

The original design included a concrete reservoir, situated at an elevation that does not allow for house connections, with only one public fountain for the total village population at 5 metres, distance of the reservoir and one cattle trough also near the reservoir. Adaptations in design to RWSD standards and the choice of pumps normally used by the RWSD allowed for a remarkable saving of costs. At the other hand more costs are involved to meet the request of the villages to locate the reservoir at a higher point. These extra costs are to be met by the villages themselves. The mission is of the opinion that with an eye to the future a more elevated site of the reservoir is to be preferred as house connections are generally very much desired and in the intermediate phase public fountains could be constructed at easy accessible sites within reasonable walking distances. This is not only important for a general improvement of the living conditions in the rural areas but also to increase the health benefits of the new water supply schemes. The question as where to locate the public fountains (if needed) should be taken up as soon as possible taking into account women's needs and preferences (as they are the main water carriers) and paying full attention to the (public) health aspects involved. The same holds for villages where the cattle troughs have not been constructed yet.

At the same time discussion should be started on simple but appropriate supplementary provisions such as waste water drains to safe and if possible productive places.

As far as the design of the pumphouses and reservoirs concerns it is the opinion of the mission that it could be simpler, more cost-conscious and easier to construct. Comparison could be made with the RIRDP and other water supply projects.

- Operation and maintenance of the schemes:

Up till now no action has been taken to look into the matter of proper operation and maintenance requirements and solutions once the scheme has been handed over to the LDA/local population. In general operation and maintenance seems to be reasonably arranged for by the villagers, most of them having experience in pump maintenance for irrigation.

- Local contribution

Although the first project agreement (1976) included a local contribution in the costs of the water supply scheme this was left out in the present project agreement. As the present economic situation in most of the villages allows for a substantial contribution either in labour and materials or in money (or both) it seems to be reasonable to include in the selection criteria for the implementation of new schemes a village contribution of 30%. Only in case of clear evidence that a village is unable to meet this requirement an exception could be made.

In Dhamar Governorate, the earthquake affected area, the Ministry of Public Works cannot approve of village contributions, while for other areas no objections exist. For this reason it was agreed to construct only five new schemes in the Dhamar area and the other new schemes in the Tihama area.

Financial savings

One of the objectives of the SRWSD project is the completion of 16 water supply schemes in Dhamar and Rada for which a total amount of Dfl 5,000,000. is available. Especially tendering to local instead of foreign contractors, but also adaptations in design and the procurement of another type of pump contributed to very remarkable savings in the costs of the schemes. With the same amount of money, originally planned to complete 16 schemes it is now estimated that 18 schemes can be built without village contribution plus another 17 schemes with a village contribution of 30%. In this way about 47,000 people can be served instead of the originally estimated 21,500 people.

6. CONCLUSIONS AND RECOMMENDATIONS

General

1. The actual project activities will not deplete the total reserved budget of Dfl 8,900,000. (Technical Assistance Dfl 2,400,000. and Financial Assistance Dfl 6,500,000.) within the planned 2.5 years. Within the budget of Financial Assistance important supplementary works could be executed. Implementation of these works will need an additional budget of Technical Assistance of about Dfl 1,700,000.- and an extension of the project till December 1986. It is recommended to agree on this extension by amending the actual project documents for the supplementary activities.
2. The actual Plan of Operations lacks a more descriptive part. Terms of Reference for the tasks of the Netherlands staff are given but sometimes in a very general way. A more specific, quantified description might be desirable as well for the objectives and activities of the project as for the tasks of all the personnel involved (Netherlands and Yemeni).

Reinforcement of the Rural Water Supply Department

3. It is recommended to insist on a consultation between RWSD and donors that give institutional support to RWSD (USAID, WHO, UNICEF, Netherland) to emphasize the importance of restructuring RWSD and to coordinate support activities.
4. As mentioned above a more detailed description of the responsibilities of the Netherlands experts might be desirable (number of site selections per year, description of working method, etc.), c.q. their replacement. The extension of the contracts of the Netherlands hydrogeologists has to be reconsidered, depending on the further improvement of the effectiveness and efficiency of their work.
5. The budget for geophysical investigations was originally destined for subcontracting of these works. The procurement of own geophysical equipment by the project has to be thought over carefully. Some of this equipment is so sophisticated that it only can be effectively run by a very highly skilled team which is not available at RWSD.
6. The procurement by the Rural Water Supply Department of a set of areal photographs is recommendable as study of the photographs and field checks of the photo interpretation can only be done when photographs are in house available.
7. In case contracts will be extended, it is proposed one of the tasks of the hydrogeologists will be the systematic inventory of water sources and water needs in the Netherlands supported project areas (Dhamar, Tihama). Training of counterparts could possibly be combined with the DOH project.

Construction of new water supply schemes

List of villages to supply

8. Actually twelve schemes are under construction. Contracts expire end of December 1984. More probable delivery of the schemes will be February 1985. Up till now the project did not receive a proposal of RWSD for new villages (five in Dhamar, the other ones in Tihama) to include in the project. For the continuation of the project it is urgently needed such a list is made available. It is recommended to supply more names than can be implemented in this project, leaving some flexibility to apply also Netherlands criteria (need, poverty, workload and interests of women, health aspects) and to negotiate contributions with the villagers.

Selection criteria

9. The Netherlands policy in the field of water supply gives priority to villages which are most in need of this basic service. Contribution in money or in work also is a prerequisite for implementation as schemes where the population is involved, are more likely cared for and looked after later on as they are really considered as belonging to the community. Actually only 20% of the population is supplied with piped water. In view of the enormous amount of work still to be done and the enormous amounts of money needed to fulfill these tasks it is important that financial resources will come as much as possible of the population itself, governmental and donor resources being too limited to speed up much the number of constructed water supply schemes per year. That is why a negotiation procedure should be included in the project activities.
10. It is suggested that for the selection of villages a short term community worker (male/female) will assist the technical team (RWSD and project) paying special attention to the above mentioned Netherlands criteria, the local structure, and a appropriate siting of the village water supply. At the same time the community worker could assist in developing the skill of negotiating contributions with the villages and LDA's.
11. In selected villages to be provided with water supply schemes it should be investigated whether it is possible to cooperate with health centres or health programmes as to maximize the benefits of the new water supplies through locally adapted health education activities.

Design criteria

12. Bore holes are in principle provided by the RWSD. Some attention will be given (inventory) in how far most needed villages have still not received any assistance (see also point 7).
13. Designs are based on a basic scheme (bore hole, reservoir supplying 50 l/cap/day in the village, public taps, cattle troughs). The siting of public fountains and cattle troughs

should be discussed into detail in an early stage of the project, taking into account women's needs and preferences and the (public) health aspects involved. It is proposed that at least 30% of the basic scheme but preferably more will be paid for by the village. Any supplementary work (tank on higher elevation, bigger tank, distribution network) will be charged fully to the community. Contributions could be partially in work (pipe laying, construction of pumphouse).

14. The design of the reservoirs should be so simple that small contractors can execute the work without much problems or need for technical advice.
15. Cattle troughs should be provided with an outlet for cleaning purposes.

Operation and maintenance

16. Where local persons need to be trained for the tasks of operation and (preventive) maintenance (e.g. plumbing) cooperation could be sought with district training centres like the vocational training centre in Rada.

Administrative procedures

17. It is proposed that small local contractors will be short listed and invited to offer instead of public tendering.
18. The signing procedure of payment certificates should be simplified as up till now delays in payment of the contractor occurred, having a negative effect on the continuation of the work. Supplementary work not included in the contract but found necessary during the execution of the work, should not lead to delays in the signing procedure, when the resident engineer has approved on them.

Sanitation pilot schemes

19. Originally three pilot schemes (Dfl 1,500,000.) were included in the project, as well as an additional budget (Dfl 350,000.) for small sanitary facilities (drainage, concrete slabs etc.). The schemes were considered as pilot schemes as they combine drinking water supply, participation of the population and sanitary facilities. It is proposed to change these activities to the construction of three pilot schemes of waste water disposal in villages with existing water supply schemes and to maintain a budget for small additional sanitary facilities in existing water supply schemes. Drainage of standposts and cattle drinking troughs should be included right away in the design of new water supply schemes.
20. For the selection and design of waste water disposal systems it is proposed the RWSD makes available an engineer for one year who could get a problem oriented training of several months in the Netherlands (Institute of Housing Studies, International Course in Sanitary Engineering, Consultantbureaus) and could work on the design of the three schemes under guidance of a mentot specialized in community-oriented sanitation.

21. For implementation of these schemes villages could be selected where already a project on health education has been started (Ministry of Health, NGO's) and which are willing to cooperate. It seems advisable to study both the Tihama situation and the mountain situation. Attention could also be paid to productive use of waste water. A combination of sanitation, village participation and health education is a prerequisite for effective implementation of these sanitation schemes.

Volume of work and use of budget

22. At the end of 1984 twelve water supply schemes will be finished and available funds from the Financial Assistance will be reduced to Dfl 4,490,000.-. It is proposed to spend this money in the following way.

- 5 water supply schemes Dhamar area à YR 300,000.	= YR 1,500,000.-
- 26 water supply schemes Tihama area à YR 360,000.*	
	x 0.7 = <u>YR 7,560,000.-</u>
	YR 9,060,000.-

23. The original budget from Technical Assistance of Dfl 2,400,000.- will not be sufficient to finish these works and is proposed to supplement this assistance as follows:

Pilotschemes waste water disposal	Dfl 150,000.-
Salaries and RC experts for 1½ year	Dfl 1,400,000.-
Project support:	
. selection mission 1 m/m	
. evaluation mission 1 m/m	
. sanitation mission 2 m/m	
	<u>4 m/m à Dfl 25,000.-</u>
Scholarship sanitation	Dfl 100,000.-
	<u>Dfl 50,000.-</u>
	Dfl 1,700,000.-

A detailed cost estimate could be prepared by the project.

* It is considered that the population will participate in average for 30% in the costs of construction. This figure has to be confirmed in the field.

7. REFERENCES

- Administrative Arrangement: "Support Rural Water Supply Department"
October 3, 1983
(Including: Plan of operations, September 1983)
- Domestic Water Supply Facilities in Dhamar and Rada Project Area
Contract Documents
Yemen Arab Republic, Ministry of Public Works
Ilaco, Arnhem, The Netherlands
July 1982, Code no. 4.08.032
- Th. Haagsma, M. Keijzer, H. v.d. Maas
Netherlands Support Rural Water Supply Department:
Progress Reports; Correspondence; Well-inventory reports
July 1983 - August 1984
- New Transcentury Foundation
An unsolicited proposal for the extension of Transcentury's cooperative agreement No. AID/NE-CA-1647 for the execution of Yemen Rural Water Project. No. 273-0044
1 June 1984
- L. Mendida, J.L. IJzermans, H.W. Bahr
- Strengthening of the Rural Water Supply Department
Mid-term-project review (Draft)
Sana'a, 2 October 1980
- Water supply and sanitation sector study
Yemen Arab Republic
World Health Organization/World Bank Cooperative Programme
Geneva, July 1981

Annex 1: Terms of Reference evaluation Support Rural Water Supply Department (SRWSD).

Those parts of the Terms of Reference directly related to the project evaluation SRWSD are presented below. The complete Terms of Reference are attached as annex 1 of the Main Report.

Objectives of the evaluation

The objectives of this joint evaluation are: to study objectives and progress of the "Support Rural Water Supply Department" project and comment on its effectiveness and efficiency in order to submit recommendations on possible follow up activities after termination of the present project period.

Evaluation points

General points to be examined are:

- Policy aspects:
 - . Conformity of projects to National Sector policy.
 - . Integration of water supply, sanitation and hygiene education.
 - . Criteria for the selection of villages which will be served first.
 - . Public versus private water supply and sanitation facilities.
 - . Co-financing versus bilateral aid.
- Organizational aspects:
 - . Appropriate counterpart organizations for the development and implementation of village water supply and sanitation (RWSD, LDAs/CYDA).
 - . Co-operation and co-ordination of agencies and organizations involved in water supply and sanitation (MPW, RWSD, LDAs/CYDA, MOA, MOH, MOMH, MPWS, DOH, donor organizations).
 - . A "single track" approach versus an integrated rural development approach in water supply and sanitation projects.
 - . Attention for water resources management.
 - . Organization of operation and maintenance for water supply and sanitation facilities.
- Technical aspects:
 - . Need for water resources studies in the planning phase.
 - . Physical implementation and appropriate technology.
 - . Level of service and choice of technology compared to need, health aspects, manpower requirements, cost-effectiveness, maintenance aspects.
 - . Functioning of the facilities.
 - . Maintenance capability.
 - . Water quantity and water quality control.
 - . Water re-use and utilization of sewerage effluent.
 - . Standards applied both technical (engineering) as well as with regard to water demand.

- Social aspects:
 - . Need for water supply and sanitation facilities.
 - . Contribution of water supply and sanitation projects to an improvement of the living conditions of the rural poor; who benefits?
 - . Participation of the local population in project planning and implementation.
 - . Participation in operation and maintenance.
 - . Accessibility of the facilities; equal distribution of water and sanitation facilities.
 - . Use of the facilities.
 - . Productive use of water (cattle, garden, small scale industries).
 - . Constraints for work in sanitation.

- Health aspects:
 - . Health risks and health benefits of water supply and sanitation facilities.
 - . Involvement of health agencies (MOH, MMH etc) in water supply and sanitation projects.
 - . Safe disposal of human waste, solid waste and waste water.

- Economic aspects:
 - . Financing of schemes; local contributions to investment and running costs; cost/benefit ratio's.
 - . Financial management of operation and maintenance; system of contributions.
 - . Increased production through health improvement.
 - . New water supply schemes versus upgrading of existing facilities.
 - . Cost effectiveness and adaption to local circumstances.

In addition the following specific points should be examined:

- Objectives and progress
 - . Were the original objectives realistic? Did or do they need reformulation?
 - . Which is the relation between the three project components (reinforcement RWSD, 16 implementation schemes, 3 pilot projects)? Did this materialize?
 - . Were the proposed project activities appropriate to reach the objectives?
 - . Assessment of the progress being made in relation to objectives and original time schedule. Were adaptations necessary? Which are the achievements and constraints? Are target groups/target villages being defined and priorities set?

- Organizational aspects
 - . The position of the project within the RWSD
 - . The relation between and the co-ordination of WHO support activities and Netherlands support activities within RWSD
 - . Integration of Netherlands experts in the RWSD
 - . Co-operation between Yemeni and Netherlands project personnel and division of responsibilities and tasks.

- . Procedures to identify needs and priorities for village water supplies (preparation of a national rural water supply master plan).
 - . The role of the RWS in relation to other governmental, private and external donor agencies aiming at rural water supply and/or integrated rural development.
 - . The role of the RWS in relation to organizations and institutions involved in water resources assessment and water resources management. Which steps have been taken to actual co-operation and co-ordination?
 - . Possibilities and constraints to include hygiene education in the water supply projects (given the fact that this is primarily the responsibility of MOH/PHC programmes).
 - . Appropriate structure and organization for operation and maintenance of village water supply and sanitation facilities.
 - . Should Netherlands support be more directed to strengthening of institutional and administrative structures or to physical implementation of water supply and sanitation facilities?
 - . Is direct Netherlands support to CYDA/LDA's recommended in water supply and sanitation activities?
- Technical aspects:
- . Technical support in site selection of wells, and design, preparation and construction of water supply schemes.
 - . Tendering and construction of water supply systems. Experiences with local contractors compared to foreign contractors.
 - . Installation of sanitary facilities.
 - . Water quality control.
 - . Monitoring of water resources, geophysical measurements and set up and adequate sampling of drilled formations.
 - . Design and construction of three pilot water supply schemes.
- Economic aspects:
- . Is a cost-benefit or cost-effectiveness analysis of the three project components possible and desirable.
 - . Cost and quality comparison with other Water Supply Projects (e.g. LDA-schemes).
- Manpower requirements:
- . Review of manpower requirements and the availability of skilled staff.
 - . Review of training needs.
 - . Assessment of formal and informal training activities within the project.

Annex 2: Itinerary

Monday September 10

- 12.00 Discussion of M. Boot with Mr. K. Schaapveld,
Co-manager DGHSP
- 13.00 Discussion of M. Boot with Mrs. T. de Haas, Public
Health Supervisor DGHSP
- 14.30 Discussion of M. Boot with Mr. S. Smits, DGHSP

Friday September 14

- 08.15 Field visits to water supply schemes Dhamar area
with:
Mr. T. Haagsma, Mr. A. v.d. Perk and
Mr. J. Nooteboom (SRWSD), Mr. IJzermans (DGIS),
Mr. Yaya Sannabanni (RWSD representative Dhamar),
Mrs. Kawkab Al Joofi (interpreter), J. Blom and
M. Boot
- 21.00 Discussion of mission members with
Mr. Riet Turksma (Consultants for Management of
Development Programmes)

Saturday September 15

- 08.15 Fieldvisits to water supply schemes Rada area with
Mr. T. Haagsma, Mr. A. v.d. Perk and
Mr. J. Nooteboom (SRWSD), Mrs. Kawkab Al Joofi
(interpreter), Mission members.
- 09.00 Return to Sana'a

Sunday September 16

- 08.30 Discussion between the mission members W. Segeren,
J. Blom and M. Boot, Mr. T. Haagsma (SRWSD) and
Mr. S. IJzermans (DGIS)
- 10.00 Meeting with Mr. Abdul Albari Saleh (DG RWSD),
Mr. Ibrahim Al Shami (Dep. Gen. RWSD),
Mr. Mohammed Madhi (Director Design Department RWSD),
Mr. Mardi and Mr. Gazali (Engineers RWSD), W. Segeren,
J. Blom and M. Boot (mission members) and
Mr. S. IJzermans (DGIS)
- 13.00 Discussion S. IJzermans, W. Segeren, J. Blom and
M. Boot with Mr. T. Haagsma, Mr. M. Keyzer and
Mr. D. v.d. Meer (SRWSD)

Monday September 17

- 08.00 Discussion with Mr. T. Haagsma and visit to the
Dutch Embassy
- 10.00 Discussion with Mr. D. Carner (Transcentury)
- 10.15 Meeting with Mr. J. Al Shami, Mr. M. Mahdi,
Mr. Mazdi, Mr. Gazali and Mr. Abdul Malik (RWSD),
Mr. T. Haagsma and mission members J. Blom and
M. Boot
- 15.00 Discussion of J. Blom and M. Boot with
Mr. M. Keyzer and Mr. v.d. Meer
- 19.30 Discussion with Lynn Carter (USAID), David Carner
(Transcentury), Mr. T. Haagsma, J. Blom and
M. Boot

Tuesday September 18

- 08.00 Discussion with Mr. T. Haagsma
09.30 Meeting with Mr. J. Al Shami, Mr. A. Malik,
Mr. M. Mahdi, Mr. Gazali and Mr. Osman Nuri
(RWSD), J. Blom and M. Boot
12.15 Visit to Survey and Design Department, RWSD.
Discussions with Mr. Samir Saad Ginoh
(administrator WHO), Mr. Dinkar Shresta
(surveyer), Mr. Bashir ul Haq (civil engineer)
14.00 Field visit to sanitation pilot scheme
Dar Al Quadhi with Susan Hoops (Transcentury),
Mr. T. Haagsma, J. Blom and M. Boot

Wednesday September 18

- 09.00 Meeting with Mr. J. Al Shami, Mr. M. Mahdi,
Mr. Gazali, Mr. Mazdi and Mr. Osman Nuri (RWSD),
Mr. T. Haagsma, J. Blom and M. Boot
11.30 Field visit to bore hole testing site outside
Sana'a with Mr. A. Malik (Director Drilling and
Hydrogeology Secion RWSD), Mr. D. v.d. Meer,
J. Blom and M. Boot

Thursday September 20

- 07.00 Departure for Dhamar with Mr. T. Haagsma,
W. Segeren and M. Boot
09.30 Discussion with Mr. Klywani (Director of Prov.
Office, Ministry of Health, Govt. Dhamar)
11.00 (Short) discussion with Mr. Abdulla Zeid Amran
(Head LDA's Dhamar area)
12.00 Field visit to water supply scheme Dhamar area
16.00 Return to Sana'a

Friday September 21

Report writing M. Boot

Saturday September 22

- 09.00 Discussion of Mr. T. Haagsma and M. Boot with
UNICEF: Mr. K.R.R. Pandian (Project Manager Water)
and Mr. Taha Amar (Local Counterpart, surveyer)
10.00 Meeting with Mr. J.A. Shami, Mr. M. Mahdi,
Mr. Gazali and others (RWSD), Mr. T. Haagsma,
J. Blom and M. Boot
12.00 Discussion with Mr. Kozinski (WHO project to
strengthen the RWSD)
13.15 Meeting with Mr. Ali At-Mikdad, Mr. Ahmed Al Atab,
Mr. Mohammed Al-Hadad, Mr. Ashari Mohammed,
Mr. Abedul Salam Mohammed, Mr. Kaid Saif,
representatives of (CYDA), Mr. R. Wanrooy (SNV),
S. IJzermans, G.J. Tempelman, J. Blom and M. Boot

Sunday September 23

- 10.00 Meeting with Mr. Abduhl Bahri, Mr. J. Al Shami, Mr. Mahdi, Mr. Mazdi, Mr. T. Haagsma, J. Blom and M. Boot
- 12.00 Meeting with Mrs. Chr. Abel (Assistant Resident Representative UNDP), Mr. T. Haagsma, G.J. Tempelman, and M. Boot
- 17.00 Reception. Discussions with representatives of UNDP, WHO, UNICEF, British Embassy, Public Health Project Hodeidah

Monday September 24

- 12.00 Meeting with the Minister of Public Works Mr. Al Kurshomi, Mr. J. Al Shami, Mr. M. Mahdi, Mr. S. IJzermans, W. Segeren, J. Blom and M. Boot
- 13.30 Lunch with the Deputy Minister of Public Works Mr. Al Hamdani, representatives of RWSD, UNICEF, WHO, SRWSD, Transcentury, PCI (Pacific Consultants International), S. IJzermans, W. Segeren, J. Blom and M. Boot
- 20.00 Final Discussion with Mr. T. Haagsma, W. Segeren, S. IJzermans, J. Blom and M. Boot

Tuesday September 25

- 09.30 Discussion of Mr. T. Haagsma and M. Boot with Mr. Harry M. Robertson and Jeremy Macadie (former and present attache Technical Cooperation, British Embassy)
- 11.00 Discussion of Mr. T. Haagsma and M. Boot with Mr. Mohammed M. Al Sabri (Deputy Chairman Foreign Relations Committee CYDA) and other representatives of CYDA
- 17.00 Discussion with Mr. E. Coster and Mr. R. van Dijk (DGHSP)

Annex 3: Project budget

1. Contribution the Netherlands.

Codeno.	Description	Amount	Period
91.00.11-13	<u>Projects support</u>	Dfl. 100,000,-	1/11/82-1/7/85
91.00.21	<u>Personnel costs: NL experts</u>		
	Project manager	Dfl. 400,000,-	17/5/83-17/5/85
	Hydrogeologist	180,000,-	1/1/84-1/1/85
	" " Ass. expert	PM	15/2/83-15/2/85
	2 Construction supervisors	720,000,-	1/7/83-1/7/85
	Subtotal	Dfl. 1,300,000,-	
91.00.42	<u>Equipment</u>		
	Hydrogeological eqt.	Dfl. 18,000,-	1/7/83-1/10/83
	Survey eqt.	5,000,-	1/7/83-1/10/83
	Miscell. eqt.	10,000,-	1/7/83-1/10/83
	Subtotal	Dfl. 33,000,-	
91.00.43	<u>Transport</u>		
	4 Landcruisers	Dfl. 115,000,-	1/4/83-1/10/83
91.00.53	<u>Running costs: transport</u>	Dfl. 120,000,-	1/7/83-1/7/85
91.00.54	<u>Running costs: office</u>	Dfl. 60,000,-	1/7/83-1/7/85
91.00.56	<u>Running costs: consumables</u>	Dfl. 12,000,-	1/7/83-1/7/85
91.00.57	<u>Running costs: experts</u>		
	Staffhouse Dhamar	Dfl. 78,000,-	1/7/83-1/10/83
	Travel expenses and DSA	72,000,-	1/7/83-1/7/85
	Subtotal	Dfl. 150,000,-	
31-50.xx.58	<u>Construction extra facilities</u>	Dfl. 350,000,-	1/1/84-1/7/85
51-60.xx.58	<u>Geophysical investigation</u>	Dfl. 160,000,-	1/7/83-1/1/85
	Total Technical Aid	Dfl. 2,400,000,-	
01-20.xx.58	<u>Construction Dhamar-Rada proj.</u>	Dfl. 5,000,000,-	1/7/83-1/1/85
21-30.xx.58	<u>Construction Pilotschemes</u>	Dfl. 1,500,000,-	1/4/84-1/7/85
	Total Financial Aid	Dfl. 6,500,000,-	
	Grand total Techn. + Fin. Aid	Dfl. 8,900,000,-	

Source: Plan of Operations

2. Contribution Yemen Arab Republ. .

Codeno.	Description	Amount		Period
1.	<u>Personnel/Counterparts :</u>			
1.1	Projectmanager/Civilengineer (parttime)	YR	50,000,-	1/7/83-1/7/85
1.2	2 Construction supervisors (fulltime)	YR	300,000,-	1/7/83-1/7/85
1.3	Hydrogeologist (parttime)	YR	100,000,-	1/7/83-1/7/85
2.	<u>Running costs :</u>			
2.1	Transport	YR	300,000,-	1/7/83-1/7/85
2.2	Others	YR	100,000,-	1/7/83-1/7/85
3.	<u>Contribution L.D.A.'s :</u>			
3.1	Pilotschemes: Construction	YR	800,000,-	1/4/84-1/7/85
	Total		YR1,650,000,-	

	1983		1984				1985		Total
	III	IV	I	II	III	IV	I	II	
1.1	6,250,-	6,250,-	6,250,-	6,250,-	6,250,-	6,250,-	6,250,-	6,250,-	50,000,-
1.2	37,500,-	37,500,-	37,500,-	37,500,-	37,500,-	37,500,-	37,500,-	37,500,-	300,000,-
1.3	12,500,-	12,500,-	12,500,-	12,500,-	12,500,-	12,500,-	12,500,-	12,500,-	100,000,-
2.1	37,500,-	37,500,-	37,500,-	37,500,-	37,500,-	37,500,-	37,500,-	37,500,-	300,000,-
2.2	12,500,-	12,500,-	12,500,-	12,500,-	12,500,-	12,500,-	12,500,-	12,500,-	100,000,-
3.1	-	-	-	160,000,-	160,000,-	160,000,-	160,000,-	160,000,-	800,000,-
Total per period	106,250,-	106,250,-	106,250,-	266,250,-	266,250,-	266,250,-	266,250,-	266,250,-	1,650,000,-
Total cumulative	106,250,-	212,500,-	318,750,-	585,000,-	851,250	1,117,500,-	1,383,750,-	1,650,000,-	1,650,000,-

Source: Plan of Operations

Annex 4: Overview project schemes Dhamar/Rada

Village	Civil Works	Pumps	Total	Estimated Population
Al Husul	234,252	71,720	305,972	200
Dafinah	185,963	68,062	254,025	2000
Al Mayfa'ah	196,272	62,339	258,611	500
Samah/Sufara	492,002	68,239	560,241	250/150
Sirm al Banna	202,472	63,519	265,991	200
Jarf Isbil	298,252		298,252	3000-4500
Al Hajar	150,472	89,774	240,246	500-800
Ar Rhawq	255,522	65,997	321,519	100
Al Garrar	180,672	61,690	242,362	50-200
Al Jawf/Al Nukaba	200,922	45,937	246,859	50
Hanaka Al Masud	220,573	60,510	281,083	4500
Mawr	252,498	57,029	309,527	3000
Total	2,869,872	714,816	3,584,688	14,500-16,450

Annex 5: Financial situation of the project as per August 31, 1984

Contribution The Netherlands:

Codenummer	Description	Total budget to 1/7/85	Costs per 31/9/84	Outstanding to 1/7/85
91.130	Projectsupport	100,000	30,000	70,000
91.210	Personnelcosts	1,300,000	740,000	560,000
91.420	Equipment	33,000	37,000	- 4,000
91.430	Tramsport	115,000	124,000	- 9,000
91.530	RC:transport	120,000	70,000	50,000
91.540	RC:office	60,000	35,000	25,000
91.560	RC:consumables	12,000	7,000	5,000
91.570	RC:experts	150,000	120,000	30,000
31.580	Extra facilities	350,000	10,000	340,000
51.580	Geophys. invest.	160,000	4,000	156,000
	Technical Aid	2,400,000	1,177,000	1,223,000
01.580	Dhamar/Rada-Proj.	5,000,000	* 2,151,000	2,849,000
21.580	Pilotschemes	1,500,000	-	1,500,000
	Financial Aid	6,500,000	2,151,000	4,349,000
	Techn. + Fin. Aid	8,900,000	3,328,000	5,572,000

* This amount is the total amount of the contracts for the civil works and the pumps for the waterschemes for 13 villages. Untill 31/8/84 an amount of Dfl. 326,000.- has been spent cq. should have been paid to the contractors.

Contribution RWSD:

Codenummer	Description	Total budget to 1/7/85	Costs per 31/8/84	Outstanding to 1/7/85
1.1-1.3	Counterpart costs	450,000	-	450,000
2.1	RC:transport	300,000	-	300,000
2.2	RC:office	100,000	-	100,000
3.1	Contribution LDA's	800,000	-	800,000
		1,650,000	-	1,650,000

RC = Running costs

COUNTRY OR ORGANIZATION	COST	COMPONENTS	ESTIMATED DURATION	IMPLEMENTING AGENCY	STATUS
1. Saudi Project	US\$26.1 million	50 complete systems, including wells, tanks, pumps, generators, pump houses, transmission and distribution lines for towns of 1,500 to 12,000.	Phase I (drilling) 22 Nov. 83 to August 1985, to be followed by Phase II - civilworks - and Phase III - pump installation. Project expected to last about five years.	Saudi Projects Office with Al-Watari (Yemeni Construction Company)	Drilling phase expected to last 15-17 months, till spring 1985. 4 wells have been drilled to date.
2. Iraqi Assistance	US\$4	30 deep wells and sometimes the provision of pumps and generators.	March 1982 to May 1984	Iraqi contractors with 3 drilling rigs, 15 technical staff, and 1 Chief of Party.	About 28 wells drilled, 2 remaining.
3. UN Assistance					
UNICEF	US\$1,984,000	50 water resource development projects, including tanks, pipelines, pumps & generators.	30 May 1982 to 31 December 1984	-----	15 projects completed
UNCDF	US\$2,487,000	45 projects - resource improvements, including tanks, pipelines, pumps and generators.	30 May 1982 to 30 October 1984. Agreement will probably be extended.	-----	52 projects surveyed, no construction started. All commodities required for projects have been imported and are at RWSO warehouses.
4. Japanese Assistance					
Phase I (grant aid)	US\$1,980,000	5 complete systems in Sanaa, Hajar and Taiz.	10 August 1982 - 15 March 1984.	Nissaiwai Corp. Nissako Corp.	Work supposed to be completed, but some drilling rigs appropriated by tribes. Extended to September 1984.
Phase II (grant aid)	US\$2,009,000	2 complete systems for 17 villages.	7 March 1983 - 15 March 1984	-----	
Phase III (loan)	US\$2,678,000	3 projects for 16 villages	Consulting agreement signed 31 July 1983. Duration not known.	-----	Entering negotiations for tendering. Will be followed by contractor selection. Project work expected to last about 2 years, till March 1985.
	US\$6,667,000				
5. Arab Fund for Economic & Social Development	US\$2,196,439 (700,000 Kuwaiti donor)	10 projects, including pumps and fittings, pipelines, extensions, civil works, technical services and establishment of regional offices.		-----	Under negotiation.
6. Dutch Projects	US\$2,787,456	14 projects, including civil works for wells previously drilled by Dutch Project in Rada and Damar.	4 October 1983 - August 1985	-----	4 staff in country. After civil works completed, 5 proposed staff will assist the RWSO as experts.
7. German Assistance for Damar Earthquake Rehabilitation	US\$2,192,982	45 sites to be provided with tanks, pumps and distribution systems.	12 March 1983	KPS Corp. has been selected as contractor.	Under negotiation.
8. American Government USAID					
Phase I	US\$6,900,000	55 projects.	28 July 1980 to	TransCentury Foundation	Proposed extension for 5 years, from October 1984 to September 30 1989. Emphasis to shift to institution building.
Damar 1	500,000	18 projects	30 September 1984		
Damar 2	1,358,000				
	US\$8,758,000	73 projects			
GRAND TOTALS:	US\$47,576,000	327 sites/projects			