

824 NA96



International Water and Sanitation Centre

Centre international de l'eau et l'assainissement

WHO Collaborating Centre / Centre Collaborateur OMS

Library
IRC International Water
and Sanitation Centre
Tel.: +31 70 30 689 80
Fax: +31 70 35 899 64

REPORT OF

THIRD BACKSTOPPING MISSION

TO THE NETHERLANDS-SUPPORTED

WATER SUPPLY PROGRAMMES IN NAMIBIA

June 1996

IRC International Water and Sanitation Centre

824-NA96-13988

Library
IRC International Water
and Sanitation Centre
Tel.: +31 70 30 889 80
Fax: +31 70 35 899 64

REPORT OF

THIRD BACKSTOPPING MISSION

TO THE NETHERLANDS- SUPPORTED

WATER SUPPLY PROGRAMMES IN NAMIBIA

LIBRARY IRC
PO Box 93180, 2503 AD THE HAGUE
Tel.: +31 70 30 889 80
Fax: +31 70 35 899 64

BARCODE: 13988
LO: 824 NA 96

Mission June 1996

Backstopping Team:

- Mr Jo Smet, team leader
- Mr Wim Klaassen
- Ms Beth Terry

DRWS Core Team:

- Mr Sjaak Zijlma
- Mr Godfrey Tjiramba
- Mr Matti Hauuanga (proposed)

ACKNOWLEDGEMENT

The Backstopping Missions of the Netherlands-financed piped water supply schemes rely heavily on the cooperation and partnership with the staff of the Directorate of Rural Water Supplies and many other people. The Backstopping Team would like to express their thanks to all those involved for devoting their time and effort into making this backstopping possible. Particular thanks are due to the Director of the DRWS, Mr Pita Nghipandulwa, and his staff, both at Head Quarters in Windhoek and at the Regional Office in Oshakati, for their considerable amount of support and good cooperation provided. The Backstopping Team likes to mention Messrs Harald Koch, Jürgen Eysellein, Sjaak Zijlma, Matti Hauuanga, Godfrey Tjiramba, Willy Iyambo, Pinehas Elago, Mary Isaac Itembu, Petrina Ipumbu, Monica Shidute and Toivo Munenguni, Leoni Futter and Leonie Postma with whom a very good relationship was maintained during the Third Backstopping Mission.

IRC International Water and Sanitation Centre

ABBREVIATIONS AND ACRONYMS USED

CWC	-	Central Water Committee
DRWS	-	Directorate of Rural Water Supply
DWA	-	Department of Water Affairs
ESA	-	External Support Agency
IRC	-	IRC International Water and Sanitation Centre
LSU	-	Large Stock Unit
LWC	-	Local Water Committee
MAWRD	-	Ministry of Agriculture, Water and Rural Development
MT	-	Maintenance Team
NDT	-	Namibia Development Trust
NWC	-	Namibia Water Corporation Limited
O&M	-	Operation and Maintenance
RNE	-	Royal Netherlands Embassy
RWEO	-	Rural Water Extension Officer
RWS	-	Rural Water Supply
TOR	-	Terms of Reference
WASCO	-	National Water Supply and Sanitation Coordination Committee
WASP	-	Water and Sanitation Policy
WPC	-	Water Point Committee

CONTENT

0. Executive summary	1
1. Purpose of the Backstopping Missions	2
2. Monitoring of Netherlands-supported water supply projects	2
3. Programme of Third Backstopping Mission	2
4. Partnership with the Directorate of Rural Water Supply	3
5. Re-organization and developments within the Department of Water Affairs	4
6. Physical progress of water supply schemes	5
7. Analysis on effectiveness of water supply systems	7
7.1 Functioning	7
7.2 Use	7
7.3 Health, hygiene behaviour, and environmental health issues	8
8. Analysis on sustainability of water supply systems	11
8.1 Organization of piped water supply schemes	11
8.2 Community participation	16
8.3 Gender issues	18
8.3.1 At the community and committee level	18
8.3.2 Within DRWS	20
8.4 Technology and service level	20
8.5 Operation and Maintenance (O&M)	21
8.6 Cost Recovery	22
8.7 Community Management	23
8.7.1 Ownership	23
8.7.2 Community Organization	24
8.7.3 Community Financial Management	24
8.7.4 Community-based Operation and Maintenance	25
8.7.5 Operational capacities and capabilities	26
8.7.6 Monitoring	26
9. Monitoring	26
10. Environmental sustainability	29
10.1 The environment under pressure	29
10.2 First steps to deal with the environmental deterioration	30

11. Training development	31
11.1 Options for establishment and training of WPCs in Ogongo-Okalongo Scheme	31
11.2 Training for RWEOs	31
11.3 Training of WPCs	32
11.4 Options for establishment and training of WPCs on the two Dutch financed schemes	33
11.5 Possible training strategy for WPCs, developed by the DRWS Training Section	34
12. Capacity Development Fund	36
13. Joint conclusions and recommendations	37
14. Proposals	39
15. Backstopping mission planning	41
16. Appendices	

0. EXECUTIVE SUMMARY

The Backstopping Mission aims to review jointly with the counterpart Core Team of the Directorate of Rural Water Supply the achievements, effectiveness and sustainability of two Netherlands-financed rural piped water schemes in the Cuvelai Rural Water Supply Region in Namibia. Furthermore, the joint Teams will assist DRWS to develop and make related community management and support structures operational. In this way increased scheme sustainability will be achieved, field experiences gained and lessons learned. These experiences and lessons will be applicable to all staff of DRWS. The Mission experienced an increased collaboration with the DRWS staff, both at National and Regional level.

The Third Backstopping Mission took place between 09 and 25 June 1996. The main objectives of this third mission were to assess the progress on the Netherlands-supported water projects in Namibia, to identify risks for sustainability at community and Directorate level (both Regional and National), and to develop methodologies and action-plans for sustainable community management structure and for sustainable Directorate support structures. Key elements are the institutional and organisational structure at and below the regional level up to the water point level, and the required capacity building activities of those institutions. The main methodologies used were field visits and discussions with relevant individuals and groups in the key institutions involved.

The Oshakati-Omakango scheme still needs finalization of the physical structures before it can be handed over to DRWS. This needs very urgent attention as delays may jeopardise the community management process.

The rehabilitation of the Calueque Dam is delayed because of problems in the tendering procedure. This is directly done by DWA. It may take another year before the implementation at Calueque can start. The Olushandja dam/reservoir rehabilitation is nearing completion.

In the discussions with the communities, WPCs, LWCs and RWEOs, the elements of sustainability were raised. There appears to be great differences between the organisational performance of the WPCs. In the Ogongo-Okalongo scheme, WPCs have confidence and good control over WP management aspects. An outstanding reason for the community management success on the Ogongo-Okalongo scheme was the element of ownership: "people feel they have it all in their hands..". In the Oshakati-Omakango scheme this needs further attention and consolidation. In both schemes the establishment of WPCs and their training is to be taken on as soon as possible. The report gives different options for the continuing WPC establishment and training efforts. It was suggested to write a case document on experiences in the Ogongo-Okalongo scheme.

The LWCs are hardly or not operational. The LWC of the Oshakati-Omakango scheme is not officially established, also as the scheme has not been handed over to DRWS and subsequently to the LWC. As the schemes are development and demonstration schemes, further responsibilities should be handed over to the scheme responsible entities: LWCs, WPCs and users. The LWCs have, as formal owners of the scheme, a crucial role to play. The issues and process required in the (re-)establishment and training are discussed. The

magnitude of the LWCs' tasks is quite substantial, in terms of organisational, managerial, financial and technical terms.

The RWEOs required for the extension service in both schemes have been recruited and trained. In a three-day workshop with them, successes, problems, constraints and opportunities were discussed. The success of the community management is the result of their efforts. Nevertheless, their efficiency and their relation with the Regional office needs attention. A RWEO efficiency study is suggested. Furthermore, operational suggestions to directly improve their efficiency have been discussed and agreed with them. Monitoring systems on their functioning and performance are to be developed.

At the Regional DRWS level, the capacities are presently insufficient to ensure a proper functioning of the tasks as planning, implementation and support to the completed schemes. This includes the extension service. DRWS should look into increased decentralisation towards the regions leading to improved functioning and performance. Presently, there is a substantial dependency on DRWS Windhoek. The integration of WSSPOR is to be viewed in this context.

The Third Backstopping Mission jointly with DRWS staff addressed issues of operation and maintenance, cost recovery, community participation and gender, community management. Further improvements on the practical aspects of these issues were discussed and suggested. These include the introduction and cost recovery at scheme level by the LWC. Monitoring has also been an issue of attention, both at the WPC and the RWEOs-level. Monitoring areas and indicators were developed, including for environmental sustainability at WPCs. Training of WPCs and LWCs received particular attention during this mission, as this is of paramount importance. The Namibian member of the Backstopping Team will give additional inputs in the training development.

The Backstopping Team will continue to support jointly with the Core Team at the DRWS side the development of organisational structures at field, regional and national level that will contribute to the sustainability of the piped water supplies systems in general and the two Netherlands-supported schemes in particular.

1. PURPOSE OF THE BACKSTOPPING MISSIONS

The purpose of the Backstopping Mission is related to the Dutch-financed water projects in the Cuvelai Water Supply Region, i.e. the Ogongo-Okalongo and the Oshakati-Omakango piped water schemes, and the Calueque II project.

The abstracted objectives are (i) to review jointly with DRWS Core Team the achievements, effectiveness and sustainability of the above projects; and (ii) to assist DRWS in the development and demonstration of operational community management systems and related structures contributing towards scheme sustainability and learn from the reviewed experiences.

The main objectives of the third mission were to assess through field visits and small group discussions with relevant groups the progress in the Netherlands-supported water projects, to discuss and analyse with the RWEOs the factors for success and failure of the community management of the schemes and water points, to identify solutions and action-plans to improve the community management, to further analyze sustainability at community and Directorate level, and to indicate solutions and action-plans to improve this sustainability at the community and Directorate support structures. The detailed TOR are appended (1).

The Backstopping Team is composed of Mr Jo Smet, Mr Wim Klaassen and Ms Beth Terrv. The DRWS Core Team is composed of Mr Sjaak Zijlma and Mr Godfrey Tjiramba. Because of private reasons and Directorate activities on Cost Recovery, Godfrey could not participate in this mission. Mr Matty Hauuanga, Assistant to the Deputy Director North, joined the mission for several days.

2. MONITORING OF NETHERLANDS-SUPPORTED WATER SUPPLY PROJECTS

The complete list of Dutch financed water projects and activities in Namibia since 1990 is appended (4). The monitoring task of the Backstopping Mission is related to the two rural piped water supply schemes (Ogongo-Okalongo and Oshakati-Omakango), and the rehabilitation of the Calueque Dam and Olushandja Reservoir. Monitoring of physical progress of these projects is reported in chapter 6.

3. PROGRAMME OF THIRD BACKSTOPPING MISSION

The third mission took place between 09 and 25 June 1996. After a briefing at the Netherlands Embassy in Windhoek and teaming up with the DRWS Core Team, the mission spent eight days in the Cuvelai Water Supply Region. The Ogongo-Okalongo and Oshakati-Omakango schemes were visited; community management progress and problems were discussed in focus groups including general community members, Water Point Committees' members (WPC) and Local Water Committee members (LWC). In the discussions in the Ogongo-Okalongo scheme some 140 people were consulted by the Teams; and in the Oshakati-Omakango some 50 people. In a three-day Participating Workshop in Oshakati with all five RWEOs involved in the two schemes, factors of

successes and problems in community management at water point and scheme level were discussed, and were identified. Also issues directly related to the functioning and the efficiency of the RWEOs were discussed in detail. In Windhoek the Sustainability Matrices (tables appendix 11) developed during the Second Mission were reviewed and completed by the Teams. A meeting with ESAs to exchange information on donor-supported projects and to debrief on the Missions findings was organized by and at the RNE in Windhoek. Present during that meeting were representatives from the Swedish Embassy, UNICEF and the RNE.

At the end of the Mission the major conclusions and action points were discussed with the DRWS and also with the RNE; a Summary Report was submitted.

A detailed itinerary and a list of persons met are appended (2 and 3). Slight changes had to be made in the field compared to the original schedule due to ongoing DRWS activities, including Regional Preparatory Workshops on Cost Recovery, and the fact that the meeting with RWEOs focused more on review and planning than on monitoring and evaluation.

4. PARTNERSHIP WITH THE DIRECTORATE OF RURAL WATER SUPPLY

The Backstopping Team continued the good relationship with the DRWS Core Team being: Sjaak Zijlma and Godfrey Tjiramba. Mr Matty Hauuanga, deputy Divisional Head North, joined the Teams for several days in the field visits to the schemes and teams' discussions in Oshakati. The Teams had discussions with Willy Iyambo, Regional Head Cuvelai, Pinehas Elago, Mary Isaac Itembu, Petrina Ipumbu, Monica Shidute, Toivo Munenguni, Leoni Futter and Leonie Postma.

The debriefing was done to DRWS staff including Mr Pita Nghipandulwa (Director), Mr Jürgen Eysselein (Divisional Head North), Mr Harald Koch (Divisional Head Development and Planning), and Mr Matty Hauuanga (Assistant to the Divisional Head North).

The management of the DRWS expressed the value of this kind of Backstopping support. The positive findings on community management including general acceptance of the concept of cost recovery surprised DRWS to some extent, although the complexity and new problems associated with community management of rural water supply schemes and water points were identified by the Third Mission. The RWEOs explicit crucial role in the success of the community management were seen as exemplary for success in community-based management. The DRWS Management found these Missions constructive in identifying bottle necks, efficiency and effectiveness of the DRWS structure supporting rural water supply, especially as it was done jointly with DRWS staff.

It was suggested and approved that next missions Mr Matty Hauuanga and one member of the Training Section will join the DRWS Core Team during the visits and analysis in the Cuvelai Water Supply Region. This is much appreciated as Mr Sjaak Zijlma will gradually phase out from the DRWS Core Team.

The Missions continue to contribute to further development of strategies and methodologies towards sustainable rural and community-managed piped water supply schemes.

5. RE-ORGANIZATION AND DEVELOPMENTS WITHIN THE DEPARTMENT OF WATER AFFAIRS

The commercialization of the "Bulk" Water Supply has still not yet materialized; the new target date for the start of NAMWATER is April 1997.

The future liaison between DRWS and NAMWATER is not yet clear. The autonomy of the LWCs and WPCs in the rural water supply constellation and the logic consequence of them being direct clients of NAMWATER seems not (yet) acceptable for NAMWATER. The relation between DRWS and NAMWATER, and the recognition of LWCs as autonomous bodies are important issues in the cost recovery strategy, the tariff setting for rural and urban water supply including the different service levels, and the possible government subsidy for "lifeline"¹ service level.

DWA will re-organise itself further after the establishment of NAMWATER as the remaining departmental functions may have to be re-grouped within the Ministry. Further privatization of departmental functions may be looked into for reasons of increased efficiency. In the Training Chapter the possible involvement of private sector in training of WPCs and LWCs will be discussed.

The shortage of staff in DRWS continues to be a serious bottleneck for the establishment of a well-trained DRWS extension and support structure towards community-based water supply management at central, local and water point level.

The number of RWEOs has increased to 95 trained RWEOs out of the 231 estimated to be required in total. This total figure of RWEOs needed is to be reviewed after the RWEO functioning/performance assessment. Issues of RWEOs' efficiency, salary level and transport are to be looked into. The Third Mission found that the establishment of the WPCs and their subsequent training consumes more time than initially anticipated; this time-spending was reviewed during the Mission, as well as the RWEOs' time required for follow-up and support visits to WPCs (see appendix 15).

Eventually, when all WPCs and LWCs are established and trained, and the role of the RWEOs is limited to support and follow-up, the total number of RWEOs required could be smaller, as then less extension support is needed.

In the Cuvelai Rural Water Supply Region, the Control RWEO has been seconded as National Coordinator to the GTZ-supported water supply projects (CAWS). The duties of the Control RWEO have been assumed by the Chief RWEO. To contribute to the realization of the decentralization and strengthen the regional operational capacities, it is suggested to have the development planners as soon as possible posted in the regions. This will very much contribute to the enhancement of efficiency and effectiveness of the DRWS Regional extension service.

DRWS is in the process of employing new staff for training (three excluding one expert through Dutch Aid) for development planning (three Development Planners) and for technical issues (15 posts).

The tables in appendix 5 give overviews of the present staffing of DRWS at national and Cuvelai regional level against the establishments. The Administrative and Auxiliary staff are not included.

1. For explanation of "lifeline" concept, see the Proceedings of the Swakopmund Workshop on Cost Recovery for Rural Water Supply

The extension staff for the two development/demonstration schemes is complete in number and they are well trained. For the Cuvelai Rural Water Supply Region one Chief RWEO was appointed, Mr Pinehas Elago, while Ms Mary Isaac Itembu has applied for another Chief RWEO post. If Mary will be appointed as the second Chief RWEO, a new RWEO for the Oshakati-Omakango scheme is to be recruited and trained. This is planned for July 1996, with on-the-job training till a new T1-T4 training programme will start. The Chiefs need further training in community management: either the IRC/NETWAS Management for Sustainability course in Nairobi (3 weeks) or the IWSD Community Management course in Harare (6 weeks).

The need for further re-orientation of the National and Regional DRWS Management staff is still high; this re-orientation refers to a change in direction from a technical to a community scope, i.e. DRWS is the facilitator and supporter to community managed water supply systems. Planning for senior staff to attend short courses on planning/management in community-managed water supply is needed (e.g. IRC/NETWAS Management for Sustainability Course). The Backstopping Missions contribute to this re-orientation through the workshops and discussions on problems and solutions in community-managed rural water supply. Furthermore, more specific short training sessions on selected topics (e.g. tariff setting; scheme management; monitoring) can be organized during forthcoming missions

The Mission could not get information on new activities or decisions of the National Water Supply and Sanitation Coordination Committee (WASCO).

6. PHYSICAL PROGRESS OF WATER SUPPLY SCHEMES

Ogongo-Okalongo and Oshakati-Omakango schemes

The Ogongo-Okalongo scheme has been completed in 1994. During the visit, the Teams learned that there is an unequal distribution of storage tanks. Some WPs have just one storage tank, which creates problems when cattle are also to be watered from this tank as the outlet to the livestock water supply tap is connected midway between the top and the bottom of the tank. Therefore, the water available for cattle may not meet the demand during the dry months. On the other hand, some WPs have a large number of storage tanks, some up to 12 and 15, while the actual consumption figures indicate a storage capacity utilization of about 5%. The underlying design considerations (e.g. estimated number of consumers; number of LSUs; schools or institutions) may not have reflected the real situation, or changes in grouping of consumers have occurred after designs were made. DRWS with the LWC should look into this to achieve a better distribution by re-distribution of storage tanks for better service for domestic and cattle water supply, and to avoid too long retention times of stored water (direct measure: close surplus tanks).

The Second Mission reported wrongly that the Oshakati-Omakango scheme had been handed over to DRWS. Although the scheme had been inspected by DRWS and the impression was given that faults had been corrected/repared by DRWS using its own O&M funds, it was now said that this is the role of the Construction Division of DWA. DRWS will negotiate with the Construction Division of DWA to have the required corrections and repairs made to this scheme to meet the acceptable standards. Only after

these corrections/repairs an official inspection can be done and if approved, then the scheme can be handed over to and accepted by DRWS.

The handing-over of the scheme to DRWS, will also dictate the timing for the handing-over to the LWC, which has to be formally established. Suggestions how to establish the LWC are given in chapter 8.1 Organization of Schemes. The importance of handing-over was noted in the discussions with the communities and WPCs.

Although there has been a serious delay in this handing-over, the required repairs of the WPs give a great opportunity to have the users and WPCs involved in this activity, that will contribute to sense of ownership and recognition of authority of WPCs.

Up to June 1996, 19 WPCs (out of 96) along the Oshakati-Omakango scheme have been established. In chapter 11 suggestions for the establishment of the remaining WPCs and the training of the WPCs are given. Directly after their establishment, the WPCs will appoint/select a WP Caretaker, who has to be trained as soon as possible to ensure adequate preventive and corrective maintenance of the WPs. Presently a technical training programme for caretakers is being planned by the DRWS Training Unit and AgriFutura. The intention is to train a specific group of technically-oriented RWEOs, who then will be responsible for caretaker training throughout the country.

In discussions with the users, the desire for more water points was expressed, that is a higher service level resulting in shorter walking distances (also for small-scale enterprises etc.). The "lifeline" standard is 2.5 km, but eventually this distance will be reduced to 1 km. Adaptation to this higher service level will be the responsibility of the GRN, but there is no time schedule yet for this as first the "lifeline" standard has to be achieved for all rural areas. For the time being extra water points and branch-lines beyond the "lifeline" concept are to be seen as private connections for which full construction and connection costs have to be borne by the users. Private connections for domestic and livestock watering purposes is possible provided the source capacity allows it. The permission for private connections and the physical connection to the main lines are presently tasks of DWA Bulk Water; for the future - when the LWCs are operational - these tasks should be taken up by the LWCs.

Calueque Dam Phase II

The Third Mission had discussions with the M&E Design Division of DWA, Mr Bernard Haussler, on the progress of the rehabilitation of the Calueque Dam (Phase b). Because of security the tendering procedure was delayed. A full report for DGIS and RNE on the progress over the last 6-9 months has been made by Mr Haussler (appendix 20).

In short: the Permanent Joint Technical Committee (PJTC) on the Kunene river is involved in all activities in the river. Under the PJTC is the Task Force Calueque (TFC). Pre-qualification documents for tendering were not sent to PJTC and Angolan contracting companies were not invited for the rehabilitation projects (civil and hydraulics/steel). Protest from Angolan side lead to correction of this mistake and PJTC was informed and Angolan and international contractors were invited to pre-qualify themselves. The tendering procedure for pre-qualified firms from Namibia, South Africa and Europe will be completed with the awarding around November 1996. It is expected that the contractors

for both civil and hydraulic/steel work can start by mid-July 1977 (when the water levels in the impoundment have dropped).

The works should be ready by April 1998. The Netherlands Government can only disburse the funds in the financial year 1997/1998.

One new pump, three new motors and switch gear have been ordered and are due to arrive in the last quarter of 1996. One set (pump and motor) will be a dry spare. The pumping capacity will then be increased to $2 \times 3 \text{ m}^3/\text{s}$ depending on river level. The present pumps have sufficient capacity but the new motors have a higher speed (600 rpm) than the present ones.

The Olushandja Dam rehabilitation is nearly ready; only the sluice system at the southern outlet of the lake is still to be rehabilitated. The Environmental Impact Assessment has been done by a team composed of government staff, Namibian and South African scientists, and South African students. According to information from DWA, the final report is being edited but finalization is delayed because of illness of editor. DWA seems not agreeable to the main conclusions of the EIA. Details of the reports that give the underlying information for the final report are covered in chapter 10 (see appendix 21)

Next Backstopping Mission will include a visit to the Calueque and Olushandja Dam to visually inspect the rehabilitation at both sites.

7. ANALYSIS ON EFFECTIVENESS OF WATER SUPPLY SYSTEMS

7.1 Functioning

Both the piped water supply systems Ogongo-Okalongo and Oshakati-Omakango were functioning and had not faced significant supply problems since the Second Backstopping Mission.

There are some complaints about insufficient water for cattle for WPs with only one storage tank. Furthermore, many households in the delivery areas of the schemes, particularly the Oshakati-Omakango area, requested private connections.

The physical structure of the water points (WPs) of the Oshakati-Omakango scheme is still below standard and the scheme has not been accepted by and handed-over to DRWS. The Ogongo-Okalongo scheme had 43 WPCs in place in 64 WPs and in the Oshakati-Omakango scheme 19 WPCs were established out of 96 WPs.

7.2 Use

As indicated in previous mission reports, water for domestic purposes was mainly coming from the WPs, although other traditional sources were used when available. The Mission was carried out some three months after the insufficient rains. There was not much cattle seen in the areas of the two schemes as grazing land was exhausted. People indicated that cattle use surface water sources (oshana, omifima etc.) whenever possible. This contributes to the low measured consumption in the schemes, which are far below the design consumption.

Water consumption figures were obtained for the Ogongo-Okalongo scheme for a 12-months period from Bulk Water Supply in Oshakati (appendix 16). Analysis indicates large differences in consumption between dry and rainy season. The indicative present domestic water consumption figure in this scheme is about 12 lcd, an increase with some 20% compared to the indicative consumption figure over the period September 1994 - October 1995. The consumption of 12 lcd is far below the design consumption for domestic use of 25 lcd. The consumption in the maximum month (December 1995) over the last 12 months (June 1995-May 1996) is only 25,206 m³ or 36% of the design of the design capacity of the scheme (design period 20 years).

For the coming period, consumption figures at the WPs will be monitored by some WPCs, and Bulk Water Supply will be requested to monitor the flow at the beginning and end of the Oshakati-Omakango scheme (inflow and outflow at Oshakati and Omakango see map). Furthermore, the precipitation data (rainfall) will be included in the analysis of the consumption figures versus monthly rainfall.

7.3 Health, hygiene behaviour, and environmental health issues

Without some type of holistic approach to the development and operation of the rural water supply systems, which should include issues pertaining to hygiene behaviour and environmental health, the overall impact of the systems on people's lives and health will be limited. As noted during the last Mission, an education and awareness campaign on water handling, carrying, and storage and use in the household needs to be connected to the clean, protected water supplies. Although no significant progress has been made since late 1995 in this regard, there are some signs of a foundation being built for future efforts and cooperation between DRWS and the Ministry of Health and Social Services (MOHSS). The placement of RWEOs on the schemes and the continual establishment of WPCs are important additions to this foundation.

Condition around the WPs

Both the Ogongo-Okalongo and the Oshakati-Omakango schemes were visited during this Third Backstopping Mission. Several points were noted related to hygiene and environmental health, either through observations at several WPs or during meetings conducted with users and WPCs.

The area around five WPs on the Ogongo-Okalongo scheme and around two WPs on the Oshakati-Omakango scheme were observed during the field trip. Similar to the state of WPs reported last November, all but one WP were very clean and free of litter, animal droppings, and pools of standing water.

The taps and washing basin area of one WP on the Ogongo-Okalongo scheme was quite clean and free of standing water, but a nearby area was quite littered with paper and plastic bags blown against a wire mesh fence. Apparently women often use plastic bags to plug up the drain hole in the washing basins, and then presumably just throw them on the ground when finished. The taps at this same WP were in a poor state: of seven taps, three were off completely and had stop-plugs, while four had taps but only one tap handle was available for all four taps. Users, especially children, were observed struggling to close the

taps with their bare fingers. The overall condition of this WP appears to indicate a poorly functioning WPC and a disinterested community, and the need for more intensive support from the RWEQ.

Most WPs have small trenches for run-off water, so that the drainage water can be carried away from the tap and washing basin areas, thus eliminating standing water around the domestic water area. In a few places, goats and dogs were observed to be drinking from these run-off trenches rather than at the livestock troughs. Although not too serious, this situation does negate the idea of keeping animals far away from the domestic WP area. Apparently the only solution (providing underground drains) would be prohibitively expensive. No inspected WPs had plants or trees planted near the WP to take advantage of the run-off water. No WPs had fences around the domestic tap areas to keep animals away and to provide further protection.

In the Oshakati-Omakango scheme several WPs had no drainage systems. The WPs were built on a lower area than the surrounding area.

During the meetings with community members and WPCs, people indicated that in most cases there was good cooperation between users and WPCs members regarding clean-up of the WPs.

Improvements in health

During the meetings in the field, community members were asked if there were any changes in their life styles since the piped rural water supply has been in place. Both groups reported improved health, and decrease in stomach pains and diarrhoea. They also mentioned that they had received information about dirty and clean water sources and they "now know the difference". No mention was made of receiving any educational information on the importance of clean and covered containers for carrying or storing water.

Alternative water sources

Other sources of water continue to be utilised in the rural areas, especially shallow wells (*omifima*), man-made open water bodies (*etale*), and the *oshana*. People state that they do not want to abandon their old water points, especially the *omifima*, in case the piped system should break down. However, the users also emphasise that they now know they must protect these sources to keep the water clean.

Sanitation, hygiene and environmental health education

In 1995, the Namibian government officially placed the responsibility for the promotion and development of rural sanitation, including related health and hygiene issues, under the Ministry of Health and Social Services (MOHSS). MOHSS appears to be gearing up to shoulder this responsibility, but still welcomes cooperation and linkage between MOHSS and DRWS, both at the national and extension service level. The feeling is that "DRWS should supply the water and MOHSS should supply the information on health and hygiene issues related to water, but each ministry must know what is going on with the other and good links and commitment must be made".

With the support of the World Health Organisation (WHO), MOHSS will begin a VIP latrine and sanitation programme during the later part of 1996. The programme will start

in the North West and North East Health Regions, and possibly move nation-wide at a later date. Training community members in construction and proper placement and use of the latrines will be an important part of the programme. MOHSS hopes to liaise with the NGOs already working in the sanitation sector, and the regional MOHSS offices have already been asked to submit baseline information on the status of sanitation in their regions and facilities needed.

At the national level, links between MOHSS and DRWS currently occur, because the MOHSS's national-level Chief Health Inspector attends WASCO meetings as the Permanent Secretary's representative. He also sits on the WATSAN forum. At the North West Regional-level, the Chief Health Inspector attends the Cuvelai WATSAN meetings. In addition in late June 1996, a one-week planning session was conducted between WSSPOR, DRWS Cuvelai, and the MOHSS North West Region, which overlaps partly with the Cuvelai Rural Water Supply Region. The intention was to share information and attempt to coordinate some overlapping or inter-connecting activities.

While there currently appears to be no significant linkage between the DRWS extension team and the MOHSS extension cadre, both the national-level and regional-level Chief Health Inspectors are enthusiastic about encouraging such linkages and cooperation. Each Health Region has Environmental Health Assistant (EHAs) (approximately one for each administrative district) who work under the Regional Health Inspectors. Along with various other responsibilities, the EHAs have the task of monitoring and providing information about WP protection and WP environmental health and related hygiene issues. The MOHSS are eager to encourage cooperation between EHAs and RWEOs, especially when educational sessions are conducted with WPCs and users on hygiene and health issues related to water. Because the EHAs have received a more thorough grounding in these issues than the RWEOs, they should be particularly suited to the task, especially in instances when a RWEO might not be totally comfortable with facilitating sessions on health and hygiene.²

The North West Region has 15 EHA posts, but only ten are in the Region at the moment (the other five are furthering their studies). Two EHAs are available to assist the RWEOs on the two Dutch supported schemes.³

Educational materials

The Information, Education, and Communication (IEC) Unit of the MOHSS facilitates the production of education materials, but they are currently understaffed with only three people and no graphic artist. They currently commission graphic artists to undertake specific work. In theory, DRWS can access materials or commission new materials from IEC through the Permanent Secretaries in both ministries.

-
2. The entry level for EHAs is Grade 12; they attend a full two-year training programme covering a variety of health issues. At the end of the two year training the EHAs "should be able to provide and contribute to the comprehensive health care of individuals, risk groups, families and communities at the different levels of the health care delivery system with particular emphasis on monitoring and improving standards of environmental hygiene and safety at the community level". The EHAs are expected "to collaborate with other health staff, extension staff of other sectors and with community members in the prevention of diseases and promotion of health" (MOHSS 1994:7).
 3. EHA who could assist the Ogongo-Okalongo scheme is Ms Zitha Ashipala, based at Oshikuku Hospital in Oshikuku. Ms Maria Shakela, based at Engela Hospital, is the closest EHA for the Oshakati-Okalongo scheme. Both of these EHA can be contacted directly by the RWEOs without first going through the Chief Health Inspector.

Regional Health Inspectors have some visual materials (e.g. some posters) in their offices relevant to hygiene behaviour and environmental health, but the amount and extent is not adequate. Apparently the Rural Development Centre at Ongwediva used to prepare educational materials, but it was unclear if they continue to do this. WSSPOR has two sets of commissioned work: A3-sized pads of posters to be used for discussion and colouring-in on a variety of health and hygiene issues, and a series of A2 posters on the roles and responsibilities of WPCs, including topics on the importance of keeping WPs clean and animals away from WPs. UNICEF has produced small pamphlets, covering such topics as: "Protect All Water Points", "Clean for Health", and "Save Water for Health".

The DRWS Training Unit hopes to facilitate the preparation of training modules on such topics as environmental health, range management, etc. These packages can be then used by the RWEOs in conducting training to community members.

8. ANALYSIS ON SUSTAINABILITY OF WATER SUPPLY SYSTEMS

8.1 Organization of piped water supply schemes

The basic features of the organization of the two schemes has been laid out in the previous Backstopping Mission reports.

Rural Water Extension Officers (RWEOs)

Recruitment and training (local T1, T2, T3 and Community Management in Water Supply and Sanitation in Zimbabwe) of the 4 RWEOs on both schemes have been completed. Only Mary Isaac Itembu has yet to participate in the training course in Zimbabwe. During the Third Backstopping Mission the team worked intensively with the RWEOs and the Chief-RWEO Pinehas Elago, both in field visits and in a three-day workshop. The four RWEOs - Petrina Ipumbu, Monica Shidute, Mary Isaac Itembu and Toivo Munenguni - proved to be highly motivated and hard working. They were able to present their achievements and in a balanced way indicated the constraints and to some extent the hardship they encounter in their work. An overview and analysis was made of how they spent a typical RWEO-week. Their typical daily activities have been put together in a table: "Seven days in the life of a RWEO" (appendix 7). For a detailed account of the fieldwork and workshop reference is made to appendix 8 and 12. From the fieldwork, workshop and discussions in DRWS it was concluded that the efficiency of the RWEOs gives room for improvement.

The Ogongo-Okalongo scheme has continued to function very well. The two RWEOs are performing well, though are in need of support. All of the 43 established WPs have trained caretakers. And most existing WPCs are collecting fees, one way or another, to cover the O&M costs.

The Oshakati-Omakango scheme has not yet been handed over to the LWC; final corrections/repairs have not yet been carried out. Only a few of the 19 established WPCs (out of 96 WPs) have introduced regular fees to meet O&M costs at the WP-level. The two posts of RWEOs have been taken by Mary Isaac Itembu and Toivo Munenguni since

November 1995. Both are intensively involved in their duties and concentrate on establishing and giving organizational support to the WPCs.

Most of the establishment of WPCs has occurred in the central part of the scheme, near the homes of the RWEOs, because RWEOs encounter considerable organisational and logistical difficulty in reaching out to the WPCs in the periphery. Particularly logistics are limiting the work of the RWEOs; they have no transport of their own, so walking is the common way to reach their destinations. It was said that if they are being offered a lift they are expected to pay for it. According to the RWEOs, some N\$150 or more is being spent by each of the RWEOs per month on local transport. This amount, about 15% of their monthly income, is not being refunded by DRWS. The practical difficulties are thus that during the past eight months at Ogongo-Okalongo no new WPCs have been established. As indicated before, the Backstopping and Core Teams have intensively discussed this matter, resulting in a number of options to improve the output of the RWEOs.

During the past months RWEOs dealt in particular with consolidation and other support towards sound functioning of the existing WPCs.

The development of a sustainable cost-recovery and financial management system at the level of WPCs continues, particularly in the Ogongo-Okalongo scheme.

Communication between RWEOs in their working areas and the Regional DRWS Office in Oshakati with the Chief RWEO continues to be problematic. The weekly report/planning meetings - one day - reduces the amount of time the RWEOs spend effectively in the field. Discussions revealed that it needs to be looked into whether the local NBC radio station, 2-way radio-sets or support from the local sub-police stations can facilitate this communication. Frequently RWEOs use the telephone to communicate with the office with their own money amounting to as much as N\$ 20 a month.

DRWS will look into the performance of the trained RWEOs. An evaluation on the performance of RWEOs is included in the programme of the Training Section of DRWS. Such an evaluation should include the assessment of RWEOs using participatory methodologies in their support and advisory services to the WPCs, and the availability of tools to apply these participatory methodologies.

Chief and Control Rural Water Extension Officers

Mr. Pinehas Elago has officially been appointed Chief RWEO for the Cuvelai Rural Water Supply Region in July 1996. He covers an extensive geographical area with many new schemes being implemented and several new developments taking place. Certainly his position can be characterized as being 'sandwiched' between the RWEO-operations and demands and the place he has in the Cuvelai office.

The secondment of the Control-RWEO, Mr Abraham Nehemia, to the CAWS project (GTZ-supported) has been a considerable set back for the effectiveness of the Cuvelai Rural Water Supply Regional office, including the physical and community management-related issues of both schemes. At the moment the post of Control is vacant, tasks been taken over by the Chief RWEO.

Maintenance Teams (MT)

Two MTs of DRWS (one south of the road and one north of the road Tsumeb-Ruacana) are now in charge of major repairs. They take particularly care of repairs of the schemes (branchlines, and those parts that are not under DWA Bulk Water Supply) and they give often repair services to supply problems at the WP level, although this latter part is not their mandated responsibility.

The common problem, mentioned by Chief RWEО, RWEОs and the community members, is the slow reaction after the reporting of problems. There must be amore direct communication between RWEОs, Chief RWEО and the O&M division in charge of the MTs.

Caretakers (CT)

The training of CTs has not progressed since the Second Backstopping Mission. All appointed CTs on the Ogongo-Okalongo scheme have been trained; the remainder of the scheme will be trained as soon as CTs are identified during the establishment of the WPCs. None of CTs on the Oshakati-Omakango scheme have been trained; an ad-hoc training needs to be organised for them, also to encourage other communities to organize themselves.

The CTs of the LWCs have to be selected and trained by the DRWS MT and the Chief-RWEО. The CTs can further be trained on the job with support from the DRWS-MT. A training package and schedule has to be prepared. To be able to start with the gradual implementation of the O&M tasks and cost recovery of the schemes as such (tentatively scheduled for beginning 1997) this training has to take place before March 1997.

Water Point Committee (WPC)

The number of established WPCs on the Ogongo-Okalongo scheme currently amount to 43 out of the 64 WPs while the Oshakati-Omakango scheme has 19 committees in place for the 96 WPs. According to the RWEОs, 79% and 53 % of the established WPCs with the Ogongo and Oshakati schemes respectively were properly functioning. Completion of the establishment and training of the remaining WPCs needs to be addressed as an matter of urgency. Reference is made to chapter 11 (training) where some operational options are given to increase the efficiency of the RWEОs in establishing WPCs on the two schemes.

In the meeting with the WPCs, it was found that generally the WPCs have been able to deal better with practical problems, compared to the previous mission. Still many problems related to community management and sustainability remain to be addressed in a structured way. The points raised in the community discussions with the WPCs are added (appendix 13). The detailed reports of these discussions with WPCs on the Ogongo-Okalongo scheme are appended (appendix 14). In the appendices of this report those issues, constraints and solutions have been reviewed and adjusted incorporating national, regional and community developments in rural water supply including training and methodological developments (see tables of sustainability analysis, appendix 11).

Those problems include communication between committee and users group; composition of the WPC; WPC-meeting; legal status and authority; and cost recovery and financial management. The legal status of WPCs is being looked into from a legislative point of view (see also 8.7.1 Ownership).

It is clear that further organizational support is to be given by the RWEOs on the above and other issues, to achieve WPCs that are sustainable institutions. Factors for success of WPCs have been determined by the RWEOs and listed in chapter 8.2. The WPC is to be seen as the heart of the community management. It needs good management tools.

Local Water Committee (LWC)

The LWCs in both schemes will have to play a crucial role in the overall scheme management and administration. An agreement, which stipulates the duties of the LWC has been signed between the MAWRD and the Ogongo-Okalongo LWC (see appendix 18). The 1994 Agreement is to be reviewed as since then many developments on legal issues, community management and shared responsibilities took place.

Both schemes have LWCs established (officially or unofficially), however their role in facilitating community participation and management still appears to be unclear. They have been established by the contractor during the time of construction. They exist merely on paper; actually they do not perform any practical tasks at the moment. Moreover, the capacity of the present LWC is definitely not sufficient to manage the future LWC with all its functions.

As reported in the previous mission reports, both LWCs are actually not operational and weak in their organization and capacity; this was confirmed by the LWC themselves. They mentioned that assistance (including training) would be required to help them become effective performers of their tasks.

The Team supports the priority that DRWS has accorded to election, establishment and training of the LWCs for the following reasons:

- * The LWC is the actual (user) owner of the scheme and is supposed to manage the scheme on behalf of the communities, with support of the WPCs;
- * The LWC is the actual scheme committee that will be decisive for the functioning of the scheme;
- * The functioning of the WPCs and the CWC hinges around proper functioning of the LWC.

As the RWEOs concentrate on WPCs, one of the Chief RWEOs will be tasked to support and advise the LWCs. The LWCs in both schemes were met and many issues discussed extensively.

The role that the LWC will play in the future functioning and thus in the sustainability of the schemes should not be underestimated. They have a distribution area of several hundreds of square kilometres; a few hundreds of kilometres of branchline; a clientele of 30-50,000 (or some 60-100 WPCs), and an estimated annual turn-over of 0.5-1 million N\$.

Such a LWC demands for strong and capable management, and a well-established organization, including capable staff, an office, transport, equipment etc. Before the LWC are (re-) established the institutional and organizational issues have to be determined, and process for establishment is to be developed.

Some outstanding tasks are organization of the O&M of the scheme; organization of cost recovery arrangements; and financial management of the scheme; ability to communicate with several levels in the water supply infrastructure; organizational support to WPCs; etc. Therefore solid financial management systems have to be developed with them and financial control system established (e.g. external audit).

The income of the LWC to cover O&M and organizational costs is to come from the consumers, that are the WPCs. It is clear that at this moment the WPCs would not be willing to pay the LWCs' organizational costs. Therefore the communication between those committees, and organizational and practical support to WPCs have to be established for the benefit of the WPCs which will then increase the WPCs willingness to contribute money to the functions of the LWCs.

The following suggested sequence of steps is recommended to (re-) establish and train the LWCs in both schemes:

- (i) define the TOR of a LWC, including tasks, responsibilities and relationships;
- (ii) define the required institutional, organizational and logistical arrangements for the functioning of the LWC; (including structure, scope, size, functions, job descriptions, required qualifications);
- (iii) DRWS communicates with WPCs, existing LWCs and CWC concerning the LWCs being representative bodies; their responsibilities and their competencies;
- (iv) define process of electing new LWCs;
- (v) conduct elections;
- (v) train LWCs;
- (vi) monitor, support and supervise LWCs.

The governor could be responsible, while DRWS would implement the process. The CWC and councillors should be involved intensively in all activities.

The training of the LWCs deserves special attention. Training programme and materials for the different functions within the LWC have to be developed. The Backstopping Team is willing to review the package and support the finalization. The LWC training package can be pilot-tested in a joint training for the LWCs in the two demo-schemes.

In this connection it needs to be urgently looked into by DRWS what the implications are of the circumstance that the post of Control-RWEO in the Cuvelai is vacant and is not expected to be filled soon. It is expected that the Control RWEO will have an important role in this process of establishment of the LWCs, and the Control RWEO has a bearing on the success of the organization, efficiency and effectiveness of the management of rural water supply in the Cuvelai Region including the two concerned schemes.

It is clear that the LWC will need private sector support to manage several tasks, e.g. complicated repairs; financial controls etc.

Central Water Committee (CWC)

The CWC has no involvement in the operations, monitoring and maintenance of the schemes in the Cuvelai. They play an decisive role in encouraging new schemes to be initiated and approved.

The draft constitution of the CWC still needs to be finalized. Particularly representation needs to be looked into. Instead of appointed members, the composition should be of elected or selected members supplemented by representation of LWCs, government (DRWS) and service providers (NAMWATER).

The communication between the CWC and LWCs and vice versa has to be improved. Appropriate communication channels have to be identified. The splitting up of the CWC for the densely populated area of Cuvelai was suggested by WASCO (Nov '95); one Chief RWEO could be reporting to each CWC.

The Backstopping Mission would like to be invited to a CWC meeting during the next Backstopping Mission (planned for 15-30 April 1997). Issues related to communication and discussions on plans and activities in the two "Development and Demonstration Schemes" in the Cuvelai Region are proposed to be on the agenda.

Relationship between Water Committees/DRWS and DWA Bulk Water Supply (NAMWATER)

Good communication between the Teams and the Bulk Water Supply is appreciated and is expected to continue. Communication between CWC and LWCs at one side and Bulk Water on the other side has to be formalized. The establishment of a Consumer Relation Department in NAMWATER is to be considered. The LWCs will have thousands of consumers (the two concerned some 30-50,000) and in future probably also several hundreds of private connections. Presently, Bulk Water Oshakati has some 2,000 customers; the addition of several more, i.e. the LWCs, should not create any problem.

The issue of private connections in the scheme-areas is to be discussed and concluded with DRWS and DWA. Private connections should only be allowed from the branch lines and not from the main lines.

Several points that need attention, also during the coming Backstopping Missions, are further analyzed in appendix 11. These include the communication, legal status and authority of WPCs/LWCs, training RWEOs, WPCs, CTs, LWCs.

8.2 Community Participation

During the Second Mission the overall impression regarding community participation was not very positive. The report from that Mission stated there was "still a long way to go before there is active, regular participation in water supply management at the community level. A lack of knowledge is found at all levels (i.e., community, WPC, LWC) regarding roles and responsibilities. Some WPCs lack authority and poor communication systems are evident between different levels."

Although the situation is not yet perfect, great strides have been made since late 1995. During the Third Mission, separate meetings were held with community members/users and members of WPCs and LWCs. This was done to allow more time for general community members (and also for members of WPCs and LWCs) to state their specific viewpoints and to gain a clearer understanding of their position within the overall community management of the rural water scheme. In general, community members "painted quite a rosy picture" of their own participation and cooperation between community members-at-large and WPCs. The main points, drawn from discussions with community members, can be found in Table 2.

During the discussions with the RWEOs during this Mission, one RWEO summed-up the current feeling of community participation and community management of the rural water supply, especially for the Ogongo-Okalongo scheme, by saying, "the communities have it all in their hands".

Table 2: Main points of discussion with community members on the two schemes

Ogongo-Okalongo Scheme	Oshakati-Omakango scheme
<ul style="list-style-type: none"> * Community members were involved in the setting and design of the WPs and actively took part in branchline construction. * These communities felt that "water is for everyone, but the users own the WPs". (The importance of "ownership" as a key to sustainable rural water supply cannot be over emphasised -- see Section 8.7.1 for further discussion). * Many community members actively took part in the nomination and election of WPCs, and they felt this selection/election process was good. * The community members have a good understanding of the role and responsibilities of the WPCs, LWCs, and RWEOs (at times, seemingly a better understanding than the committees themselves!). * Community members could describe recommended qualities of WPCs to other communities that do not yet have WPCs. Some of these included: brave (able to take anything that comes your way), understanding, have human feelings towards others, honest, and able to organise. * Community members felt that the WPCs were doing a good job. For example, they give regular reports to the community, and if the WPC is asked to do a specific task they report back to the community on the status of that task. 	<ul style="list-style-type: none"> * The community members acknowledge that many WPs on this scheme do not yet have WPCs and state the urgency for them to be formed. Community members on WPs with WPCs report good relationships and cooperation. * Characteristics of a good WPC, according to community members, are: honesty and ability to read and write for good record keeping. * These community members reported no significant conflicts between users on the scheme, except for one time when someone came during the night and opened the taps and left them running. A few times children have turned off the valve on the branchline, stopping the flow of water for a short time. * One problem, which was reported several times during the last Mission was mentioned only once during this Mission. This was the problem of a lack of respect shown by children (and sometimes adults) to the WPCs. Occasionally a few users do not want to listen to the WPCs or follow the rules. It must be emphasised that this problem seems to be the exception rather than the norm.

<ul style="list-style-type: none"> * There is good understanding and cooperation between users and WPC members. The community members felt that if the WPCs asked users to do something, they would (apparently some WPCs stated that this was not always the case). * Community members did not feel that there was any significant area needing improvement in the relationships between themselves 	<ul style="list-style-type: none"> * The community members report no conflicts between the communities around WPs and those from further away, including people coming from afar
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

This conclusion about the Ogongo-Okalongo scheme was further analyzed by the RWEOs and factors leading to successful community participation were listed as follows:

- * High perception of ownership of WPs
- * Water is a felt need
- * Good understanding between RWEOs, WPCs, and communities
- * Good relationships between users
- * Sound information from RWEOs
- * WPCs are dedicated, motivated, and willing to take on the job
- * Official handing over of the scheme from DRWS to the communities
- * A newly formed WPC can copy from older WPCs
- * Almost all WPs have WPCs

8.3 Gender Issues

8.3.1 At the community and committee level

In general community, WPCs and LWCs meetings during Third Mission

The gender balance and participation of women at the community and committee level has possibly improved slightly since the last mission. During initial group discussions at the Ogongo-Okalongo scheme, approximately 38 percent of those in attendance were women (i.e. 28 women out of 73 people), in comparison to last year's meeting when only 25 percent of the people present were women. This large group was later broken into separate smaller groups (i.e., one LWC group, 2 WPC groups, and one community group). In the community group, women represented 35 percent of those present (i.e., 6 women out of 17 people).

Representation and participation of women at the initial Oshakati-Omakango scheme meeting was poorer this year compared to last year. About 26 percent of people present this year were women (10 out of 38) in comparison to last year where about 47 percent of the meeting were women. During the small group discussion with community members, four women were present in a group of 13 (31 percent).

As an illustration of the gender balance in the WPC meetings, in one of the two WPC meetings on the Ogongo-Okalongo scheme 42% of the 38 WPC members present were women, while in the WPC meeting on the Oshakati-Omakango scheme, this percentage was 37 of the total 19 members present. Particularly in the meeting on the Ogongo-

Okalongo scheme the participation of women was very strong and they made the critical but constructive remarks.

In the meeting with the Ogongo-Okalongo LWC, two out of 20 people in meeting were women with a minor contribution in the discussion, while for the meeting with the LWC of Oshakati-Omakango scheme, there was one women (out of three people). That lady had a very good input and high authority as she was also a member of the CWC.

In both large community group meetings, in which the activities of the day were presented and clarified and any initial comments or questions were given, no woman made any comment or asked a question. In the smaller group discussions (for instance, the community members group), the women participated much more actively, giving their viewpoints, etc., but they still did not take part as much or as often as the men. This example underscores the necessity for small group discussions rather than large groups, because women usually feel more at ease in sharing their viewpoints in smaller groups. In addition, any group facilitator must actively solicit opinions and ideas from women, if they are not readily forthcoming.

In the WPCs

With regard to the composition of WPCs it is interesting to note that the impression of gender balance amongst community members is more positive than the actual reality. Community members on the Ogongo-Okalongo scheme stated that each WPC had six members with an equal number of men and women. In fact the most common composition for WPCs was a ratio of two women to four men (33 percent women). Just under one-third of the 38 WPCs on the Ogongo-Okalongo scheme had this representation. Table 2 provides further information on the breakdown of the 38 WPCs on the Ogongo-Okalongo scheme.

Looking at total numbers of WPC members, the Ogongo-Okalongo scheme has 35 percent representation of women on WPCs (in 38 WPCs, there are 83 women and 151 men), while the Oshakati-Omakango scheme has 40 percent women (in ten WPCs, there are 25 women and 37 men). As the establishment of WPCs on the Oshakati-Omakango line is more recent than the other scheme, the slight increase in

Table 2. Ratio of females to males for 38 WPCs on the Ogongo-Okalongo scheme

Ratio females to males	Frequency	Percentage
0:6	1	3%
1:6	1	3%
1:5	10	26%
2:4	11	29%
3:5	2	5%
3:4	1	3%
3:3	10	26%
4:2	1	3%
5:1	1	3%
	38	100%

women members in WPCs may indicate a greater awareness amongst community members and RWEOs of the importance of a good gender balance.

It is also interesting to note the communities' thinking behind having women represented on WPCs in "equal" numbers. According to the community group on the Ogongo-Okalongo scheme, the communities decided before the election process that an equal number of men and women should be represented on the WPCs. They felt it was particularly important to have women represented on the WPCs, because women are the main collectors of water, and they could observe the condition of the WP and the use of water when they were collecting their own water. When asked, "then why not have only women on WPCs?", the group stated that it was still important to have men also represented. These comments tend to indicate that the communities desire to have women present on WPCs because of their active role in water collection rather than their potential contribution as decision-makers or leaders.

Activities to obtain information on other areas related to gender issues need to be incorporated into future project planning, monitoring and evaluation efforts, and analysis. Although mentioned in the first two Backstopping Mission reports, the need still remains to explore the following specific areas:

- * more information on the reasons for the election/selection of female versus male committee members, from other communities and WPCs
- * the actual roles, power, and authority of women and men within the community structures,
- * the situation of women and men as water users in comparison and in relationship to women and men as decision makers,
- * the impact of women officer bearers on community participation, management, and equity in access to the water resource and other users' benefits.
- * whether any traditional influence that women have had over water resources might be eroded by the new policies.

8.3.2 Within DRWS

Employment of female staff in DRWS

There has been no new recruitment of additional RWEOs since the last Mission, so no change -- positive or negative -- can be reported. The portion of female RWEOs in the Directorate remains at about 19 percent. More RWEOs may be recruited in late 1996, and DRWS' efforts to recruit female RWEOs should be encouraged and supported.

Once again it can be mentioned that the two Dutch supported schemes are in a very positive situation in terms of female representation amongst the four RWEOs. Two women are on the Ogongo-Okalongo scheme, and one man and one woman on the other scheme. Efforts should be made to track the degree of participation by women in WPCs and for the community-at-large on these two schemes in comparison to other piped water schemes in Cuvelai that do not have female RWEOs.

8.4 Technology and service level

Further to earlier comments on this in previous reports, people appreciate the technology and service level provided but requested also for measures to reduce walking distance to the WPs and for private connections so that water can be used for economic purposes as well. Utilization of piped water supply for non-domestic or non-livestock watering purposes is an issue for discussion within DRWS as the present policy allows only for domestic uses and livestock watering. However, provided the required quantity of water is available at the source and can feasibly be conveyed through the present reticulation system, utilization of water for non-domestic purposes (e.g. brick-making; beer-brewing; vegetable garden watering) would probably substantially contribute to the economic and social development of the areas. Furthermore, these utilization of water may often be for private purposes (brick-making for own house; vegetable garden for own family) and not for commercial purposes. The use of bricks gives a good alternative for timber in house construction, and will so contribute to the conservation of scarce trees.

As mentioned earlier the amount of water consumed is very much below the designed amount, 12 lcd versus the design figure of 25 lcd.

Requests for private connections are numerous in both schemes, but somehow more in the Oshakati-Omakango scheme. DRWS and DWA have to discuss who (DWA Bulk Water or LWC) is responsible for the connections from branchlines. As indicated earlier the Backstopping Team sees that as an obvious LWC task.

8.5 Operation and Maintenance (O&M)

As indicated earlier the Oshakati-Omakango scheme needs urgently to be upgraded to standard. The Ogongo-Okalongo scheme has not faced major maintenance problems; the most common maintenance activity up to now (three years after construction) is replacement of the tap.

On the Ogongo-Okalongo scheme, nearly all established WPCs have trained caretakers; on the Oshakati-Omakango scheme no caretakers were trained as yet. The 19 caretakers of the established WPCs in this scheme have to be trained as soon as possible. The DRWS Training Unit plans to have this done by a special Caretaker Training Group (as explained in chapter 6). The old approach of training WPC caretakers could also still followed. That was training by the Chief RWEO, the RWEO responsible for that area and the foreman of the MT, under supervision of the Training Unit. An action-plan has to be made by the Training Unit and DRWS Cuvelai for the training of caretakers of the WPCs still to be established.

The O&M of the two schemes (branchlines etc.) is now still being done by the DRWS-MT. During the Second Backstopping Mission it was envisaged that this responsibility could soon be transferred to the LWCs, and their caretakers. This is delayed as the (re-) establishment of the LWCs needs careful preparation. Only after the establishment of the LWCs can formal and on-the-job training of CTs of the LWCs be developed, programmed and implemented. An action-plan for this is to be made.

For the time-being the DRWS-MT has to attend O&M problems in the scheme, not at WP level. It appears that problems regarding the schemes reported by the WPCs and RWEOs are not timely attended to by the DRWS-MTs. DRWS Cuvelai should look into this to improve the efficiency of the MT operations. Timely response to breakdown will become even more critical once users are expected to pay for O&M costs.

8.6 Cost recovery

The issue of cost recovery remains high on the agenda of the DRWS. A Second National Workshop on Payment for Water (Swakopmund II) was organized in Swakopmund from 1-2 February 1996. The Policy Statement resulting from this workshop and the preamble is attached as appendix 6. Swakopmund II was attended by Regional Governors, Regional Executive Officers and Regional Heads of DWA. The main objectives of this workshop were to get an agreement on (i) policies; (ii) on change of GRN role from provider to facilitator; on (iii) ownership of rural water supplies; (iv) on process leading to achievement of ownership of rural water supplies; and (v) on draft workplan.

An impressive programme on awareness raising on community-based management of rural water supply (both piped water supplies and borehole water supplies) started off after the Swakopmund II. The main activities of the programme are in order of implementation:

1. *Regional Preparatory Workshops* in all 10 Rural Water Supply Regions;
2. *Consultation with sample of rural communities* in all 10 Rural Water Supply Regions;
3. *Regional Wrap-up Workshops*
4. *National Wrap-up Workshops*
5. *Submission of Proposal to Cabinet for approval.*

The phased-wise introduction of the Cost Recovery Policy nation-wide is scheduled for April 1997.

The Second Mission report mentioned the importance and urgency of community members, WPCs, and LWCs being informed about the real costs of construction of the scheme, intake and treatment works etc., O&M costs of an individual WP, branchline, etc. and anticipated cost recovery tariffs and the subsidy of the GRN, along with the timing of gradual introduction of recovery (payment) of different costs. It was felt that without early provision of this information there would be danger of WPCs, LWCs and RWEOs losing any authority that they had managed to acquire and communities might lose interest in taking an active role in the management of their water supply schemes. An opportune moment is the establishment of WPCs and LWCs. The Mission commends the DRWS for their programme on awareness raising on cost recovery that includes those attention points raised during the Second Mission. Significant progress has been made in this regard, and DRWS should be supported and encouraged in this continual effort.

The O&M costs of the WPs (very limited still; mostly only tap replacement) are successfully being recovered on a regular basis from the consumers by nearly all WPCs on Ogongo-Okalongo scheme and some WPCs of the Oshakati-Omakango scheme. The next step of recovering costs of O&M of the scheme (branch lines) will be introduced (in the pilot schemes) when the LWCs have been (re-)established, trained and are assuming their tasks including appreciated support to the WPCs. The development/demonstration

schemes should give room for earlier but well-thought-through introduction and experimenting of approved policies.

A typical amount being collected from households is N\$2 per month. Some WPCs collect that amount on a half-yearly or yearly basis. DRWS calculated the required funds for O&M of WP and scheme at N\$ 0.35/month per household. When people have to pay for the water consumed this adds an extra N\$4.26/month per household⁴, and when people have also to pay for the replacement costs of schemes and WPs, then an extra N\$ 1.84/month per household⁵ is to be added. This would bring the total household costs to some N\$ 6.45/month. This amount does not include price increases by NAMWATER for replacement cost of the water intake, treatment and supply system, and for recoupage of cost index rises. The basis of calculation for these figures, compiled in the DRWS paper "Cost of Water" is appended (appendix 17).

It was suggested that as soon as the LWCs are operational, the O&M costs of the scheme will be introduced and recovered. Then over a period of three years the full cost recovery of water costs and scheme replacement costs will be introduced. In this way the two schemes will be real demonstration schemes of the cost recovery policy.

In the discussions with users and WPCs, people expressed that they were able and willing to pay an amount of N\$ 5/month per household provided that the Government clearly explained how this amount was arrived at. The Mission did not indicate any cost figure in the discussions but the N\$5/month was brought up by the people themselves.

The sustainability issues of cost recovery and financial management at water points and schemes have been further analyzed, see appendix 11.

8.7 Community Management

8.7.1 Ownership

The concept of "ownership" is clearly the key to sustainable, community management of a rural water supply system. The fact that the communities on the Ogongo-Okalongo scheme believe that "water is for everyone, but the users own the WP" has a clear, positive impact on the physical and organisational management of the scheme by the community. Users accept the idea that they own the WPs and must be responsible for repairs and the cost of repairs.

⁴. water costs based on DWA tariff of N\$ 1.43 per m³ and a consumption of 100 litres per household per day

⁵. This amount is based on replacement costs for the water point and scheme (per 500 people) of respectively N\$ 50,000 and N\$ 4,000, with a lifetime of 20 years.

One practical example of ownership was described during one of the small group discussions with community members. When asked if people are taking water from only one WP or from more than one, the response was: "each WP has a WPC, you belong to that WP and you must make a contribution to that WP, therefore we only use one WP because we do not want to make two contributions. The only time we would use another WP would be when one branch is broken and we have to go to another that is working. In these cases we would be able to take water without contributing". If all typical users can have this concept in mind, the management of single water points should be relative easy.

The "handing-over" of the scheme from government to the community most likely contributes to the idea of ownership. On the Oshakati-Omakango scheme, which has not been rehabilitated or handed-over, a few problems continue to occur regarding the idea of who owns the WP. For example, there are still some cases where children, and sometimes adults, waste water; and when WPC members make a corrective remark on that behaviour, they only receive insults back from the user, such as "what's it to you, the water belongs to the government".

While official handing-over is important, probably even more important is the work of the RWEOs in passing along the message that the communities own the WPs and are responsible for their care. Equally important is the traditional and political leaders' understanding of this message. The cost recovery exercises currently being undertaken will definitely aid in this process "of getting the message across".

8.7.2. Community organization

Although many WPCs do encounter problems in day-to-day activities, in discussions during the field visits it was noticed that several WPCs seem to be strengthening their presence and role in the communities. E.g. in Ogongo-Okalongo scheme all operational WPCs were collecting fees for O&M. In less than before cases WPC members complained about water consumers not accepting their authority. The authority of the WPCs in the communities is steadily increasing.

As indicated in several sections in this report the establishment and training of the WPCs in both schemes is of utmost importance to attain project sustainability. Also exposure of new WPCs to existing successful WPCs may help them in organizing themselves and solving common problems.

8.7.3. Community Financial Management

In general, the amount to be collected for water was decided in a community meeting on the proposal of the WPC. Most established WPCs collect money in the range of N\$1.25-2/month per household. Some WPCs have reduced their tariff from N\$2 to N\$1 per month as they were accumulating quite some money while not spending. Some WPCs collect money on a bi-annual or annual basis. In users' groups with established WPCs

along the Ogongo-Okalongo scheme most households are now paying. This is a major achievement, as in the previous missions, low compliance in payment was expressed as a constraint for the treasurer.

Some households did not pay for reasons as:

- it is the government's responsibility;
- its the WPC's responsibility;
- no income;
- not interested to come to WP-meetings to get informed on community decisions;
- wants councillor to inform them.

The community makes arrangements for poor people who can not pay, such as pensioners, widows and female-headed households.

The collected money is kept by the treasurer at home or deposited at the WPCs bank account in Oshakati. During the monthly WPC-meetings the financial situation is discussed and reported in the community-meeting following this WPC-meeting. Therefore, a great financial transparency is achieved.

In the Oshakati-Omakango scheme, only a few of the established WPCs collect money on a regular basis as yet. On the other hand, it was reported that at a WP without a WPC where the tap broke down, community members came together and decided started to collect money (50 cents) from all users to have the tap replaced and have a spare one in stock for future breakage.

The second phase of the cost recovery, being payment for O&M of the scheme, will be introduced as soon as the LWCs have been (re-)established. Payment to the LWCs will also include operational and organizational costs of the LWCs. The willingness of the users to pay for these LWC costs depends on the appreciation by WPCs of the LWCs as an indispensable committee greatly contributing to sustainability of the scheme and WPs.

8.7.4. Community-based Operation and Maintenance

No major problems in O&M were identified during this Third Mission. The water supply systems are all very new and the job of the caretaker is very limited still. In general, caretakers said that they had not sufficient confidence to do pipe repairs. Perhaps these pipe repairs could better be done by private plumbers or by the future LWC-Caretakers as such repairs will be a sporadic task for WP-CTs. It was noted that some WPCs made local arrangements on the hours of operation.

Proper operation of the WPs needs attention, as taps are wearing quickly. Caretakers prefer better quality taps, but the cost of these may be an obstacle. In the meetings held, the WPCs requested DRWS Cuvelai to provide them with a list of hardware shops in Oshakati that sell the taps, with quality and price indication. DRWS Cuvelai should look into whether the shops can make the spindle, the most wearing part of the tap, available. This would mean a cost reduction in replacement. It has been proposed that some WPCs with support from the RWEOS will monitor the condition of the WP for the purpose of testing the monitoring system. This and other issues will be addressed in the monitoring schedule for WPCs.

The caretakers indicated that they do not have the right tools for their job. They seem to be not aware that they will not get tools from DRWS but that they have to buy themselves or through the WPCs.

Some O&M problems envisaged, although the responsibility of the WPCs, may be beyond the technical capacities of the caretakers at WP level. Examples are pipe bursts, leaking reservoirs etc. For such problems, arrangements have to be made with either LWC-caretakers or private plumbers. The RWEOS have to be aware of these possible arrangements, and have a list of "recognized and qualified" plumbers.

8.7.5. Monitoring

Monitoring is not yet being done in the WPCs in the two schemes. The development and establishment of a community-based monitoring system on an experimental basis is one of the tasks of the Teams and the RWEOS for the coming period. A sample of some 10 WPCs in each scheme will be made to test this monitoring system. The following issues may be included: consumption; cost recovery; number of users; condition of WP; cattle using water from scheme.

9. MONITORING

The Strategy paper on Monitoring has indicated some ideas on a monitoring system and the flow of data but was not very specific. The Mission proposes to gradually introduce a system at WPC, LWC and DRWS region level to monitor (including analysis) the most urgent and relevant areas for management of the water supply schemes. Special attention will be paid to the use and follow-up of the monitoring results.

At the WPC level the monitoring system is basically meant to provide important information to the WPC for their managing of the WP, that is to be able to take the right decisions, to improve planning or procedures etc. This would result in higher effectiveness of the WPC management. Some relevant information should flow to LWC, where relevant information of all WPCs can be compiled and further analyzed.

At the LWC level again specific data will be collected through monitoring to assist the management at this level. From the LWC level relevant monitoring results from WPC and LWC level will be passed on to the DRWS Regional level.

DRWS should also collect additional specific data next to those summarized from WPCs and LWCs for planning and strategy development.

During this Mission, the Teams and the RWEOS identified some fundamental areas and suitable indicators for monitoring at WP level and scheme level. As mentioned before, 10 WPCs will be selected in each scheme to experiment with this WPC-based monitoring system. The system will be introduced by the RWEOS in the selected WPCs.

For the WPC and DRWS regional level a limited monitoring system is outlined including some selected areas and indicators. The LWC is not yet operational, so no monitoring can be expected there. This outline is given in table 3.

Table 3: Outline of a limited monitoring system at different levels

Level of monitoring	Monitoring variable	Monitoring indicator
Water Point Committee (WPC)	functioning of water supply systems	downtime in days of the water supply system due to mechanical defect
WPC	continuity in supply of water	period in days without water due to supply interruption
WPC	users	(i) names of user families (ii) number of user families
WPC	income through users contribution	(i) amount of money received per month (ii) average family contribution per month
WPC	expenditures	amount of money spent on O&M, transport, incentives, etc. (per category)
WPC	total water consumption	total water consumption (l) per month
	household consumption per month	(i) total consumption (l) per month for domestic purposes; (ii) average consumption per family using the water point
	consumption by own cattle per month	(i) total consumption (l) per month by own cattle (ii) average consumption (l) per month per head of cattle
	consumption by cattle from other communities and from non-paying households per month	total consumption (l) per month by cattle from other communities and non-paying households in community
	consumption by free roaming cattle/donkeys per month	total consumption (l) per month by free roaming cattle and donkeys
WPC	community management	(i) number of WPC-meetings per half year (ii) number of decisions on "changes" on water issues taken by WPC versus total number of "changes" regarding water supply made
WPC	users satisfaction	number of complaints received from users per month
DRWS-RWEO	users satisfaction	number of complaints received from users from specific WPCs per half year
	conflicts among WPCs and users	number of conflicts among WPCs and users attended per half year (total and per specific WPC)
	WPC follow-up visits	number of follow-up visits to established WPCs per half year and frequency of visits per WPC
	WPC and users contact time in follow-up visits	total contact time (hours) and average contact time per WP follow-up visit per half year

For the above monitoring variables and indicators for WPC level, a new form is to be developed (except for the income and expenditures), and be inserted in the Logbook for WPCs, that includes already the income and expenditure registration.

For the RWEOs a special monitoring form is to be prepared, explained to the RWEOs and introduced. After six months an assessment on use and practicality should be made.

Issues on monitoring at both WPC/LWC and DRWS level have been further analyzed in table appendix 8, tables 4 and 11.

Also in the training of WPCs monitoring is a component. WPCs will be taught the principles of monitoring (why, what, by whom) and will be asked to generate ideas on what needs to be monitored relevant to the management of their water supply.

10. ENVIRONMENTAL SUSTAINABILITY

10.1 The environment under pressure

During the field visits the environmental concerns were discussed at the level of the WPCs and LWCs. It was remarkable that the LWC voiced a greater concern about the environmental changes than the WPC-members. The following aspects came to the fore which need recognition and should be central in approaching the environmental question:

- Many people said that numbers of cattle and people were increasing fast. Also the rain pattern has gone adverse causing food and grazing problems. Several members of the Ogongo-Okalongo LWC spoke out loudly on the problem and said that only stock reduction could alleviate the environmental problems.
- Governance of the communal lands has not yet been put in legislation. The pending legal bills regarding land and water, and the changing positions of the local traditional leaders, local political leaders and the national government has prevented the application and sanctioning rules and direction.
- Between and within ministries and departments little coordination has been developed as yet. As a result there is little integrated planning concerning the environmental affairs.

An elder member of a LWC explained how some 40 years ago there was little need to trek with the cattle as grazing was in abundance in the neighbourhood of the villages. He also said that all local food, including vegetables and fruits were produced in the oshanas. This system was totally disrupted by the colonial regime that changed local land tenure and food production and procurement habits.

- Detailed analysis is needed concerning the population growth and the ownership of cattle; who owns cattle and how many. Which category of cattle owners are increasing their herd sizes excessively and is this related to the increasing phenomenon of fencing-off of paddocks in the communal land.
- Ranching scheme development will most certainly offer new options to balance the stock density with carrying capacity of the lands. It should be realized however, that these schemes focus on one group of users only, being the cattle owners. The environmental concerns of the DRWS are broader as it includes all population groups, including cattle owners, domestic water users, institutional (schools, clinics) users, etc.
- Population growth in the Cuvelai is a factor that adds to increasing pressure on the environment. Care for the environment can not be dealt with separately from the question of population growth.

10.2 First steps to deal with the environmental deterioration

The starting point of the approach should be that as many people as possible will be involved in the discussions about the environmental changes and awareness building. The environmental concerns can be dealt with at the following levels:

at community and WPC-level

- training of the WPCs on aspects of environmental management jointly with the communities ways need to be identified to take effective measures which curb the problem. This should be based on their existing (traditional) knowledge of their environment. Strengthening the ability of the communities to manage their environment better would include community consensus on restrictions for outsiders and their cattle to consume water, or to have them pay for it. This implies that the training of the RWEOs will have to be reviewed and practical knowledge will have to be developed. As indicated earlier, the DRWS Training Section plans to have training modules for RWEOs developed including topics on environmental health and range management. The RWEOs will then be able to train the community members on these issues and discuss the community activities and effects with them.
- monitor environment through gathering specific information on water consumption from piped water supply systems
 - monitoring may include areas as:
 - consumption by domestic users
 - consumption by village-based cattle
 - consumption by cattle from other villages
 - consumption by free roaming cattle/donkeys
- communities formulate their own 'environmental deterioration' indicators

at schools

Children are common carriers of water. However, WPCs complain about their behaviour, as being malignant and sometimes even destructive.

At school the following should be done:

- introduce water and environment as a important issue. (As is being done in the Life-Science curriculum development, Ministry of Education with support from IBIS-Denmark)
- educate the children about the local water management structure and responsibilities (WPC, LWC and CWC).

at LWC-level

The LWC is a scheme committee and needs help to carry out their responsibilities, such as:

- help the WPCs to develop and carry out community-based environmental measures, e.g. where communities or WPC individual authority is insufficient;
- communicate with the CWC in view of the functioning of the water supplies and its effects on the environment;
- bring different aspects of environmental deterioration within the scheme and communal land-boundaries to the open. An example is the increasing stock density through improved water supply and the informal paddocking of large fields in the communal lands.

at CWC-level

The CWC has a regional focus. It should be considered and discussed whether the CWC could take on the task of monitoring environmental damage in the different regional schemes. Such monitoring would also have to recommend solutions. As the CWC is a powerful political entity, it could liaise with the national government to have corrective measures against environmental degradation taken.

11. TRAINING DEVELOPMENT

11.1 Training needs

Now that WPCs and LWCs are in the process of being established (or re-established, in some cases), their formal training becomes a matter of priority. The benefits of formal training for these committees are three-fold:

- 1) the committees will have an opportunity to learn more about their management and leadership skills, and their ability to work effectively as a team,
- 2) the individual positions, including Chairperson, Secretary, Treasurer, and Caretaker, will be formally prepared to take up their duties, and
- 3) by being formally trained, the committees should feel "officially" accountable and capable of shouldering their responsibility of managing a sustainable water supply.

Several of the regions have water projects run by NGOs or consultants, where WPC and LWC training has already commenced. The DRWS Training Unit is in close contact with these projects and their progress with committee training. The Training Unit is currently concentrating on the preparation of a WPC training package and a strategy to implement the training nation-wide (see section 11.3, 11.4, 11.5). A training programme for LWCs has yet to be outlined or developed.

Regarding RWEO training, once new RWEOs are hired, they will "follow" existing RWEOs for a period before participating in formal training (i.e., T1-T4). Section 11.2, below, discusses some issues relevant to the next formal RWEO training programme.

11.2 Training for RWEOs

In between the 2nd and 3rd Backstopping Missions, the local member of the Backstopping Team was asked to review the four sets of training segments for the RWEOs. Extensive written comments were made, but time has not yet been available to discuss the comments with the Training Unit.

In general, many of the specific training sessions and exercises in the T1, T2, T3, T4 are quite good, but there is quite a bit of overlap, and possibly some important topics are missing. Before any new RWEOs undergo training, the whole RWEO training package needs to be revamped through the following actions:

- 1) clear training objectives need to be stated for the overall programme and for each of the four segments, not just for individual sessions and exercises,
- 2) training activities/topics to meet those objectives should be listed and prioritised, thus highlighting the most important, and possibly deleting topics that have a lower priority,
- 3) the various sessions over all four segments must be reviewed carefully, unnecessary overlaps removed, and many sessions placed in a more logical order,
- 4) finally individual exercises should be carefully reviewed and examined for effective content, language, and style.

11.3 Training of WPCs

The local member of the Backstopping Team was also asked to review any available training materials/programmes for WPCs in between the Second and Third Backstopping Missions. Available materials included:

- 1) a preliminary draft outline by the DRWS Training Unit for two WPC training packages, one for Chairpersons and Secretaries, and one for Treasurers,
- 2) a five-day WPC training programme prepared and conducted by WSSPOR,
- 3) four training programmes for WPCs prepared and conducted by Africare in the Kunene Region, including: a one-day training package for WPCs, individual training programmes for Chairpersons, Secretaries, and Treasurers, and

- 4) an outline for a Training of Trainers (TOT) by SIAPAC for RWEOs who will be responsible for training Water Management Committees in Caprivi and on the Oshakati-Ogongo scheme.

Written comments were made on these packages, along with some very preliminary suggestions for a WPC training package. The DRWS Training Unit and the local member of the Backstopping Team will meet in late July to prepare a training package for WPCs. Once this training package has been developed, a Training of Trainers (TOT) will be held to introduce the WPC trainers to the package, and to further develop it as necessary. Afterwards the WPC training package will be pilot-tested in two regions, most likely Cuvelai, on one of the Dutch supported schemes, and in the Okavango Region.

Because of the massive numbers of WPC members and severe constraints on the time of the DRWS Training Unit staff and the RWEOs in the field, the manner in which WPC training will be conducted needs to be examined before embarking on the training. Section 11.4 contains an analysis, by the Backstopping Team, of five possible options for handling the WPC training on the two Dutch schemes. Options 4 and 5 appear to be the best options, in terms of having the greatest number of WPCs established and formally trained in the shortest period of time. Both Options include the use of 'outside' trainers being responsible for the training while the RWEOs provide logistical support (only) to the trainers and further concentrate on finishing WPC establishment and WPC consolidation (follow-up visits and conflict solving). Option 4 assumes the use of trainers from the DRWS Training Unit, while Option 5 uses contracted consultant trainers. Therefore the only difference between the two Options is that in Option 5, the Training Unit would be able to focus on other training programmes and training preparations (e.g. for LWCs, caretakers, etc.) and possibly on WPC training in other water supply areas in Cuvelai, or elsewhere in the country.

11.4 Options for establishment and training of WPCs on the two Dutch-financed schemes

The establishment, training and consolidation of the WPCs in both schemes -in total some 160- pose a heavy burden on available personnel, organization and financial resources of DRWS. At present some 21 WPC have yet to be established at Ogongo-Okalongo and some 60 at Oshakati-Omakango scheme. None of the WPCs have received training as yet. The establishment, training and consolidation of the WPC is highly essential from sustainability point of view and everything possible needs to be done to aim at completion at the shortest possible date.

Below 5 options are listed that may be considered to accomplish the task of completing the establishment and training of all WPCs at both schemes.

- (i) The establishment and training of WPCs is the responsibility of the 2 RWEOs on their own scheme after initial support from the DRWS Training Unit during the first training session;
- (ii) Establishment of WPCs will continue to be responsibility of the RWEOs on their own scheme. However, only the best (one or two?) of the four RWEOs will be responsible for training the WPCs on both schemes (after initial support from the

- DRWS Training Unit during the first few training sessions). Formal WPC training will be conducted on both schemes;
- (iii) Establishment of WPCs will continue to be the responsibility of the two RWEOs on their own scheme. Only the best (one of two?) of the four RWEOs will be responsible for the formal training of the WPCs on both schemes (after initial support from the DRWS Training Unit during the first few training sessions). However, all formal training efforts will be concentrated on the Ogongo - Okalongo scheme before moving onto the Oshakati-Omakango scheme.
 - (iv) The soon-to-be-appointed Regional Training Officer in DRWS (with command of local language) will be responsible, with only logistical support from the scheme RWEOs;
 - (v) An independent Training Consultant is contracted, with logistical support from the scheme RWEO.

The options are further worked out in terms of available expertise/capacity, and time requirements and planning. This elaboration is added as appendix 12.

The table below gives an overview of the time requirements for establishment and training of all WPCs using different options. Basis is 64 WPCs in Ogongo-Okalongo and 96 WPCs in Oshakati-Omakango scheme.

Option number	Ogongo-Okalongo scheme		Oshakati-Omakango scheme		Total time requirement (years)
	Time requirement (years)		Time requirements (years)		
	establishment WPCs	training WPCs	establishment WPCs	training WPCs	
Option 1	1	1	3.5	2	5.5
Option 2	2	1	6.5	2	6.5
Option 3	0.6	1	1.7	2	5.3
Option 4	1	26 weeks	3	38 weeks	3.25
Option 5	1	26 weeks	3	38 weeks	3.25

11.5 Possible training strategy for WPCs developed by the DRWS Training Section

Shortly after this Third Backstopping Mission, the Training Unit met and developed the following strategy for WPC training. It is currently being reviewed by DRWS head and regional offices.

In each region, one Chief RWEO and two RWEOs will be chosen by the regional office and the Training Unit to be the trainers for all WPCs in their region. They will participate in a two-week TOT, which will include practising and further developing the prepared WPC training package. Their ability to function as effective trainers will be assessed and

confirmed. If they "pass" the TOT, they will then become full-time WPC trainers for their own region. All other RWEOs will remain on their schemes and will continue to establish WPCs and cover all other necessary tasks. When WPC training comes to one area, the RWEO for that area will also be expected to help with logistical arrangements for the training. Within each region, WPC training will commence in the area ('ward') where the RWEO Trainers comes from. By having these WPCs trained first, the water 'ward' will be "compensated" for having their RWEOs pulled away from the area as full-time trainers.

The formal training for WPCs will probably be held over a one-week period, and three WPCs will be trained in one round. All WPC members will be invited to attend, including "general" members/"advisors". Therefore each training round will have about 18 participants.

12. CAPACITY DEVELOPMENT FUND

During the period between the Second and the Third Backstopping Mission, no funds from the Capacity development Fund (CDF) have been used.

The request to the Netherlands Government to make Dfl 61,000 available for activities supporting the development and demonstration nature of the two schemes, was approved. This fund does not come from the balance funds of the Ogongo-Okalongo scheme, but directly from DGIS funds. The amount is added to the existing CDF, that has therefore a total budget of Dfl 104,000, available for the capacity development activities and schemes' management development activities. The Backstopping Team controls the CDF and makes amounts available to DRWS on their request. A formal agreement on the management of a local account has been signed by DRWS, the Namibian Backstopping Team member and IRC.

Proposals for future use of the CDF are expected from DRWS. Included will be petty cash required for Caretakers training etc.

13. JOINT CONCLUSIONS AND RECOMMENDATIONS

1. The community participation and community management in the Ogongo-Okalongo scheme, where the RWEOs have been active for some years has developed well. WPCs and users feel real ownership of the system, or as one RWEO said: "... they have it all in their hands...". This ownership is seen as the key factor for the success of the community management in this scheme. Other factors contributing to this success are the strong community support and the high demand for water.
2. The WPCs have confidence and relatively good control over management of WPs including communication to users, cost recovery, financial management and O&M.
3. There are significant differences between the functioning of the WPCs on the two schemes and therefore the effectiveness of community management. This difference is due to the contact time of the DRWS extension service in the scheme and with the WPCs; this is longer and more intensive in the Ogongo scheme.
4. As this ownership perception is so strong, communities express to have no problem to pay for O&M and water provided the Government explains clearly the rationale behind this cost recovery.
5. The role of headmen is not directly in the management of the systems but more of a counselling nature in conflicts. The influence of councillors and the regional Governor in acceptance of certain roles and responsibilities related to the institutional and organisational issues around the management of water services was stressed.
6. The highest priority must be given to the establishment of WPCs in both schemes. WPCs appear to be the backbone of the success of the community management.
7. The foundation for the sound functioning of WPCs has been laid or will be laid in discussions during the WPC establishment process between the RWEOs, WPC members and communities. Now formal training of WPCs is a high priority, including technical training for WP-Caretakers. Particularly as in the near future community-based financing will cover more cost areas and therefore will increase in volume, although tariff setting will follow a phased approach.
8. The LWCs need to be established before the end of 1996 to enhance the community management development in the two schemes. A typical LWC has a service area with 40,000 people, 70 WPCs and 200 private connections as clients, 200 km of branch-line, and a financial turn-over of N\$ 1 million per year. Considering their important tasks in scheme management, support to WPCs and liaison with CWC and DRWS, these committees must be competent and confident management entities. The (re-) election must be thoroughly prepared and key people (WPCs, headmen, councillors, DRWS) must be involved in this process. The establishment process and management system is to be developed, along with formal training.
9. Defining the management tasks of the LWC is an important element to assess the training needs and programmes. These tasks include O&M of the scheme by LWC

- caretakers, accounting by LWC bookkeeper, and the ability to maintain good communication with the WPCs on one hand and the CWC on the other hand.
- 10 For the Oshakati-Omakango scheme the establishment of the LWC is delayed by the completion of the scheme by DWA. Only then handing-over to DRWS and subsequent to the new LWC can be planned.
 - 11 The main reasons for the operational problems in introducing the community management concept are the delayed approval of the rural water supply policy, the inadequate decentralization and insufficient DRWS staffing at national, regional and local level.
 - 12 The DRWS follows an effective process approach in creating awareness and general acceptance of the national policy to pay for water supply. This intensive process stretched the limited capacities of all DRWS staff. Nevertheless, the results of this campaign are expected to be satisfactory and long-lasting. The achieved awareness and acceptance among the people may lay the strong foundation on which to build community management in all rural areas.
 - 13 The mainly engineering-oriented staff is gradually adapting to the new community management orientation of rural water supply. Despite this good development, national and regional management levels of DRWS would benefit from further training in this direction and management-related issues.
 - 14 The Training Section is commended for its great efforts to meet the huge training needs by developing and testing all kind of training programmes, and steering and controlling the implementation of these training programmes by private institutions.
 - 15 In the two schemes, four RWEOS have been posted, using funds for salaries provided by the Netherlands Government for a period of three years (1995-1997). One of the RWEOS of the Netherlands-financed piped water supplies schemes in Cuvelai Water Supply Region has applied for the job of Chief RWEOS. If this application is successful, a new RWEOS has to replace her urgently.
 - 16 The focus of the RWEOS' work will be the establishment of the remaining 96 WPCs and subsequent consolidation of all WPCs in the two schemes. Two more Chief RWEOS are in the process of being appointed in the Region, which is particularly needed as the Control RWEOS will not return in the short term. To support the extension service in the Region, the Development Planners should have more and closer contact with the Region; it is recommended that the responsible Development Planner will be stationed in Oshakati. The Teams support the appointment of two extra Training Officers, one for the South and one for the North. These two new training staff members may also speed up the decentralization process. Operations in the Region are delayed by the centralized command structure of DRWS. In this context of decentralization and regional capacity building, the integration of the WSSPOR into the DRWS Cuvelai Water Supply Region is to be considered.

- 17 The (to be appointed) Chief RWEO in charge of the two Netherlands-supported schemes need to be trained abroad. This can be paid for by the Capacity Development Fund.
- 18 Training is also needed for WPCs and the LWCs that are to be (re-) established. Different options have been presented that need further discussion and eventual decision.
- 19 DRWS should continue to optimally support development, field-testing and demonstration for community managed rural water supply systems in the two schemes. Important new issues coming up are for instance the LWCs, scheme management including O&M, financial scheme management and monitoring. As these issues are part of a dynamic environment, continuous review and adaptation may be required.
- 20 The Teams reviewed the framework of 12 most relevant elements of sustainability and risks for sustainability, at two levels: (i) at the level where the community management has to take place: WPC and LWC; and (ii) at the level where support to community management has to be given: DRWS regional and national. The tables have been updated (see appendix 11).

14. PROPOSALS

The Backstopping Team and the DRWS Core Team propose the following activities (a detailed Plan-of-Action jointly made by DRWS Core Team and Backstopping Team is attached):

Development and demonstration schemes

General

1. Ogongo-Okalongo and Oshakati-Omakango schemes will be further developed as "development and demonstration" or "learning" schemes. This implies that Community Management system approaches and tools will be further developed and field-tested in these two schemes. Community Management includes management structures, roles and responsibilities, cost recovery, financial management, monitoring and O&M.
2. The two LWCs should be established before December 1996 and thereafter trained. The Backstopping Mission will contribute by developing an establishment process (in this report) and ideas for their functioning.
3. There remain about 96 WPCs to be established. The rate of establishment of WPCs by the RWEOs is low. The functioning and performance of the RWEOs needs urgent attention as well as management (planning, guidance, monitoring, feed-back) of the RWEOs to improve their efficiency.
4. An external study on the efficiency of the RWEOs is proposed.
5. WPC-caretakers and LWC caretakers need to be trained.

6. The Backstopping Team will provide further support to the introduction and testing of monitoring systems for community management at WPC and LWC level, and for RWEOs.
7. The Namibian Backstopping Team member will continue to give support to the Training Section of DRWS in ad-hoc developing, reviewing and evaluation of training programmes.
8. The development of a Rural Water Supply Development Trust Fund to financially support the future extensions, upgrading of schemes and water points will be supported by the Backstopping Team both on conceptional and operational issues.

Ogongo-Okalongo scheme

9. The O&M of the Ogongo-Okalongo scheme by the LWC should be introduced by January 1997; in a transition phase the DRWS-MT should provide back-up services.

Oshakati-Omakango schemes

10. The Oshakati-Omakango scheme needs to be completed by DWA and handed over to DRWS.

Issues for the Netherlands Government

11. The budget of the two schemes have a balance of about Dfl 37,000. The Teams suggest to DRWS and the RNE to have this balance used for a study on the Efficiency of the RWEOs. This study should apart from formulating ideas to improve efficiency, also formulate methods to improve the management of RWEOs including planning, guidance, monitoring, feed-back etc.
The RNE will be approached with a request for allocation of this balance accompanied by the Terms-of-Reference for the study and the profile of the consultant.
12. The RNE will give clarity to DRWS on the remittance of funds for the purchase of the vehicle for the Chief RWEO.
13. There is one Dutch 'topping-up' expert in the process of being recruited, Mr Brandsma. His position will be in the Training Section. The clearance of the GRN has passed the Public Service Committee (PSC) and needs only formal approval by the Prime Minister's Office (PMO).
14. The request for a Dutch expert to take the position of Chief Development Planner will be handled by the Chargé d'Affairs of the RNE. She will approach DGIS for further action. Requests for more professional support from the Netherlands Government will be looked into by DRWS.
15. The Teams appreciated the comments on the First Mission Report from the RNE's Sector Specialists on Women-in-Development, Environment and Rural Development. If possible, the Teams would welcome their constructive comments on this report.

Discussion on Ogongo and Oshakati schemes' experiences and other issues

- 16 The DRWS Core Team and the Backstopping Mission will continue to discuss the experiences of the "learning" project with a wider audience.

If so requested by DRWS, the Backstopping will consider half- to one-day participatory workshops on specific topics related to the Backstopping activities.

Capacity Development Fund

- 17 DGIS approved to supplement the Capacity Development Fund on request of DRWS and the Backstopping Team with Dfl 61,000 for new activities. In addition to training activities directly related to the two schemes, some funds will be used for the improvement of the functioning of the RWEOS in the two schemes by providing them with camping equipment.

Selection and orientation Dutch experts

- 18 The DRWS has indicated that they would appreciate a further role for the Backstopping Team in the selection of the most suitable candidates for future posts being funded by the Netherlands Government. DRWS has requested the Netherlands Government already to send all CVs of short-listed candidates for further consideration. The selected candidates could be briefed at IRC for their jobs in Namibia.

Timing of next Backstopping Mission

- 19 Timing of next mission is tentatively planned for the period 15-30 April 1997, but also depending on the progress of crucial community management developments including the establishment of LWCs and assigning roles and responsibilities to them. The next mission will be planned in such a way that it will coincide with a Central Water Committee meeting in Cuvelai.

TABLE 1: OVERVIEW OF AGREEMENTS AND POINTS NEEDING FOLLOW-UP
24.06.96

Per

No.	Topic	Description	Follow-up by	Deadline	Status
1.	Reporting	Distribution First Backstopping Mission Report to DWA, Donors, and NGOs	DRWS	January 1996	Done
2.	Reporting	Distribution Second Backstopping Mission Report to DWA, Donors and NGOs	DRWS	February 1996	Done
3.	Core Team	Approach Regional Head and/or Control RWEO for participation in DRWS Core Team	DRWS	March 1996	Control left; Head very busy
4.	CWC	Communicate the decision and implications to make both schemes Development and Demonstration schemes; and establish lines of communication between CWC and DRWS (Control RWEO)	DRWS	March 1996	not yet
5.	CWC	Constitution of CWC to be finalized	DRWS and CWC		?
6.	Pilot schemes	Develop a stepwise process of activities to be implemented in these schemes	Core and Backstopping Team	May-June 1996	done during mission 3
7.	LWC	LWCs to be represented in CWC	DRWS	June 1996	after LWCs establishment
8.	LWC/WPCs	<ul style="list-style-type: none"> LWCs and WPCs establish lines of communication between them LWC to develop support structures to WPCs 	DRWS	June 1996	ditto
9.	WPCs	RWEOs Determine factors for success and failure of WPCs			done
10.	Training	After recruitment of Chief RWEO, he/she has to be trained in all training packages, including Community Management course in Harare or Management for Sustainability course	DRWS	start September 1996	await appointment
11.	Training	Develop training package for WPCs; train RWEOs to use this package; pilot test WPC training	DRWS with some support of Backstopping Team (Beth)	December 1996	ongoing
12.	Training	<ul style="list-style-type: none"> Review draft LWC training package by Backstopping Team (Beth) Finalization LWC training package by Core Team and Training Section 	Core and Backstopping Team	February 1996	by Oct. 1996
13.	Training	Review draft T4 training package by Backstopping Team (Beth)	Core and Backstopping Team	February 1996	done
14.	Training	Training of LWCs by Chief RWEO or possible by Control RWEO with possible support from Backstopping Team (Beth)	DRWS	June 1996	to be redefined; action in 1997

15.	Training	Training of caretakers of WPCs both schemes and caretakers of LWCs	DRWS	June 1996	all by July 1997
16.	O&M	Determine costs estimates of (i) O&M of WP (gradual increasing); (ii) O&M of scheme (gradual increasing); (iii) O&M costs of full supply scheme; (iv) costs of water including depreciation costs (differentiation of tariffs)	DRWS and DWA	June 1996	done
17.	Finance	Information on costs of investment and O&M (phased approached) to be communicated to CWC, LWCs and WPCs	DRWS	November 1996	via Cost Recovery W/shops
18.	Gender	Exploration of gender-related issues: WPC/LWC composition; roles and authority in WPC/LWC; men/women as users of water versus decision-making; effects of women committee members on performance; erosion of traditional power over water	DRWS, RWEOs and Backstopping Team (Beth)	December 1996	Mission 4
19.	Monitoring	Development of monitoring structures (methodology, tools and indicators) for basic monitoring at WPC level (including e.g. consumption, cost recovery, number of users, condition of WP, performance of caretakers)	Core Team and Backstopping team, and RWEOs	April 1996	September 1996
20.	Environment	Obtain copy of the EIA of the Olushandja Dam Project from DWA (Construction)	Backstopping Team	April 1996	draft received; final later
21.	Environment	Approach Ministry of Environment (Oshakati office?) to participate for some days in Third Backstopping Mission	DRWS and Backstopping Team	May 1996	done but no participation
22.	Hygiene	Communication between DRWS and MoHSS on proper hygiene education and water handling (also from Harnmeijer report)	DRWS	May 1996	Beth did
23.	Hygiene	Water handling education by RWEOs and Health staff	DRWS and RWEOs	May 1996	not assessed
24.	Mission Methods	Split up Teams during coming Missions when meeting communities (through FGDs) and other activities	Core and Backstopping Team	June 1996	done
25.	Rural Water Development Fund	Find out the developments of this interesting RWDF, including procedures and criteria.	DRWS and Backstopping Team	March 1996	discussed: to be continued
26.	Calueque Dam Phase II	<ul style="list-style-type: none"> • Planning and progress reports to come from DWA • Next Backstopping Mission, progress monitoring to be included versus planning 	DWA and Backstopping Team	May 1996	done

**Table: PROPOSED OVERALL PLANS AND ACTIVITIES RELATED TO COMMUNITY per 24.06.96
MANAGEMENT IN NETHERLANDS-FINANCED WATER SCHEMES IN CUVELAI**

	Activity	Time schedule	Actors	Finance	Status
1.	<i>Ogongo-Okalongo scheme</i> Agreement on development scheme into "development & demonstration" scheme	March 1995	DRWS	nil	approved DGIS
2.	<i>Ogongo-Okalongo scheme</i> Recruitment and training of one Chief RWEO and one RWEO	March-September 1995	DRWS	see 7.	being done
3.	<i>Ogongo-Okalongo scheme</i> Training of caretakers of LWC and WPCs by DRWS and MT	March-September 1995	Training Programme by DRWS; on-the-job Training by Maintenance Team DWA and RWEO	from Training Section and CDF	2/3 care-takers WPCs done; not yet for LWC
4.	<i>Ogongo-Okalongo scheme</i> DRWS with support Backstopping Team develop and introduce support systems for community management	March 1995-mid 1997	DRWS; DRWS Core Team; Backstopping Team	operational funds	framework prepared
5.	Regular review of development, introduction and functioning of community management systems	continuous	WPCs; LWCs; CWC; RWEOs, Chief RWEO; DRWS; DRWS Core Team; Backstopping Team	operational funds	ongoing
6.	<i>Oshakati-Omakango scheme</i> Reactivating LWC and WPCs; recruitment of two RWEOs; monitoring progress community management	March 1995-January 1996	<u>as for 5.</u>	see 7.	LWC active; two RWEOs recruited and trained, one may become Chief; 19 WPCs established
7.	Request to Netherlands Government to fund the four new DRWS extension staff for three years	February/April 1995	DRWS	DFL 90,000	done and approved
8.	Request to Netherlands Government to fund purchase of transport for Chief RWEO	February/April 1995	DRWS	DFL 40,000	done, approved, not ordered yet
9.	DRWS Core Team and Backstopping Team organize workshops on experiences "learning" project	Backstopping Mission periods	DRWS Core Team and Backstopping Team	DFL 2,500	ongoing
10.	Backstopping Team organizes short workshops on specific topics	Backstopping Mission periods	DRWS Core Team and Backstopping Team	DFL 2,500	not yet done
11.	Request to DGIS to activate the Capacity Development Fund	March/April 1995	DRWS Core Team and Backstopping Team	nil	done and approved
12.	Assistance to DGIS in final selection (best three) and briefing of Dutch experts for Namibia	continuous	DGIS and Backstopping Team	to be indicated per activity	to be discussed with DGIS

APPENDICES

- 1. Terms of Reference of the Third Backstopping Mission to Namibia**
- 2. Itinerary of the Third Backstopping Mission to Namibia**
- 3. List of people met during the Third Backstopping Mission to Namibia**
- 4. Overview of Dutch financed water projects and activities in Namibia since 1990**
- 5. DRWS staff capacities at national and Cuvelai regional level**
- 6. Second National Workshop on Payment for Water, Swakopmund, 1-2 February 1996**
- 7. Short Analysis of "7 Days in the Life of a Cuvelai RWEQ: Composite Portrait of 4 RWEOS"**
- 8. Some analysis points taken from the two community group meetings; notes from Oshakati-Omakango scheme community group & from Ogongo-Okalongo scheme community members group**
- 9. List of points to be raised in WPC meeting**
- 10. Report of meeting with WPCs along Ogongo-Okalongo Scheme, group 2**
- 11. Tables resulting from teams' analysis on elements of and risks for sustainability**
- 12. Results of a three-day workshop with RWEOS in Oshakati, 17-19 June 1996**
- 13. Options for establishment and training of WPCs**
- 14. Monthly consumption figures for the Ogongo-Okalongo scheme**
- 15. Cost of water: regional workshop cycle on cost recovery for rural water supply**
- 16. Agreement between the MAWRD and Ogongo-Okalongo LWC**
- 17. Report on progress of Calueque Phase II Project**
- 18. Summary of environmental impact assessment Olushandja Dam Project.**

APPENDIX 1

**TERMS OF REFERENCE OF THE THIRD BACKSTOPPING
MISSION TO NAMIBIA**

Third Backstopping mission to Namibia in June 1996

- to assess the recent developments in the water supply sector and related sectors as water resources, sanitation and environment with the relevant authorities at national and regional level
- to discuss with DWA (Windhoek) the planning and progress on Olushandja water works and dam (Phase II); and rehabilitation of Calueque intake structures (Phase II)
- to discuss the progress of activities proposed during the Second Backstopping Mission
- to assess through joint field visits (with DRWS staff incl. RWEOS) and discussions with LWCs and WPCs the sustainability of the two Netherlands-supported piped water supply schemes (visit as much as possible also same WPCs of previous visits)
- to assess through joint field visits the physical progress of other Netherlands-supported water activities: (i) Olushandja water works and dam (Phase II); and (ii) rehabilitation of Calueque intake structures (Phase II);
- to discuss strategies, methodologies and action-plans to activate WPCs and re-activate LWCs along Oshakati-Omakango and Ogongo-Okalongo schemes vis à vis the presence of Chief RWEOS and RWEOS, and to make them operational for their managerial tasks
- to further develop methodologies and detailed action-plans for the development and establishment of sustainable *community management systems* (at WPC and LWC level) including community-based monitoring, and to follow-up earlier agreed action-plans
- to further develop methodologies and detailed action-plans for the development and establishment of sustainable *community management support structures* (at DRWS level and for private sector) including monitoring, and to follow-up earlier agreed action-plans
- to develop methodologies for monitoring of (i) "development and establishment of community management systems" and (ii) "development and establishment of community management support structures"
- to discuss and (when possible) to review jointly with relevant environmental/sanitation/hygiene sectors agencies relevant conditions related to water supply and propose feasible actions (some of their staff to join few days in field visits)

- to discuss rural water supply sector issues with the Cuvelai WATSAN Forum (of NGOs and other donor-supported projects) while in the North of Namibia
- to discuss further activities to be financed through the "Capacity Development Fund"
- to jointly present the DRWS Core/Backstopping Team's preliminary findings and specific issue(s) to DRWS and if preferable to a selected group of professionals of related sectors (water, community development, health, environment) for discussion and follow-up
- to jointly present the DRWS Core/Backstopping Team findings, conclusions and recommendations of Mission to donors to the rural water supply sector and discuss water sector developments and inputs from donors at meeting at and chaired by the RNE
- to discuss and agree on follow-up activities by DRWS core team and DRWS staff, and the Backstopping Team itself, on the joint mission findings; these activities have to be endorsed by DRWS and RNE
- to discuss and agree on the future backstopping missions and interim activities: scope, methodologies, activities, fields of attention and timing, also in relation to the IRC's contract with DGIS; these planning and activities have to be endorsed by DRWS and RNE
- to produce a brief report on the mission's agreed findings, recommendations and follow-up

APPENDIX 2

ITINERARY OF THE THIRD BACKSTOPPING MISSION TO NAMIBIA

Third Backstopping mission to Namibia in June 1996

from 09 to 25 June 1996

expected arrival: 10 June 1996 at 12.55 by SA 70;
mission starts 10 June 14:30h

departure: 24 June 1996 at 13.40 by SA 71

Sun	09 Jun	travel Amsterdam - Windhoek
Mon	10 Jun	noon arrival Windhoek 14:30h discussions between Backstopping Team and DRWS Core Group
Tue	11 Jun	<ul style="list-style-type: none"> • Joint discussions with Mrs Bonis RNE Windhoek • Discussions with DRWS Management • Discussions with DRWS Training Section • Meetings of individual Team members with agencies of environmental, sanitation and health sectors • Discussions with DWA (on Calueque and Olushandja)
Wed	12 Jun	travel to North by DRWS car p.m. discussions with DRWS staff of Cuvelai Region in Oshakati p.m. Teams' meeting ¹ - daily wind-up
Thu	13 Jun	a.m. meeting with DRWS Cuvelai including Chief RWEO and RWEOs on water supply activities and systems management developments, and planning of visits p.m. meeting with regional organizations (individual discussions) p.m. Teams' meeting - daily wind-up
Fri	14 Jun	visit Ogongo-Okalongo scheme and informal meetings with selected WPCs (focal group discussions); joint team and Chief RWEO and RWEOs will split up: group 1: LWC, group 2: some WPCs, group 3: other WPCs, and group 4: community members p.m. Teams' Meeting - daily wind-up
Sat	15 Jun	a.m. free p.m. Backstopping Team discussion
Sun	16 Jun	visit Oshakati-Omakango scheme and informal meetings with selected WPCs (focal group discussions); joint team and Chief RWEO and RWEOs will split up: group 1: LWC, group 2: WPCs, and group 3: community members p.m. Teams' Meeting - daily wind-up
Mon	17 Jun	a.m. participatory discussions on development methodologies and action-plans with DRWS staff Cuvelai including RWEOs p.m. continuing p.m. Teams' meeting - daily wind-up

¹. Teams' meeting involves both DRWS Core Team and Backstopping Team

Tues	18 Jun	a.m.	continued participatory discussions on development methodologies and action-plans with DRWS staff Cuvelai including RWEOs
		p.m.	continuing
		p.m.	Teams' meeting - daily wind-up
Wed	19 Jun	a.m.	continued participatory discussions on development methodologies and action-plans with DRWS staff Cuvelai including RWEOs
		p.m.	continuing
		p.m.	debriefing at DRWS Cuvelai
Thu	20 Jun	a.m.	drive back to Windhoek by car
		p.m.	Teams' meeting - daily wind-up
Fri	21 Jun	a.m.	meeting at RNE on donor-supported activities on rural water supply in Namibia: RNE; Embassy of Sweden, UNICEF
		p.m.	participatory discussions on development issues among Teams
		p.m.	discussion with training section
		p.m.	Teams' meeting - daily wind-up
Sat	22 Jun	a.m.	free
		p.m.	Teams' meeting on preparation summary report and Plan-of-Action for DRWS
		p.m.	Teams' meeting - daily wind-up
Sun	23 Jun	a.m.	meeting on Sustainability tables
		a.m.	Report writing
		p.m.	Backstopping team: meeting and report writing
		p.m.	Debriefing for RNE
Mon	24 Jun	a.m.	Presentation Draft Summary report and Plan-of-Action to DRWS Management and agreement on follow-up
			11.00h departure for South Africa

APPENDIX 3

LIST OF PEOPLE MET DURING THE THIRD BACKSTOPPING
MISSION TO NAMIBIA

LIST OF PEOPLE MET DURING THE SECOND BACKSTOPPING MISSION

Department of Water Affairs

- | | |
|-------------------------|-------------------------------------------------|
| - Mr. Pita Nghipandulwa | - Director of DRWS |
| - Mr. Harald Koch | - Deputy Director Head Planning and Development |
| - Mr. Jürgen Eysselein | - DRWS North |
| - Mr. Sjaak Zijlma | - Control Engineering Technician |
| - Mr. Matty Hauuanga | - Deputy DRWS North |
| - Mr. Godfrey Tjiramba | - Development Planner, DRWS |
| - Ms. Leoni Futter | - Consultant, Training Section DRWS |
| - Ms. Leonie Postma | - Trainer, Training Section DRWS |
| - Mr. Willy Iyambo | - Regional Head, Cuvelai Region |
| - Mr. Pinehas Elago | - Chief RWEQ, Cuvelai Region |
| - Ms. Mary Isaac Itembu | - RWEQ, Oshakati-Omakango scheme |
| - Ms. Petrina Ipumbu | - RWEQ, Ogongo-Okalongo scheme |
| - Ms. Monica Sidute | - RWEQ, Ogongo-Okalongo scheme |
| - Mr. Toivo Munenguni | - RWEQ, Oshakati-Omakango scheme |
|
 | |
| - Mr Bernard Hausler | - DWA Construction Division |
| - Mr. Wally Schmidling | - DWA - Bulk Water North (Oshakati) |

Others

- | | |
|-------------------------|--------------------------------------------------------|
| - Ms. Desiree Bonis | - RNE Delegate |
| - Mr. Matthijs Everard | - RNE Head Administration |
| - Mr. Lars Karlsson | - Embassy of Sweden, First Secretary |
| - Ms. Jane Bevan | - Consultant Water, Sanitation and Environment, UNICEF |
|
 | |
| - Mr. Bertus Kruger | - SARDEP/GTZ Rangeland project |
| - Ms. Louisa Mupetami | - Environmental Education Officer; Rossing Foundation |
| - Mr Kevin Roberts | - DWA Research Division, Ecology Section |
| - Mr Henk van der Leest | - Project Manager, WSSPOR |

LWC members of the Ogongo-Okalongo and Oshakati-Omakango schemes

WPC members of WPs on the two schemes

Community members on the two schemes

APPENDIX 4

**OVERVIEW OF DUTCH FINANCED WATER PROJECT
AND ACTIVITIES IN NAMIBIA SINCE 1990**

NETHERLANDS-SUPPORTED WATER PROJECTS AND WATER-RELATED SUPPORT ACTIVITIES IN NAMIBIA

The Netherlands government has been involved in a number of water projects and water-related support activities in Namibia since 1990:

- ◆ Rehabilitation of Calueque dam and Olushandja reservoir phase I (1990)
- ◆ Rehabilitation/upgrading of water purification plant at Ogongo (1991)
- ◆ Construction of rural piped water scheme Oshakati/Omakango (1991)
- ◆ Provision of three integrated experts in DWA (1992 onwards)
- ◆ Construction of rural piped water scheme Ogongo/Okalongo (1993)
- ◆ Baseline survey for socio-economic information in Owambo (1993)
- ◆ Rehabilitation of Calueque dam (phase b) and Olushandja reservoir (phase a) phase II (1994) (phase a is being implemented)
- ◆ Mission on hygiene education and sanitation in relation to rural water supply (1994)
- ◆ Backstopping missions on rural water supply projects (1994 onwards)
- ◆ Publication "Water, Namibia's most precious resource" (1994)
- ◆ Groundwater Recharge and Evaluation Study (1994) (identified activity)

APPENDIX 5

DRWS STAFF CAPACITIES AT NATIONAL AND CUVELAI
REGIONAL LEVEL

RURAL WATER DEVELOPMENT AND PLANNING: ESTABLISHMENT

RANK	* APPROVED	FILLED	REVISED	SURPLUS
Deputy Director	1	1	1	0
Chief Engineer	0	0	2	+2
Engineer	0	0	3	+3
Chief Control Engineering Technician	3	2	1	-2
Chief Works Inspections	0	0	1	+1
Control Engineering Technician	5	2	2	-3
Control Works Inspector	0	0	3	+3
Chief Development Planner	1	0	1	0
Chief Engineering Technician	7	2	3	-4
Chief Works Inspector	1	1	4	+3
Development Planner/Senior/Principle	10	3	5	-5
Survey Officer/Senior/Principle	1	1	1	0
Engineering Technician/Senior/Principle	14	9	10	-4
Works Inspector/Senior/Principle	9	8	14	+5
Control Instructor	1	0	0	-1
Chief Instructor	2	1	0	-2
Chief Training Officer	0	0	1	+1
Instructor (A)	1	1	0	-1
Instructor (B)	1	1	0	-1
Senior Training Officer	0	0	4	+4
Training Officer	0	0	7	+7
Secretary	0	0	1	+1
Chief Clerk	0	0	2	+2
Clerk/Senior	0	0	4	+4
Technical Assistant	0	0	1	+1
Assistant Typist	0	0	1	+1
Clerical Assistant	2	2	0	-2
Chief Instructor: Water Supply	1	0	0	-1
Instructor: Water Supply	2	1	0	-2
TOTAL	62	35	72	+10

RURAL WATER SUPPLY SOUTH: ESTABLISHMENT

RANK	Erongo				Omaheke				Otjozondjupa				Hardap				Karas				Head Office			
	Appr	Filled	Revised	Surplus	Appr	Filled	Revised	Surplus	Appr	Filled	Revised	Surplus/-	Appr	Filled	Revised	Surplus/-	Appr	Filled	Revised	Surplus/-	Appr	Filled	Revised	Surplus/-
Deputy Director																					1	1	1	0
Chief Control Eng. Technician																					1	0	1	0
Control Engineering Technician																					1	1	1	0
Chief Contr. Rural Water Ext.Off.																					1	0	1	0
Chief Contr. River																					1	1	1	0
Assistant Accountant																					1	1	1	0
Chief Engineering Technician	1	0	1	0	1	1	1	0	1	0	1	0	1	1	1	0	1	1	1	0	5	3		
Chief Artisan Foreman	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0				
Artisan Foreman	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0				
Artisan 2nd	2	2	2	0	2	2	3	+1	2	2	3	+1	2	2	3	+1	2	2	3	+1				
Artisan 3rd	2	2	1	-1	3	3	2	-1	1	1	2	+1	1	1	1	0	1	1	1	0				
Chief Rural Water Ext Officer	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0				
Chief Rural Water Ext Officer	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0				
Public Relations Officer/R.W.E.O.	18	7	12	-6	25	11	20	-5	15	7	12	-3	18	5	12	-6	20	5	17	-3				
Chief Clerk	1	1	1	0	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1	0				
Clerk	1	1	1	0	1	1	1	0	1	1	1	0	1	0	0	-1	1	1	1	0	1	1	1	0
Reception Clerk	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0
General Assistant	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0				
Assistant Typist	1	1	0	-1	1	1	0	-1	1	0	0	-1	1	0	0	-1	1	0	0	-1	0	0	1	+1
Operator	5	5	2	-3	5	5	5	0	5	5	2	-3	3	3	0	-3	3	2	0	-3				
Leveling Officer	1	1	0	-1	1	1	0	-1	1	1	0	-1	1	1	0	-1	1	1	0	-1				
Inspector	4	2	0	-4	4	4	0	-4	4	4	0	-4	4	4	0	-4	4	4	0	-4				
Barryman	8	7	5	-3	10	10	10	0	11	10	11	0	7	7	7	0	7	7	6	-1				
Workhand	11	5	32	+21	13	11	37	+24	14	14	42	+28	10	6	27	+17	10	9	24	+14				
Labourer	21	21	2	-19	28	27	2	-26	27	25	2	-25	19	13	2	-17	19	12	2	-17				
Cleaner	1	1	1	0	1	1	1	0	1	0	1	0	1	1	1	0	1	1	1	0				
TOTAL	84	62	67	-17	103	82	90	-13	82	73	85	-7	77	47	62	-15	79	51	64	-15	8	6	9	+1

	Appr	Filled	Revised	Surplus/-
Erongo	443	321	377	-66

APPENDIX 6

**SECOND NATIONAL WORKSHOP ON PAYMENT FOR
WATER, SWAKOPMUND, 1 - 2 FEBRUARY 1996**

SECOND NATIONAL WORKSHOPS ON PAYMENT FOR WATER

SWAKOPMUND, 1-2 FEBRUARY 1996

APPENDIX "B"

PREAMBLE

At the heart of a cost recovery policy is the willingness and ability of communities and individual citizens to take responsibility and ownership of the water systems and to pay for water service. Without the acceptance by the people, no government policy can be effective. The participation of all individuals, families, communities, groups and organisations is essential. The perspectives of these, based on their life situations and realities, need to be heard and incorporated into the enactment of these Policy Statements.

The workshops to be held in the future in each region will serve the purpose of communicating to community, traditional and elected leaders the need to hear the views of the people. Awareness campaigns will then be held to inform the people and to work through with them, the problems and issues which may affect the people's willingness and ability to take responsibility for water services, including payment for water, and to find ways of working together for this objective within the cultural, social, economic and political contexts of each region. Based on this awareness of the realities of their people, leaders will come back together to make recommendations to enhance and implement a national policy.

The participatory process of consultation leading to the regionally responsive implementation of national policies will continue to be used whenever it becomes necessary to further develop sustainable water service delivery.

POLICY STATEMENTS

endorsed by the Water Supply and Sanitation
Coordination Committee (WASCO)

i. Water is an economic good and consumers shall pay for water supply service. Tariffs shall be set at levels to cover operation and maintenance for an initial three year period and be incrementally increased during the next six years to achieve full cost recovery in nine years.

ii. Regional Governments in the 13 regions of Namibia will be responsible for the planning and management of rural water supply and the establishment of water tariffs in their respective region. Regional Governments will establish an appropriate committee structure in each region.



- iii. Revenue from water tariffs will remain within the region and be managed at the lowest appropriate community level.
- iv. A lifeline tariff to charge for basic needs consumption shall be implemented to ensure social equity and the availability of water to all Namibians.
- v. The first priority will be water for human consumption. Subsistence livestock farming shall be accorded second priority.
- vi. Within regions cross-subsidization will be used to ensure a basic needs supply for all. Cross-subsidisation will also be applied as dictated by regional and national economic interests.
- vii. A disincentive tariff, including a natural resources user fee combined with a limitation of water supply, will be applied to control overgrazing by livestock and assure the long term sustainability of the environment.
- viii. Within the limits imposed by resource availability, minimum acceptable water supply to all Namibian communities recognized by Regional Government, will be based on:
 - a. maximum walking distance of 2.5 km
 - b. a minimum of 15 liters per person per day which may be regionally adjusted following studies to determine actual water needs.
 - c. a maximum of 30 minutes waiting time at the water collection point.
- ix. A national compensation fund shall be established to finance the provision of water for wildlife and pay damage to water installation caused by wildlife. It is recommended that the fund be financed through a tourist levy because the tourist industry is the principal beneficiary of wildlife support undertaken by water suppliers.
- x. The principle of full transparency will be followed by national and regional governments and all committees responsible for water supply.
- xi. It will be ensured that women are included as full partners in the planning, development, management and decision making of rural water supply.

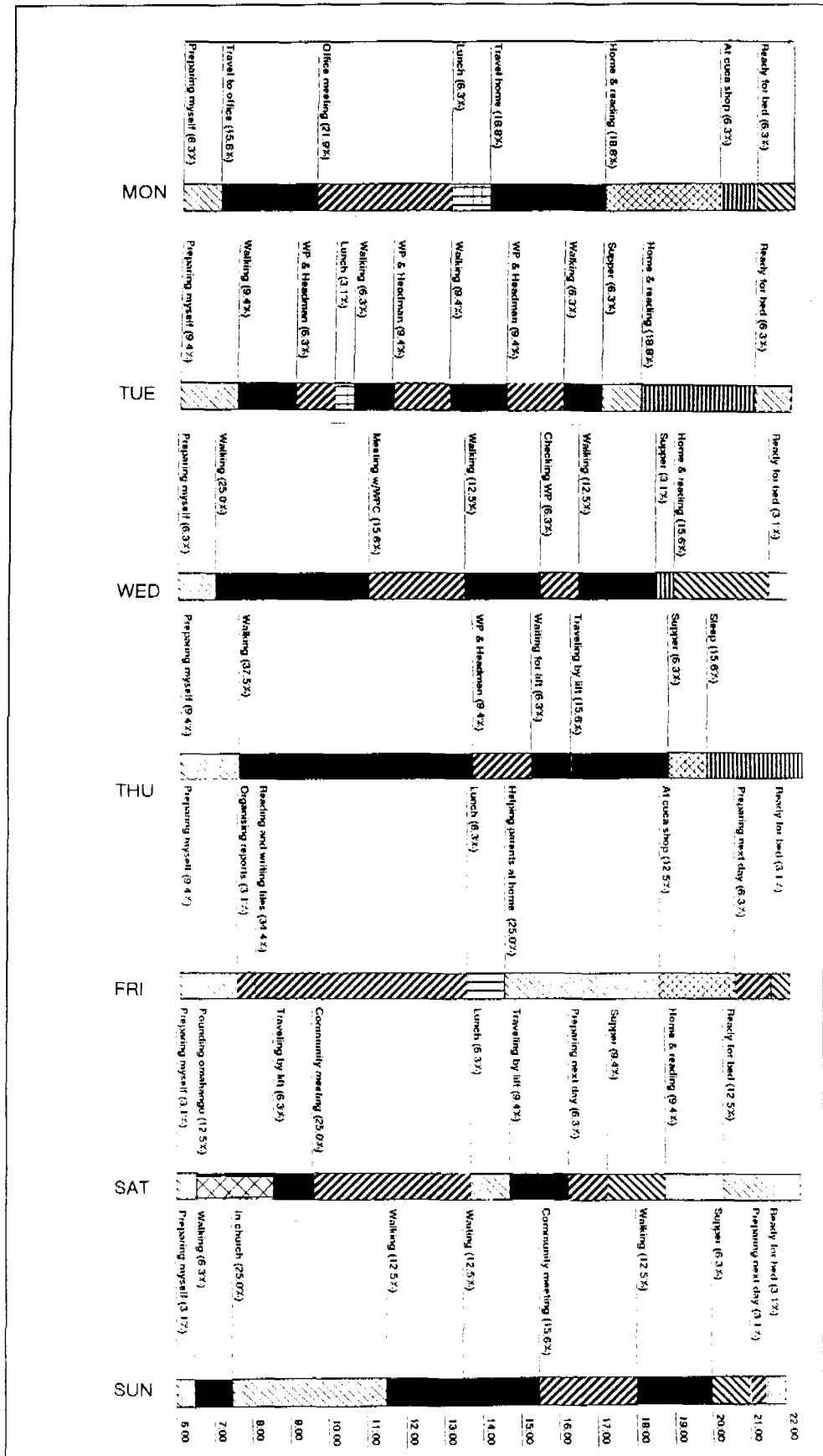
APPENDIX 7

SHORT ANALYSIS OF "7 DAYS IN THE LIFE OF
A CUVELAI RWEQ: COMPOSITE PORTRAIT OF
4 RWEOS"

7 DAYS IN THE LIFE OF A CUVELAI RWE0

A Composite Portrait of 4 RWE0s

 Down Time: waiting, walking, travelling
 Productive Time: Working with communities, WPCs, headmen, or writing and reading reports and files



SHORT ANALYSIS OF "7 DAYS IN THE LIFE OF A CUVELAI RWEО: COMPOSITE PORTRAIT OF 4 RWEOS"

Four RWEОs and one Chief RWEО in the Cuvelai Region were asked to think about a typical week for their work as DRWS RWEОs on rural water pipeline schemes. Each RWEО was asked to sketch a pictorial chart of their activities for each day of the week, including weekends, beginning from when they wake in the morning to when they go to bed at night.

The attached chart represents a composite of the four RWEОs who are living and working directly in the communities, and are responsible for facilitating community management of two piped rural water supply.

Main points that were discovered during this exercise, include:

- * The typical RWEО works 1 or 2 weekends per month, because it is easier to hold community meetings on a Saturday or Sunday than during the week. Days are not taken off during the week to compensate for this extra time worked.
- * The typical RWEО works over 8 hours each day. On average 9 to 9 1/2 hours are worked in 1 day, excluding lunch time. On many days, time is not available for a lunch break. About 1 hour is spent on 3 to 4 evenings during the week to prepare for the following day's activities.
- * The attached chart represents a 16 hour day. When looking at a full 16 hour day, approximately 34% of the time is spent in "down-time", that is, either walking, travelling by lift, or waiting for communities to gather.

During the same 16 hour period, approximately 24% of the time is spent in work-related "productive activities", that is, meeting with the users, WPCs, headmen in the community, or meeting at the Cuvelai office with other RWEОs and the Chief RWEО, or reading and writing reports, recording in files, or preparing materials for the next day's activities.

The remaining 42% of the typical day is "private" time.

- * When examining only the average working hours in one day (i.e., 9.20 hours), approximately 52% of the time is spent in "down-time", that is, either walking, travelling by lift, or waiting for communities to gather.

During the same 9.20 hour period, about 43% of the time is spent undertaking "productive activities".

The remaining 5% of the working day is spent eating lunch (on the days when travel and meeting time allows).

APPENDIX 8

**SOME ANALYSIS POINTS TAKEN FROM THE TWO
COMMUNITY GROUP MEETINGS;
NOTES FROM OSHAKATI-OMAKANGO SCHEME COMMUNITY MEMBERS
GROUP & NOTES FROM OGONGO-OKALONGO SCHEME COMMUNITY
MEMBERS GROUP**

SOME ANALYSIS POINTS TAKEN FROM THE TWO COMMUNITY GROUP MEETINGS

There is an obvious need to urgently move forward on the rehabilitation and hand-over of the Oshakati-Omakango scheme in order to further the feeling of ownership and to facilitate the possibility of private connections.

Government policy that the priority use for piped water must be domestic (drinking, cooking, bathing) and livestock, and the message that water is scarce and must be saved, should possibly be balanced with the fact of very low consumption rates on the two schemes and the need for water for household subsistence activities, such as brickmaking and gardening.

Several recommendations/comments about maintaining, improving, or creating new backup sources of water indicate an apparent lack of trust in the piped scheme or at least a continual interest in "spreading risks" which is typical of rural life.

The community desires scheme expansion (additional branches and private connections), but emphasises the need to keep costs down (i.e., take the shortest distance possible from branchline to homes and keep the infrastructure as cheap and simple as possible).

Users were generally happy with the design and location of the WPs, except for noting that some people are still far from the piped scheme.

The feeling of "ownership" clearly has a positive impact on the physical and organisational management of the scheme by the community. Users accept the idea that they own the WPs and must be responsible for repairs.

Community understanding of the roles and feeling of cooperation with WPCs and, even the LWCs, was striking.

Both community groups stated that there were no significant conflicts or problems since the pipeline has been running.

Clearly there is an urgent need to determine the effectiveness of the reporting system for faults and the efficiency/capacity of the Maintenance Team at DRWS Cuvelai. Long delays in responding to faults can easily undermine the work of the RWEOs and WPCs. Delays in repair work can only exacerbate the apparent feeling of lack of trust in the piped schemes.

NOTES FROM OSHAKATI-OMAKANGO SCHEME COMMUNITY MEMBERS GROUP

Thirteen people were present in the community group, consisting of:

- * four women and nine men
- * eight people using piped water supply, five too far away for easy access
- * of the eight on the piped scheme, five are attached to WPs with WPCs, three without WPCs

This group discussion began with the group raising some specific issues that concerned them:

About five headmen representing the Oshuulula to Oshali area stated that they had been told to dig trenches for the piped system, but no pipes or connections were ever provided. This group was handed over to Pinehas for further discussion.

Two problems were reported on the Omasheshe line. A leak in the pipe under the cement washing basins and taps at the Omasheshe WP was apparently reported to Toivo before Christmas and he reported it to DRWS Cuvelai, but to date no action has been taken. About three weeks ago a leak at the branch joint near the Omasheshe school was reported but no action has been taken.

Water Collection and Use

Those far away from the piped scheme are using *omufima* and *omatale* (handmade or constructed large water bodies). For some of those on the piped scheme, *omufima* is the only backup source should the scheme breakdown. However, some reported that they have little water in their *omufima* these days, and others state they have no sources of water now except the scheme.

Several old men mentioned the idea of expanding the *omatale* system by digging trenches to link the *omatale* to the dry rivers coming from Angola. They also wanted to make the individual *omatale* deeper by digging with heavy machinery. Apparently this idea was suggested to "government" (i.e., the councillors), but no action was taken.

Ownership

The users own the WPs, according to these community members.

Occasionally there are still some cases of lack of understanding in this regard. Children, and sometimes adults, will be seen wasting water and the WPC will say something and they only receive insults back from the user, such as "what's it to you, the water belongs to the government".

Changes in life since the piped water supply

The group noted that some improvements in their life have occurred since the pipeline, notably: they have no more stomach pains and their livestock really prefer the piped water supply.

Design and Placement of WPs

Besides the comment that more WPs are needed for the people far from the piped scheme, a few design problems were mentioned:

- * It is easy for children to play with the branchline joints, turning them off, damaging them

- * One cattle trough pipe is pumping water all the time due to a loose rubber gasket and one user felt that plastic pipes are not good to have at the troughs
- * No drainage system is included at the WPs and some WPs are located at a lower level than the surrounding area so that hand dug trenches do not help to drain off the water.

Private Connections

Queries were made about private connections. They knew they would have to pay for these and were willing to do so. Mary responded that the community must wait until the scheme was handed over.

WPC Work and Relationships with community members

Many WPs do not yet have WPCs. These need to be formed, but as Mary stated, "it is good that you want WPCs, but remember the WPCs need to function well, not just exist".

Characteristics of a good WPC, according to this group, includes: honest people and people who can read and write, for record keeping.

Conflicts

They reported no significant problems or conflicts since the existence of the pipeline, except for one time when someone came during the night and opened the taps and left them running. No one was ever caught. A few times children have turned off the valve on the branchline, stopping the flow of water for a short time.

They report no conflicts between the communities around WPs and those from further away. There are no problems with people coming from afar with their cattle. People with cattle and only *omufima* water, who lived far from the scheme, were also involved in the digging of the trenches, and therefore are entitled to use the water. This group stated they had not written down these people's names, but knew who they were. Once money is being collected for repairs, they know that they can go and collect money from these cattle owners.

Cost Recovery

Apparently none of the WPCs on these scheme have begun to collect money for repairs, but they understand that they will be expected to do that. Toivo has told them that they will have to collect money in the future, because government will not be able to cover the costs of all repairs. They accept the idea that they own the WPs and must be responsible for repairs, but no detailed discussions have been held yet on how money collection should be handled.

An interesting example of "spontaneous" cost recovery was given: One WP without a WPC had a broken tap, community members were gathered together and they decided that they had to collect money because they needed the water. They obtained the price of a new tap and people were asked to contribute to the replacement of two taps (one to keep on hand for a future breakage). Each person contributed 50 cents.

When asked how they thought money collection should be handled, this group stated that they could not respond to that question because they were not members of any WPC. They must first sit with the WPCs and discuss the issue, before they could give their opinions.

NOTES FROM OGONGO-OKALONGO SCHEME COMMUNITY MEMBERS GROUP

Sixteen people were present in the community group, consisting of:

- * six women and ten men
- * nine attached to WPs with WPCs, seven without WPCs

Water Collection and Use

This group of community members on the Ogongo-Okalongo scheme stated that they traditionally used shallow wells (*omufima*) as their main source for water: "in the past almost every family had its own *omufima*". Today, many continue to use *omufima* along with piped water.

People stated that in the past "the land was wet" (i.e., the water table was higher and the rains were better) and their traditional sources were healthy and did not cause diseases: "even babies could drink this water and not get sick". In some cases the water was treated using traditional methods. One method described was to throw ash into the well one day and the next day the water would be clean.

Now, with limited rain and flooding, *omufima* water is not clean, in some cases the water is saline, and many of the shallow wells are drying up. Some people who are far away from the pipeline, will still walk the distance, because they know the water is clean. They are especially using piped water for drinking, cooking, and washing clothes (*omufima* water is not suitable for washing white clothes). Others are still using *omufima* water for many purposes, but they understand now that they must protect these sources. Others only use *omufima* water when no water is coming from the pipeline.

People thought that they were using less water from the pipeline today in comparison to *omufima* water during the time when *omufima* water was the only source. When asked why does it appear that so little water is being used from the pipeline, several reasons were given:

- * they know that water is scarce and they are trying to save water and use it wisely
- * they are still using other sources of water: *omufima*, *etale*, *oshana*, roof catchment
- * during most of the year most cattle are kept in other areas; possibly only five to ten cattle per household are around to consume water from the piped system.

Ownership

The group felt that water was for everyone, but the users owned the WP.

When asked if people are taking water from only one water point (WP) or more than one, the response was: each WP has a WPC and you must make a contribution to that WP, therefore they only use one WP because they do not want to make two contributions. The only time they would use another WP would be when one branch was broken and they had to go to another that was working. In these cases they would be able to take water without contributing.

Changes in life since the piped water supply

Since the scheme has been in place the following benefits have occurred according to this group:

- * now have a clean water source ("the source is covered, animals can not fall in, the water is treated with chemicals and the people putting in the chemicals know what is good for people")

- * good health
- * brought development to the community (such as being able to build houses with bricks rather than wood) (NB. someone earlier said that they were not encouraged to use water from the pipeline for home brickmaking because the process consumed too much water)
- * received education about dirty and clean water sources.

The group felt that no "bad things" have happened because of the scheme. They only worry about what they would do if the pipeline was to break. Two old men made the suggestion that a lake or dam (lined with cement) should be dug, filled with piped water and serve as a backup source.

The only other problem is for those who are very far away from the piped scheme. The group felt that other branches are needed to help these people. Because they understand that there are some places in Namibia with no water, they felt the additional branches should be kept simple (i.e., no tanks, taps only) to keep expenses low.

Private Connections

Many people would like private connections. They understand that they must pay for these and are willing to do so. They stated that government should consider the shortest distance possible from branchline to homes, and keep the infrastructure as cheap and simple as possible.

Design and location of WPs

Community members, along with the headmen, were involved in decisions about design and location of the WPs. Both men and women were involved in the decisions and they all felt the decision making process was a sound one, and that, generally, the design of the WP is good. It is especially fitting that water is now close to the schools, and the school children have water.

Area for improvement:

- * More branches are needed, for those far from WPs
- * Cement platform under cattle trough needs to be wider
- * The places with only one tank shared by livestock and domestic users is not a good system especially when some WPs have five or more tanks.

WPC Work and Relationships with community members

The community members feel that the selection/election of the WPCs was a good one and they would recommend this process to others: make a meeting, suggest names for specific positions on the WPC, hold another meeting and vote by show of hands.

It was decided before the election process that an equal number of men and women should be represented on the WPCs. They felt it was particularly important to have women represented on the WPCs, because women are the main collectors of water, and they could observe the condition of the WP and the use of water when they were collecting their own water. Having said this, it was still important to have men also represented.

The community members listed their ideas on the roles and responsibilities of the Water Point Committee (WPC):

- * To organise the community and to direct the community "to do good and not bad".
- * To report any problems occurring at the WP.
- * To inspect the WP and all the facilities.
- * To encourage users to follow the rules and to act according to the information given to them from the DRWS office.
- * To see how water is being used by the children and other people in the community.
- * To gather people together to discuss matters related to water.
- * To be responsible for their work and to respect other people in the community.
- * To see to the water needs of the community or nation.
- * To rule the community members.
- * To not just direct community members, but to guide them.
- * To act as a role model: do not just tell the community to do something but to do it and then the community will follow (for example, cleaning around the WP).

Suggested necessary qualities of a WPC member include: brave ("able to take anything that comes their way"), understanding, know how to organise, have feelings for others, and honesty.

The community members believe that the WPCs are doing a good job:

- * There is good cooperation and understanding.
- * The WPCs report to the community and if they have a specific task to do they report back to the community on progress.
- * If the WPC asks the community to do a specific task, they cooperate.

WPC members might even do a better job if they were paid and one member on each WPC could have a bicycle to get around and do their work faster. The community members did not think they could be the ones to pay the WPC members salaries, because: 1) the users were not working and 2) they were already contributing to the repair costs of the WPs.

WPCs do need further training "on their work as a committee" and on specific work around the WP.

The community group concluded that at present everything was okay and there was no need for change. If in the future something was to go wrong they could call the community together, discuss the problem, and even call in the councillor if necessary.

LWC Work and Relationships with community members

When asked if the community members knew and had any contact with the Local Water Committee (LWC), the response was that they had "good contact".

The position and role of LWC should be:

- * WPCs should take problems to the LWC
- * LWC should take problems to the DRWS office
- * LWC must check for faults/problems in branchline
- * Community members can report problems to the LWC but it would be better to report to WPCs and then the WPCs report to LWC

RWEOs Work and Relationships with community members

When asked what the role of RWEOs was, the community response was:

"The head and leader of all of us when it comes to water."

At first the group said that the RWEOs did the same type of work as the LWC, and then when asked "Well then do you need both the LWC and the RWEOs?", the response was: the LWC should work with the mainlines and the RWEOs should work with the WPCs and the WPs, including inspecting WPs and getting WPCs to act on any problems.

Conflicts

No significant conflicts were reported on this scheme.

Cost Recovery

Money collected for WP repairs varies from WP to WP. Some WPCs have the households paying N\$2 per month, others N\$10 or N\$20 per year. All users decided on the amount, but it is not based on anything (i.e., they just want to have enough money for repairs, but replacement parts were never costed).

The community recognises the fact that if there is a big repair problem and the money is not enough, they will have to collect more money.

It was striking that no one in the group complained or spoke poorly about government in relationship to having to pay for repairs to the WPs.

Conclusions

The group concluded the session with two points:

- 1) They reiterated their request for additional branchlines for those who do not have ready access to the existing lines.
- 2) They indicated their appreciation for the water supply system and expressed their hope that the system will last a long time.

APPENDIX 9

LIST OF POINTS TO BE RAISED IN WPC MEETING

APPENDIX 9

LIST OF POINTS TO BE RAISED IN WPC MEETINGS

(Third Backstopping Mission June 1996)

1. TASKS OF WPC

composition of WPC: how is composition?; number of members; is this OK? gender distribution; inclusion of headman and/or influential people; people with special skills:
accounting/bookkeeping - reporting? could composition be improved?

selection of WPC: how were WPC members appointed for their jobs: election/selection? were they well respected by community members?

tasks: what were perceived tasks as explained by RWEO; are there problems to perform these tasks? which tasks are not fully carried out? why not

2. TRAINING NEEDS

do you feel that there is need for further training of WPC members to be able to perform tasks of WPC? by function

Who could according to you, train the WPC members?

3. ORGANISATION and MANAGEMENT

how often does the WPC meet; frequency or also ad-hoc, e.g. in case of specific problem? is this needed?

where do you meet? are others welcome at meeting?

is there an agenda and are reports made? decisions for action?

what was the last decision taken?

how is relationship between WPC and users? meetings? Do the users accept the authority of the WPC? If not, why not? How are such problems addressed? Do the traditional leaders give strong support? are there specific groups that do not respect authority of the WPC?

what does make your WPC function well? can you give some reasons why?

are many outsiders coming to collect water? is there a list of registered users?

how is communication to the users organised? is this communication needed, appreciated by users? ideas to improve communication?

is there a regulation of water supply: hours of opening?

is there any contact with LWC? on what? is this appreciated by WPC? what support could or should come from LWC? what is the role of the LWC? do WPC members know any LWC member?

do people use other water sources? and for what purposes? why do they use these sources?
does the WPC keep information on number of users, functioning of the system, volume consumed, amount of money collected, what has been spent and for what? do you know how many heads of cattle make use of the water source, sometimes or always? or there restrictions in use for cattle (always allowed)?

5. OPERATION AND MAINTENANCE

the water point is still very young but are there problems in maintenance? what is the most common part that needs maintenance?
is the operation done well by the users? how to improve this operation? ideas?
how do the Caretakers generally function? are they allowed to do all repairs at WP (tap replacement, pipe replacement); would they like to do more? are they motivated (how), do they receive incentives, are they capable, do they need to be trained for special skills? are they respected for the tasks they do?
do they have the required tools? can they easily get the spare parts needed? where? ideas to make the availability of spares easier? do they need sometimes assistance from plumbers or MT? how much time caretakers spent

6. COST RECOVERY

how much money has been spent in total since they have management?
is money being collected? how done? how much? on what is this amount based? who decided that this amount is to be collected? by WPC or information/ guidance from outside? do some people/households pay more and other HHs less? why? where is collected money kept?
are people that are not paying excluded from getting water?

do they know how much the water scheme has cost? do they know how much O&M costs are?
have they heard about the cost recovery policy of the GRN?
information and discussions will be come in August. Now they pay for O&M of water point, are they aware that they have to pay in future also for the O&M of the scheme? This is the task of the LWC to whom they have to pay money, so that the LWC can do this O&M of the scheme.

are the users in general willing to pay? if no, why not? what amount would people be able to pay?

do they inform the users how much money they have collected and how money was spent, and balance? how often do they give this info? what are reactions, comments etc. from users?

7. ENVIRONMENTAL ISSUES

what do they see as common environmental problems? have these problems been increased by the provision of piped water supply. has number of cattle increased? does much cattle from outside comes in for watering? could the WPC play a role to reduce degradation of environment? what?

8. SPECIFIC ISSUES, PROBLEMS

are there specific issues that you want to raise for further discussion; problems
have you got certain questions for LWC, CWC, RWEOs or DRWS?

9. EVALUATION

was this useful for you? what was most interesting ? what will you tell others e.g. users about this meeting

APPENDIX 10

**REPORT OF THE MEETING WITH WPCS ALONG
OGONGO-OKALONGO SCHEME, GROUP 2**



**REPORT OF MEETING WITH WPCs ALONG OGONGO-OKALONGO
SCHEME GROUP 2**

(14 June 1996 conducted by Pinehas Elago, Monica Shidute and Jo Smet)

38 WPC members attended Group 2 meeting: many different WPCs, 8 chairpersons, 4 secretaries, 7 treasurers, 11 caretakers, 8 advisers.

- **Composition of WPC;**
all WPCs have six members, which is seen as the right number. Almost all WPCs have at least two women and one has five women. None of the WPCs has a headman as member.
- **Selection of WPC;**
in a community meeting with RWEO (Petrina) and the Chairman of the LWC (Benny) nominated persons, selected on skills, were proposed and selected by votes.
- **Respect for WPC members;**
in general they are respected, some elders and kids do not follow what WPC members tell them; headman is then called in to explain status of WPC which mostly suffices to correct behaviour.
- **Tasks of WPC;**
were somehow understood, particularly in view of the present management and cost recovery arrangements. But for the future, the roles/responsibilities will change, and therefore the tasks have to be discussed with them versus the role of the LWC, the role of the DRWS (and RWEOs) and the role of Bulkwater supply (NamWater).
- **Training;**
although initially the WPC members said they can manage their tasks, they later said to appreciate further training to improve on their tasks: e.g. how to chair a meeting; how to keep records and file; how to make financial overviews for the community; how to improve upon making repairs etc. This should be done by the Directorate (e.g. RWEOs and Mts). 2-5 days would do.
- **Organisation of tasks;**
all WPCs meet once or twice a month. In case of emergency, e.g. no water supply, they report to RWEO and then report reasons back community. For the meetings they use an agenda. Decisions are taken, e.g. on new spares to be bought; improvement fencing of storage; how much people should contribute; water point cleaning etc. Community meeting are organised after the WPC meeting, so once or twice a month. Lower frequency of community meetings, say once per quarter, would not be good. 40-50 people turn up for these meetings. Some organise them near the soccer field, to get also teachers and parents of school-going-children. Traditional leaders give generally a good support to the WPCs.
- **Factors for success;**
high demand for water; it is their property; follow guidance from RWEOs and DRWS Oshakati; they follow what them has been told; most people in community support.

- **Users;**
in most cases there is a list of user households; WPC puts pressure on those users not yet on the list, personal talks to those that are difficult to convince to register. Passing by people can get water free, but not those from other villages. In one place they have put a padlock.
- **LWC;**
some WPCs report problems and breakages etc. to LWC. They expect in future more support from LWC and therefore it must be a strong committee.
- **Maintenance;**
generally only tap replacement. They want from DRWS a list of hardware shops indicating where these taps can be bought. The presently owned taps break easily so better quality needed. Caretakers may not be able to replace pipes, so perhaps that could be done by private plumber or LWC-caretakers. Tools are sometimes missing, so repairs not properly (*.... but they have their own funds!*)
- **Cost recovery;**
not much spent during last three years, only one to three taps @ N\$ 50. All WPCs have a cost recovery scheme. Water fees are generally collected monthly: N\$ 1.00-2.00. Some have a yearly collection (N\$ 15-24/year). Only minority of user households pay. Those not paying give as reasons: it is GRN property; WPC's business only; no interest; no income. Councillors should come to community meetings to give clarity on policy and to convince 'defaulters'! Ability and willingness to pay more (for all O&M and water itself) will not be a serious problem for most if the GRN gives the explanation and figure. Amount has been agreed by community. WPCs keep money either at home or at the bank. Transparency needs to be continued by giving regular overviews to users.
- **Environment;**
number of cattle is not a problem; no eagerness to reduce as often several head of cattle die. Reduction of cattle is sensitive and difficult subject in Cuvelai.
- **Private connections;**
within 1.5-2 years it is expected that these can be made after connection charges have been paid to LWC (owner scheme)

APPENDIX 11

**TABLES RESULTING FROM TEAMS' ANALYSIS ON
ELEMENTS OF AND RISKS FOR SUSTAINABILITY**

situation as per 23.06.96

Table 1. COMMUNITY MANAGEMENT ELEMENT: COMMUNICATION

Problems	Solutions	Activities	Time Schedule											
			1996						1997					
			08	09	10	11	12	01	02	03	04	05	06	07
<ul style="list-style-type: none"> incidental lack of communication between WPCs and community (users) 	<ul style="list-style-type: none"> to enhance the promoting /supporting role of Chief RWEO 	<ul style="list-style-type: none"> o establish and/or vitalise WPCs * to enhance the promoting /supporting role of Chief RWEO * to finalise training package for WPCs • to carry out community-based training for WPCs 	=	=	=	=	=	=	=	=	=	=	=	=
<ul style="list-style-type: none"> * lack of communication between WPC and LWC 	<ul style="list-style-type: none"> to convince both committees of importance and benefits of communication * to formulate functions and tasks of LWCs for real future situation * to communicate roles and responsibilities LWCs • to enhance and communicate legal status of WPC and LWC 	<ul style="list-style-type: none"> to develop methodologies and tools for communication * to formulate functions/tasks of LWC * • to finalise Water Act including legal status of LWCs and WPCs 	=	=	=	=	=	=	=	=	=	=	=	=
<ul style="list-style-type: none"> * LWCs not operational (Ogongo) or not established (Oshakati) 	<ul style="list-style-type: none"> to (re-) establish LWCs of Ogongo and Oshakati schemes 	<ul style="list-style-type: none"> to make a programme of actions for the (re-) establishment of the LWCs (involve Godfrey; Matty; Pinel as and Mary) * to develop training package for LWCs • to carry out community-based training for LWCs 	=	=	=	=	=	=	=	=	=	=	=	=
<ul style="list-style-type: none"> incidental lack of communication <u>within</u> WPCs and LWCs 	<ul style="list-style-type: none"> to enhance the promoting/s supporting role of Chief RWEO 	<ul style="list-style-type: none"> to enhance the promoting /supporting role of Chief RWEO 	=	=	=	=	=	=	=	=	=	=	=	=
<ul style="list-style-type: none"> no communication between LWCs 	<ul style="list-style-type: none"> * to enhance the promoting/s supporting role of Chief RWEO 	<ul style="list-style-type: none"> to enhance the promoting /supporting role of Chief RWEO 	=	=	=	=	=	=	=	=	=	=	=	=
<ul style="list-style-type: none"> * no communication between the LWCs and the CWC 	<ul style="list-style-type: none"> CWC to assume representatives from LWCs 	<ul style="list-style-type: none"> to discuss with CWC the representation of LWCs in CWC 				=			=					

Table 3. COMMUNITY MANAGEMENT ELEMENT: FINANCIAL MANAGEMENT AND PAYMENT

PROBLEMS	SOLUTIONS	ACTIVITIES	TIME-SCHEDULE											
			1996						1977					
			0 6	0 7	0 8	0 9	1 0	1 1	1 2	0 1	0 2	0 3	0 4	0 5
<ul style="list-style-type: none"> lack of information on investment costs of scheme and other hardware; and operational/treatment costs <p>(to be done before National Wrap Up on Cost Recovery)</p>	<ul style="list-style-type: none"> to provide per capita costs of investment of scheme and other hardware; to provide indicative operational costs per cubic metre (or per 20-litre bucket) 	<ul style="list-style-type: none"> DRWS: to collect investment and depreciation costs of scheme and hardware (intake/main/treatment/ trunkline) DRWS: to collect data on operational costs DRWS: to calculate the per capita costs DRWS: to communicate this information to CWC; LWC and WPC (via cost recovery workshops) 			=	=								
<ul style="list-style-type: none"> lack of information on what eventually to pay for and indicative (range of) tariff level 	<ul style="list-style-type: none"> to estimate gradually increasing tariffs (per cost recovery phase) 	<ul style="list-style-type: none"> DRWS: to estimate the total cost (O&M part and Bulk water tariff part) DRWS: to communicate this information to CWC; LWC and WPC; and WPC to communicate this to users 			=	=								
<ul style="list-style-type: none"> lack of understanding why to collect money for at this moment and how much would be required at this phase of cost recovery 	<ul style="list-style-type: none"> to estimate the O&M costs of the WP and scheme (increasing O&M per year and so increasing O&M costs) 	<ul style="list-style-type: none"> DRWS: to estimate the total yearly O&M costs at WP and scheme level DRWS: to communicate this to CWC; LWC and WPCs WPC: to communicate this information to users 			=	=	=							
<ul style="list-style-type: none"> lack of penalty for defaulters 	<ul style="list-style-type: none"> to register users (households) to facilitate the process at the WPC to make their own appropriate decisions (e.g. traditional ways; publication of defaulters) 	<ul style="list-style-type: none"> WPC: start listing users and type of use (cattle and/or domestic) (monitoring issue) RWEO: discuss with WPC traditional ways to address defaulters and/or give suggestions 					=	=	=	=	=	=	=	=
<ul style="list-style-type: none"> possible capacity problem regarding books records and financial management 	<ul style="list-style-type: none"> to develop capacities on record keeping and financial management skills through LWC and WPC training programme 	<ul style="list-style-type: none"> DRWS: develop suitable WPC and LWC training programme and materials RWEO and Chief RWEO: implement training programme and monitor training effects 												
<ul style="list-style-type: none"> (DRWS) method of introduction of payment "idea" 	<ul style="list-style-type: none"> to structure an awareness campaign providing information as it becomes available 	<ul style="list-style-type: none"> DRWS: design awareness campaign DRWS: use all available channels 			=		=	=						
<ul style="list-style-type: none"> (DRWS) lack of clarity on cost levels 	<ul style="list-style-type: none"> (DRWS) to estimate the O&M costs and to get from Bulk Water the estimates of tariffs of water 	<ul style="list-style-type: none"> DRWS: calculate as accurate as possible cost levels 			=	=	=							

Table 4. COMMUNITY MANAGEMENT ELEMENT: COMMUNITY BASED MONITORING

PROBLEMS	SOLUTIONS	ACTIVITIES	TIME SCHEDULE																	
			1996					1997												
			08	09	10	11	12	01	02	03	04	05	06							
<ul style="list-style-type: none"> lack of data on functioning and use of water supply systems for community management 	<ul style="list-style-type: none"> development of community-based monitoring system for community management of systems 	<ul style="list-style-type: none"> develop ideas, framework and draft c-b MIS (by DRWS and Backst. Team) discuss the framework c-b MIS with WPCs and LWCs finalise the c-b MIS train WPCs and LWCs on use of MIS and make the MIS operational at selected WPCs- and LWCs-level develop a process of communicating relevant data between users, WPCs, and LWCs 		=	=															
<ul style="list-style-type: none"> strategy paper on monitoring system exist, but not operational as yet 	<ul style="list-style-type: none"> develop process to feed back relevant information 	<ul style="list-style-type: none"> identify the c-b monitoring parameters that can be of use for DRWS (regional and national) 											=	=	=					

Table 8. DRWS SUSTAINABILITY RISK ELEMENT: ATTITUDES TOWARDS POLICIES/INTERPRETATION

PROBLEMS	SOLUTIONS	ACTIVITIES	TIME SCHEDULE
<ul style="list-style-type: none"> • Personal interpretation of policies 	regular workshops with RWEOs, regional staff (incl. regional heads) and DRWS HQ staff (including management level staff)	<ul style="list-style-type: none"> - preparation and implement cost recovery workshops - conduct regional workshops for regional DRWS and other staff and RWEOs 	done
<ul style="list-style-type: none"> • conflicting messages from RWEOs and Chiefs RWEO 	regular workshops with RWEOs and Chief-RWEOs		
<ul style="list-style-type: none"> • demotivation of RWEOs 	salaries and reimbursement to be improved	<ul style="list-style-type: none"> - to discuss these issues with DRWS Management and Public Service Committee (PSC) 	
<ul style="list-style-type: none"> • lack of knowledge on policies (people) 	<ul style="list-style-type: none"> • simplified summarised version of policy paper and strategy papers, only on rural water supply • translation in local languages when possible 	<ul style="list-style-type: none"> - to develop summary paper (two pages) and translate this into local languages 	

Table 9. DRWS LEVEL: TRAINING FUNCTIONS and HRD

PROBLEMS	SOLUTIONS	ACTION	TIME SCHEDULE
Training needs assessment not finalised Regional heads are not providing needed information	Provide assistance to finalise training needs assessment <i>(2 divisional heads will help to finalise)</i>	1. Needs assessment to be finalised 2. and discussed by DWA national, divisional & regional leadership for their approval	done
Jump in budget: lack of resources to deal with increase, possible spending pressure	Base budget on realistic training plans	1. DWA confirmation or tr. needs for 1997 - assessment 2. Write up of plan of action-phase wise 3. Funds seeking 4. Reschedule and adjustment of plan and budget	November 1996
Uncertain personnel situation	Assure continuity of present training staff Acquire: (i) Trainers - 6 (+2 outside); (ii) Development Planners - 3 to 4 (iii) Technicians - 14 (?)	1. get staff recruited: (i) Recruitment for 2 external Trainers to be completed soon (ii). Recruitment for Namibian trainers to follow plan of recruitment (iii) ToR of Development Planners to be clarified. Further recruitment to be scheduled and followed. (iv) Technicians' recruitment to be scheduled and followed. 2. Tune budget to availability of staff; needs assessment, organisational capacity and human resources availability	
Effectiveness of RWEO training	Monitor and evaluate performance of RWEOs and then assess effectiveness of training programme <i>(evaluation has been done on RWEOs; this will be used to assess training programme)</i>	1. Develop monitoring procedures and feedback arrangements to policy, plan and implementation 2. Develop indicators for evaluation	
Risk of consultants diverting from government policy within training	better communication and control of consultants functioning and performance		ongoing
Lack of co-ordination/co-operation between DRWS and NGOs regarding training programmes and materials	Revive national and regional WATSAN forums <i>Put in place 2-way communication Show appreciation to NGOs for their complementary efforts Continue process of co-operation and</i>	1. WATSAN forum to deal with practical problems; thematic approach 2. Involve the NGOs in (national and regional) planning matters 3. Provide training opportunity for NGO-project staff, jointly with DWA staff	

	<i>communication which was started October 1996</i>	4. Share experience	
--	-----------------------------------------------------	---------------------	--

Table 10. DRWS LEVEL: MONITORING AND EVALUATION (M&E)

PROBLEMS	SOLUTIONS	ACTION	TIME SCHEDULE
Lack of information for regional and national management	<ul style="list-style-type: none"> - Identify minimum information requirements for management at two levels regional and national; M&E is to be split up: Database (hard facts) and Efficiency/Effectiveness (functioning c-b ws; internal DRWS efficiency), and planning - to develop MIS - Field test M&E system in Ogongo scheme and evaluate 		
Lack of resources to implement	Identify required resources for minimum package		

Table 11. DRWS LEVEL: OPERATION AND MAINTENANCE

PROBLEMS	SOLUTIONS	ACTIVITIES	TIME SCHEDULE
Training of caretakers lacking	<ul style="list-style-type: none"> • involve RWS Maintenance Team in training • provide food, drinks and logistics • assess (via C-B MIS) functioning of systems and performance of RWEOS on O&M 		
Some WPCs not yet established			
LWC not yet established			
money for O&M collected not based on actual parts prices	<ul style="list-style-type: none"> • RWEOS to communicate to WPCs (caretaker; treasurer) and LWC the average price of required parts (provide current list) • RWEOS to communicate to WPCs/LWCs the envisaged, yearly increasing average annual O&M costs 		
quality of tap poor	replace by best, affordable and locally available tap (best-buy)		
handling (e.g. of taps) is not always properly understood.	<ul style="list-style-type: none"> • awareness raising on proper handling (operation) • train caretakers , and via her/him the WPCs and users (also sessions at school; also for school water supply) 	<ul style="list-style-type: none"> • use participatory methods for discussion of these issues with the users' groups 	

APPENDIX 12

**RESULTS OF A THREE DAY WORKSHOP WITH RWEOS
IN OSHAKATI 17 - 19 JUNE 1996**

RESULTS OF A THREE-DAY WORKSHOP WITH RWEOS

OBJECTIVES OF THE WORKSHOP

1. to assess the progress on COMMUNITY MANAGEMENT
2. to identify the successes and the problems/constraints related to CM
3. to analyze the successes/problems/constraints
4. to identify areas/means for improvement CM to overcome problems
5. to develop methodologies/ tools to address problems
6. to develop a strategy to implement methods
7. to discuss problems and find solutions related to functioning of RWEOS

1. PROGRESS COMMUNITY MANAGEMENT

Three working groups analyzed the community visits with discussions among community members; WPCs and LWCs both on the Ogongo_okalongo and the Oshakati Cmakango scheme. The results are given below per focus group and give an overview of the present Community Management situation in the schemes.

1.A. Community Group: Ogongo - Okalongo

present: 16 people : 6 females and 10 males

- ⇒ Some people are far from scheme + only have omifima (salty, dirty, dry); Need more pipe branches
- ⇒ Others have only piped water supply system (no back up if system is broken)
Women mostly collecting water, not men!
- ⇒ Changes in life since scheme in place:
 - improvement in health
 - development comes to village (i.e. brick making instead of trees for building)
 - clean water source + well protected source
 - received education on difference between clean + dirty water sources
- ⇒ Community feel they are the owners of the WP, but water is for everybody
- ⇒ Reason for low consumption:
 - still using omifima
 - told to save water - use water wisely (Namibia is dry)
 - only keeping some cattle near homesteads (+ piped system)
- ⇒ Involved in design + siting of WPs; good design taps, washing basins, + troughs
- ⇒ Some people still far away from WPs
- ⇒ Good that WPs are near schools now
- ⇒ Cement platform under trough should be wider
- ⇒ Not good that some WPs only have 1 tank, others 5 or more

on WPCs:

- ⇒ Provided work/responsibility of WPCs in their opinion.
- ⇒ How elected : call everybody together, selected names (± 3 per position), voted by show of hands; community happy with this system
- ⇒ Qualities of a good WPC member : Brave (i.e. someone who can take anything that comes to them), understanding, know how to organize, feelings for others, honest WPC works well with community, cooperation + understanding; when asked to do a task, WPC does it + reports back to community

on LWCs:

- ⇒ The community members were able to list work of LWCs. (see paper)
- Community members > WPCs > LWCs

on RWEOs:

- ⇒ they first said RWEOs do the same work as LWC, then they changed their minds: RWEOs duty is to report dirty WPs to WPCs + get them to act .
+ LWC works with main pipeline
- ⇒ “RWEO is our head/leader in all things regarding water”
- ⇒ good communication + cooperation

general

- No conflicts now, but if there was call meeting + bring in counselors.
- All WPCs collecting money, different amounts.

Specific problems:

- One problem reported was that a trench had been dug but water pipes had been laid. Problem was reported to Mr. Pinehas to discuss. (area: Oshuulula to Oshali)
- Two problems that exist at WP in Omusheshe have been reported but no action has been taken.
- Many people still say that the water belongs to the government and when they are told not to waste water they insult the people by saying that the water is not theirs but that it belongs to the government (so: no understanding of the community ownership/management)
- There is no drainage system for spilt water at the water point (so: design not good)

1.A._Community Group Oshakati - Omakango Scheme

present: 13 people: 4 females and 9 males

- ⇒ Other sources are omifima and omatale where there is no pipeline
- ⇒ Change in life time - no more stomach pain
- animals prefer to drink from the taps
- ⇒ More omatales should be constructed to back up the pipeline system (lack of trust in the pipe system)
- ⇒ No conflict between people or villages because of the system. (Even people from far participated in the digging. They have the right to use the system).

- ⇒ Occasional problems do occur e.g. children playing with the main branch line valve so that water will stop flowing. - People coming at night to open the taps so that water will run throughout the night.
- ⇒ Users are the owner of the WP.
- ⇒ WPCs not yet collected the contribution money
- ⇒ One WP without a WPC but they have started contributing to fix their tap.

The group was not ready to decide on how money should be contributed because they are not the WPCs but they do accept the idea of maintaining their WP's problems and taps.

1.B.: WPCs Meeting - Ogongo-Okalongo scheme

- * WPCs all have two or more women
- * WPC is selected by community itself, after nomination based on skills
- * To respect the WPC members the headman plays an important role
- * Task of WPC clear for now but for future tasks, discussion is needed
- * On training, WPC would appreciate further training to improve management
- * All WPCs meet once or twice per month followed by community meeting
- * Keep up frequency of community meeting.

Factors for success :

- 1) High demand for water
- 2) It is their property
- 3) They follow guidance of RWEOs
- 4) Most people in community support
- 5) The WPC kept a list of households collecting water
- 6) WPC request for support from RWEO and also from the councilors
- 7) LWC must be strong and support WPC.

Maintenance

WPC like to have a list of hardware shops to buy taps from - also good quality.

Cost recovery

- * All WPCs collect money N\$ 1.00 to \$ 2.00 per month.
 - * Most of the households pay.
 - * WPCs keep money either at home or at bank
- WPC gives financial overview to community

1.B. Meeting WPCs along Oshakati-Omakango Scheme

WPC:

Composition varies: 2 → 5 members

Election by community after explanation by RWEO

Training:

training of caretakers and treasurer is needed - by DRWS - staff
Tasks of WPC member not clear
No clear task - division in WPCs

Organization:

- Waste of water by children and adults think water belongs to GRN
- problem addressed in Community meeting but wasters do not attend
- WPC members clean WP (unclear task-division)
- People from outside comm. also welcome to collect
- Some (few)WPCs keep list of users
- Many people do not know that WPC - meeting is linked to Community Meeting
- No fixed water collection periods/day

Cost Recovery (O&M)

- Need for general meeting in which RWEOS/senior DRWS staff explains the cost recovery as now many household do not understand why money has to be collected
- WPCs (some) collect money when tap broken
- one WPC collects money on regular basis
- no information on actual O&M cost scheme/WP
- some got info that they have to pay for water in future

O&M

-One WPC reported "broken tap" to LWC→ MT → Repaired

1.C. MEETING LWC-Ogongo-Okalongo scheme

- * People did not know what a LWC is; many were WPC members
 - * LWC was not existing - no functions/job done;
 - * People were uncertain, some how resisting to cooperate/discuss
 - * They said they had training already and knew most of the tasks already;
 - * After explaining difference between WPC and LWC several times they were very positive and cooperative.
 - * Steps to establish LWC were agreed upon.
 - * People came with concrete measures to save the environment these were:
 - reduction of cattle numbers
 - cattle should only drink in their own village
 - use less trees for building houses and fences;
- ___ LWC would try to establish itself, together with the RWEOs, and apply for Training from DRWS.

___ 1.C MEETING with LWC - Oshakati-Omakango Scheme

- * LWC only covered the certain area .
- * They did not know how to mobilize a full committee.
- * Have no awareness of the tasks.
- * The scheme needed many repairs.

- * There is not a good relationship between the LWCs and WPCs in the scheme.
- * Positive about paying for water but did not like to pay the LWC caretaker.

2. SUCCESSES & PROBLEMS IN COMMUNITY MANAGEMENT

2. A. Users

Successes of the Ogongo okalongo scheme

- * Community has it all in their hands
- * Decision power at community level
- * Headmen support
- * “copying” from other WPCs : people get right information
- * good users behaviour related to WP because they understand
- * high motivation because water is a felt need
- * hand-over by GRN to LWC/WPC is important
- * good RWEO relationship to WPCs users

Problems

- * accessibility (distance to) of WPs
- * not enough water from WPs if WP has only one tank
- * conflicting information on responsibilities /uses of water
- * people have (still) lack of trust in piped water supply
- * no. of cattle beyond carrying capacity

Successes - OSHAKATI

- * Real ownership
- * Demand for reliable/safe water

Problems

- * Users do not take up responsibilities related to community management of their water supply system
- * People were not informed about scheme
- * Poor/lack of communication in general
- * GRN - staff and politicians give contradicting messages about water and responsibilities
- * Accessibility is not adequate (distance)
Maintenance is not done: not by Caretakers and not by DRWS- MT

3.B. success factors at WPCs (from cards)

Ogongo- Okalongo

- * WPC members perform their functions
- * WPC well organized and they perform their duties
- * They know their task very well
- * All WPCs collect money
- * WPCs keep money either at home, or at bank
- * WPCs meet regularly report back to community
- * keep their WP clean
- * WPC keep a list of households using the WP
- * Good number of women members in WPC
- * Equal representation of men + women on WPC (Gender balance fine)

- * They attend meeting of RWEO
- * RWEOs give good backup to WPCs
- * WPCs get good support from community (users) (meetings)

3.B. Factors WPCs problems

<u>Ogongo - Okalongo</u>	<u>Oshakati - Omakango</u>
<ul style="list-style-type: none"> * They need training (4) * WPCs having problem for some household do not want to pay or contribute (2) * Cost Recovery not fully done * WPCs do report damages on WP but these are not solved satisfactorily * One water tank at water point * Demand for private connections but no solutions as yet * WPC exist in isolation, far away from RWEQ * WPC do not have legal status and authority * Lack on info on spare parts * WPCs hesitant to discuss issue of too many cattle * No relationship between WPC's of LWCs * Capacities WPCs insufficient for future tasks 	<ul style="list-style-type: none"> * Functions WPCs not fully clear (6) * Some WPC do not do their duties: <ul style="list-style-type: none"> -lack of training on functions - lack of training on O&M for caretakers - lack of tools * Very few WPCs collecting money (2) * Poor attendance of community (2) * many WPCs do not have community meetings * Both WPCs and scheme itself lack status * Some committee members cleaning the WP on their own

3.C Problems at LWC level

<u>LWC Ogongo-Okalongo</u>	<u>LWC Oshakati - Omakango</u>
<ul style="list-style-type: none"> * LWC members are not clear of function of LWC/members * No clear tasks given * They do not know how to mobilize full committee * Unclear who should sit on LWC * Tasks of LWC was found heavy → much training 	<ul style="list-style-type: none"> * No Establishment yet * LWC yet undefined, not functioning * They do not know each other and they do not know really function * never informed about its role * They are on their own * The members do not know their task

4. AREAS & MEANS TO IMPROVE COMMUNITY MANAGEMENT

4.A at WPC level

- * monitor no. of cattle for “user”/“non-users” utilizing the WP through WPC
- * monitor the “DOWN-TIME” of the water supply
- * monitor attendance at community meetings
- * keep list of users
- * keep record of payments/income/expenditure
- * specific training needs (assessment)

4.B. DRWS Cuvelai level

- * CWC - Meeting : problems to functioning schemes (problems)
- * LWC - responsibilities
- * Training caretakers Oshakati WPCs
- * Increase efficiency DRWS - MTs
- * Quick response and action from DRWS-MT on pipe bursts
- * Communication to and quick action from bulk water on pipe bursts
- * Re-distribution of water tanks in schemes
- * Implementation WPC training (TOT)
- * Organize training of caretakers, together with RWEO and Maintenance teams (spanners, 1 shifting spanner)
- * Communicate with governor/and counselor about LWC -establishment
- * Office for RWEO (portable)

4.C. RWEOs

- * Communication on ownership’s responsibilities to existing/new WPCs + Users
- * Assess distance {km} people have to walk to collect water (house ↔ WP) if problem
- * Info/communication on water usage’s (Domestic - cattle - officially not for any other purpose)
- * Incorporate “Success” - Factors in strategies
- * Communication on full understanding of tasks and responsibilities of WPCs
- * Assist WPC training
- * Assist WPC in calling community.
Meeting and attend meetings
- * Evaluate reasons for poor attendance (by walk about)
- * O&M cost Recovery inform the communities and explaining process : list of users; payment
by users; monthly financial overview.
- * Use schools to inform and educate students
- * Information to WPCs and LWCs on future specific tasks cost recovery
- * Persisting failure to repairs: continue to report at DRWS-Cuvelai
- * Private connections: procedures are being arranged for

- * LWC relationship with WPC: inform that governor and counselor will deal with LWC - establishment
- * RWEOS using portable office
- * PRA - Participatory rural Appraisal

5. OTHER ISSUES DISCUSSED WITH THE RWEOS

5.1 Issues in planning

- Date
- Activities
- Purpose
- Resources
- Who is responsible
- When it should be done
- When completed by

5.2 Time as a resource

Order of activities of RWEOS in establishing WPC:

1. Meet headman/church/school
 2. Meet community - discuss idea
 3. Feed-back from community
 4. If agreed: Election of WPC
 5. Meet with WPC - members and headman
 6. Evaluation/Inventory
 7. Plan of action → of problems
→ successes
- + Discuss with WPC/Community

5.3 resource constraint/ solution

- 1)Transport * Pay for transport time
* long distance walk
- 2)TIME !! transport waiting

5.4 Implementing many different activities:

Say over a period of 3 months --- Bar-diagram (simplified example)

OBJECTIVES	July	Aug.	Sept.
1. WPCs WPC establishment	====		
2. inform people on "Water"		=====	
3. to assist WPC/Community.	==	==	==

4. to inspect Wps		==		==		==
5. to plan / to discuss	=		=		=	
6. to attend training/workshops				===		
7. to report		=		=		=
8. annual leave						
9. to train		==				

5.5 Ideas to improve performance of RWEOs

- Transport * Provide (motorbikes) suitable transport
- Walk * Reimburse money spent
 - * Transport of chief
 - * Communication/Radio
- Transport * Base camps/ send messages by radio
 - * More RWEO's
 - * Cluster the communities/WPCs

APPENDIX 13

OPTIONS FOR ESTABLISHMENT AND TRAINING OF WPCS



Option 1: RWEOs establish and train WPCs on their own scheme

Available expertise/capacity

In order to assess the capacity of the RWEOs to carry out their work with the WPCs an assessment of their training skills will be required. This will need one or two weeks and should be part of a Training of Trainers (TOT) when the WPC package (skills and leadership training) is introduced to the RWEOs, practiced, tested and revised, etc. Thereafter the RWEOs are expected to be able to conduct the training. This is in line with the original thinking of the Training Section.

Time planning

During the first half of 1996 the RWEOs in both schemes have not been able to establish new WPCs due to pressure of other activities and limited efficiency in the organization of their activities.

1. RWEO TOT Training and Leadership Needs Assessment: required time period is 1 week
2. Establishment of WPCs:
In a certain area, the preparatory meetings with key people and community meetings will have to be well scheduled within the same period. For instance have preparatory meetings with headman and other key people to introduce the concept of WPC at three WPs in a row, soon followed by the community meetings at the WPs in a row. Then, while these communities are discussing internally, hold one-week training session for five previously established WPCs. Thereafter the WPC-election meetings with the communities can be held at the three WPs, etc.
On annual basis some 12 WPCs can be established per experienced RWEO. So that is 24 WPCs in one year per scheme. This means for the two schemes:
* Ogongo - Okalongo scheme: the two RWEOs Monica and Petrina need about one year to finish establishing of the remaining 21 WPCs.
* Oshakati - Omakango scheme: Mary and Toivo would need about 3.5 years to establish the backlog of 77 WPCs
3. Training and consolidation:
Establishment and training run parallel. It is assumed that two RWEOs on each scheme run the training sessions together and two weeks are needed (logistics, organization, actual training, follow-up) for each session. It is not expected that the RWEOs will be able to run the training sessions individually.

Each session has five WPCs (30 people). Petrina and Monica would spend: 64 WPCs/5 WPCs per session = 13 sessions x 2 weeks = 26 weeks on training. With allowance for breaks in between the sessions,

some other activities, leave time, sick leave, and other duties the training will be complete in about a year.

Mary and Toivo would need about two years: 96 WPCs/5 WPCs per session = 19 sessions x 2 weeks = 38 weeks. With allowance for breaks in between the sessions, some other activities, leave time, sick leave, and other duties the training will be complete in about two years.

Summery Option 1:

Ogongo - Okalongo:

* establishment of WPCs (one year) + Training (one year) = 2 years

Oshakati - Omakango:

* establishment of WPCs (3.5 years) + Training (2 years) = 5.5 years

Remarks:

This option will be tight and expose the RWEOs to much 'criticism' as the focus is on establishing and training at the possible expense of almost all other activities.

Option 2: Establishment of WPCs by the RWEOs on their own scheme and the best (one or two?) of the four RWEOs will train WPCs on both schemes

Available expertise/capacity

Supposed Mary and Petrina will be involved in training at both schemes. The other RWEOs will concentrate on establishment of WPCs. The DRWS Training Unit will support the training of the WPCs during the first few training sessions.

Participation of the DRWS Training Section will (i) raise quality levels of the training and (ii) mitigate the logistical problems for the RWEOs. If, however, the DRWS-trainer has no command of the local language translations may lead to slow-pace processes and also loss of quality. Coordination between the DRWS-trainer and the RWEOs may turn out to have its effects.

Time planning

1. RWEO-TOT Training and Leadership Needs Assessment: 1 week.
2. Establishment of WPCs
Each RWEO will be establishing 12 WPCs per year.
This implies that at the Ogongo -Okalongo scheme nearly 2 years will have to be spent to complete the establishment by Monica. (21 WPCs/12 per year)
At the Oshakati-Omakango scheme 77 WPCs/12, nearly 6.5 years will have to be spent to complete the establishment of the remaining WPCs by Toivo!!
3. Training and consolidation
Training of 64 (all) at the Ogongo-Okalongo scheme by Petrina would take about one year (64/5 WPC per session x 2 weeks (logistics, organization, actual training, follow-up) = 26 weeks. Allowing for breaks, organizational time, other jobs it would take one year.

The training schedule does not have the right fit with the schedule of establishment of WPCs by Monica. The latter requires a time span of over 2 years and WPCs can not be trained before they are established. Hence it would take over 2 years to establish and train the WPCs.

The same goes for the Oshakati-Omakango scheme; Mary would need about two years to train all (96) WPCs. Toivo needs 6.5 years to establish all WPCs, while the training would encompass approximately two years. Hence training would be completed only after the 6.5 years.

Summary Option 2:

Ogongo-Okalongo:

* Over 2 years with overlap of training and establishment of WPCs

Oshakati-Omakango:

* 6.5 years, with overlap of training and establishment of WPCs.

Remark:

Many of the regular duties would be taken off of the best RWEOs so that they can concentrate on training. This may result in problems and areas of attention related to the WPCs being ignored or delayed; e.g. consolidation of WPCs, O&M problems, day-to-day scheme management I issues.

Option 3: Establishment of all WPCs at Ogongo-Okalongo scheme, before commencing with training on Oshakati-Omakango. All formal training efforts will be concentrated on the Ogongo-Okalongo scheme before moving onto the Oshakati-Omakango scheme.

Time Planning

1. Establishment of WPCs
Assume that Mary will help at the Ogongo-Okalongo scheme to finish establishing the remaining 21 WPCs. Three RWEOs will need some seven months for that (based on 12 WPCs/year)
2. Training and consolidation
WPC training at Ogongo-Okalongo will be conducted by Mary and one RWEO and will take about one year (64WPCs/5WPCs per session = 13 sessions x 2 weeks = 26 weeks)

Once the Ogongo -Okalongo scheme is completed efforts return to the Oshakati-Omakango scheme with the following assumptions:

- * Mary and the RWEO-trainer from Ogongo-Okalongo scheme move to the Oshakati-Omakango scheme;
- * Toivo has managed to establish 18 more WPCs during the 1.5 years that effort was concentrated on Ogongo-Okalongo. So 37 WPCs are now established and 59 still need to be established.

Three RWEOs need 1.7 years to establish the final 59 WPCs (12 WPCs/year.RWEO). Training of 96 WPCs will take about two years (96WPCs/5 WPCs per session = 19 sessions x 2 weeks = 38 weeks).

Summery option 3

Ogongo-Okalongo:

- * WPCs establishment (7 months) + training (one year) = about 1.5 year

Oshakati-Omakango:

- * after Ogongo-Okalongo: establishment of 18 WPCs while most efforts are concentrated on Ogongo (1.7 years); establishment of remaining 59 WPCs (two years) + training (two years) = 3.7 years

Total time: slightly more than 5 years

Option 4: The soon-to-be-appointed Regional Training Officer in DRWS (with command of local language) with only logistical support from the scheme RWEOs

Two persons from the Training Unit will concentrate full time on the 2 schemes, thus ignoring other Cuvelai schemes.

As in Option 1 each RWEO does WPC establishment while the training commences with the WPCs already established. Each RWEO can establish 12 WPCs per year (meeting with three WPCs simultaneously across a three-month period). So 24 WPCs in one year per scheme. So Monica and Petrina need about one year to finish their 21 WPCs ($21/24$); Mary and Toivo would need slightly more than 3 years ($77/24 = 3+$)

If all 160 WPCs on both schemes are trained by the DRWS trainers, the total training time would take about 2 years: ($160/5 = 32$ sessions x 2 weeks = 64 weeks). However the progress of the training will be hampered by the length of time needed to establish the WPCs before they can be trained. Realistically about two months will be still needed for training after the last WPCs have been established on the Oshakati-Ogongo scheme.

Summery Option 4:

A total of about 3.5 years for full establishment and training of all 160 WPCs is needed for this option.

Option 5: An independent Training Consultant is contracted, with logistical support from the scheme RWE0

There is only one difference between Option 5 with consultants doing the training in comparison to Option 4 with the DRWS Training Unit does the training. By hiring consultants to concentrate on the two schemes the DRWS Training Unit would be free to concentrate on other schemes in the Cuvelai.

Similar to Option 4 the full establishment and training of all WPCs would need about 3.5 years. If the consultants are responsible for curriculum and content planning, material preparation and writing progress and final reports then apart from the 64 training weeks some extra months are to be added.

APPENDIX 14

**MONTHLY CONSUMPTION FIGURES FOR THE
OGONGO-OKALONGO SCHEME**

THIRD BACKSTOPPING MISSION NAMIBIA -- JUNE 1996

MONTHLY CONSUMPTION FIGURES FOR THE OGONGO-OKALONGO SCHEME (measured at Ogongo)

Month and year	meter reading	monthly consumption
September 1994	112,490	
October	141,236	28,746
November	no data	average 9,523
December	no data	average 9,523
January 1995	no data	average 9,523
February	no data	average 9,523
March	188,853	average 9,523
April	199,757	10,904
May	208,290	8,533
June	220,561	12,271
July	232,769	12,208
August	249,851	17,082
September	268,671	18,820
October 1995	289,846	21,175
November 1995	312,039	22,193
December 1995	337,245	25,206
January 1996	351,440	14,195
February 1996	362,397	10,957
March 1996	373,075	10,678
April 1996	386,709	13,634
May 1996	399,680	12,971

Source: Bulk Water Supply Cuvelai Region (19.06.96)

Assuming that the 30,000 people in the distribution area are all consumers, and that during the rainy season (lowest consumption) all consumed water was used for human consumption, then the average consumption is (February/March 1996) $11,000,000:30:30,000=12$ lcd. This indicates an increase in domestic water consumption compared to the figure of the Second Mission of 10 lcd.

Consumption per LSU¹ is set at 45 l/d. In the month of October 1994 with the highest consumption, about 20,000 m³ was consumed by livestock. So an estimated number of $20,000,000:45=15,000$ LSUs were using the piped water supply.

Assuming an average of 7.5 members per household and 30 LSUs per household (at design consumption rates of 45 per LSU/d and 25 lcd), the total consumption for the Ogoango/Okalongo scheme would be 6,150 m³/day or 184,500 m³/month.

The designed capacity of the scheme is 3490 m³/day. For livestock the basis was the grazing capacity of the area, i.e. 0.08 km² (8 ha) per LSU, which led to an allowance of 8545 LSUs. In the actual LSUs in the area may be substantially higher.

MONTHLY CONSUMPTION FIGURES FOR THE OSHAKATI-OMAKANGO SCHEME

Although figures were given by Bulk Water Supply Cuvelai Region, no analysis on actual per capacity consumption could be done. These figures give volumes measured at Oshakati, but there is an inflow or outflow in the scheme at Omakango where the pipeline is connected to the line from Ondangwa to Omafo. Flow figures for this knot have been requested but were not available from Bulk Water Supply.

¹. LSU = Large Stock Unit

APPENDIX 15

**COST OF WATER: REGIONAL WORKSHOP CYCLE ON COST
RECOVERY FOR RURAL WATER SUPPLY**



DIRECTORATE OF RURAL WATER SUPPLY

REGIONAL WORKSHOPS CYCLE ON COST RECOVERY FOR RURAL WATER SUPPLY

COST OF WATER

(including piped water schemes)

Principle 1:

Beneficiaries will pay for the full O&M and replacement costs for the above the ground equipment of the water point.

The Government will provide and replace the underground equipment.

Shallow wells are considered to be above ground facilities.

Principle 2:

People must contribute for

a) an individual water point to:

from 0 to full O&M:

year 1 to 5

from full O&M to full replacement costs:

year 6 to 10

b) a water point on a piped scheme:

from 0 to full O&M for the individual water point:

year 1 to 2

from 0 to full O&M for the scheme (facilities between water points)

year 3

include water charge NAMWATER

year 4 to 5

include replacement cost

year 6 to 10

Principle 3:

Water Point Committees will collect and manage the funds for their individual water point.

Only in the case of piped schemes, the charge of NAMWATER must be paid to that company by the Local Water Committee; in the interim period the DRWS will subsidise the LWC until it can raise its own funds from the beneficiaries in the 4th and 5th year after introduction.

Principle 4:

The Directorate of Rural Water Supply will provide technical assistance to the various Water Committees and will act as a facilitator only.

The Directorate will provide or repair underground facilities when requested through the Central Water Committees.

Principle 5:

The maintenance cost for solar installation is very low which makes it very attractive. To avoid a rush into this technology with the consequent enormous capital investment required by Government, some costs the installation will be charged to the users from the beginning. This charge will be 5% p.a. of the solar installation @ \$ 40 000 i.e. half replacement cost.

BOREHOLES AND INSTALLATIONS

	Price per unit	Total price	Life span	O & M	Remarks
1. Handpump:					
1.1 handpump and d.t.h equipm.	14 000.00		10 years	5% p.a.	
1.2 cattle trough	3 000.00	17 000.00	10 years		
2. Diesel installation:					
2.1 diesel engine and d.t.h.equip.	35 000.00		20 years	30% p.a.	
2.2 trough, washbasin, storage	20 000.00	55 000.00	15 years		
3. Solar installation:					
3.1 solar pump and d.t.h equipm.	40 000.00		25 years	1% p.a.	
3.2 trough, washbasin, storage	20 000.00	60 000.00	15 years		
4. Windmill installation:					
4.1 windmill and d.t.h. equipm.	25 000.00		15 years	5% p.a.	
4.2 trough, washbasin, storage	20 000.00	45 000.00	15 years		
5. Boreholes drilling:					
5.1 boreholes < 50m	40 000.00		25 years		
5.2 boreholes 50 - 100m	90 000.00		25 years		
5.3 boreholes > 100m	120 000.00		25 years		

DUG WELLS AND INSTALLATIONS

1. Handpump:					
1.1 handpump and d.t.h.equipm.	5 000.00		10 years	5% p.a.	
1.2 trough	3 000.00		10 years		
1.3 dug well	4 000.00	12 000.00	20 years		

PIPED WATER SCHEME:

Cost based on the Ogongo-Oshakati and Endola West schemes

No of water points:	185
Total cost rws infrastructure:	\$ 10.0 m
Total cost bulk water facilities:	\$ 7.5 m
Cost for rws water point: 2 washbasins/taps, cattle trough, storage (WPC):	\$ 50 000.--
Cost for scheme sections in between water points (LWC resp.):	\$ 4 000.--
Cost for Bulk Water per water point:	\$ 40 600.-
NAMWATER charge of water supplied to the scheme:	\$ 1.43 /m ³
Cost of operation ad maintenance: per annum per capital cost:	0.5%

On average about 400 people use one water point with 2 taps; this represents 70 households.

Basic needs for water:	per capita 15 l per day:	per household 100 l/per day
	per head of cattle 45 l/day:	per household

Lifespan for installation on average: 35 years

Based on the above figures the following cost per household has to be paid per month:

Year 1 and 2:	0.5% of \$ 50 000.- div. by 12 for 70 hh:	per hh:	\$ 0.30
Year 3:	0.5% of \$ 54 000.- div. by 12 for 70 hh:	per hh:	\$ 0.32
Year 4 and 5:	add for people only: 100x30x \$1.43/1000:	per hh:	\$ 4.61
	add for one head of cattle: per month \$ 1.95	
Year 6 to 10:	add replacement cost 100/35% x \$ 54 000		
	div. by 12 for 70 hh:	per hh:	\$ 6.45

Government contribution:

Government will contribute the difference between \$ 6.50 per household and what the households actually increasingly pay during the first 10 years. After that no further contributions.

DUGG WELL WITH HANDPUMP:

Cost for rws water point (WPC responsibility):			\$ 12 000.--
Cost of operation and maintenance: per annum per capital cost:			5% for h.p.
Lifespan for installation on average:			10 years
Number of households per water point:			5 or 10
Basic needs for water:	per capita 15 l per day:	per household 100 l/per day	
	per head of cattle 45 l/day:	per household	

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	5% of \$ 5 000.- div. by 12 and 5 households:	per hh: \$ 4.20
Year 6 to 10:	add 100/10% of \$ 7 000 div. by 12 and 5 hh:	per hh: \$ 15.90

b) in case of 10 households per water point:

Year 1 to 5:	per hh: \$ 2.10
Year 6 to 10:	per hh: \$ 7.95

Government contribution:

Government will contribute the difference between \$ 15.90 (or \$ 7.95) per household and what the households actually increasingly pay during the first 10 years. After that no further contributions.

BOREHOLE WITH HANDPUMP:

Cost for rws water point (WPC responsibility above ground):	\$ 17 000.--
Cost borehole > 50m (Gvt. responsibility):	\$ 40 000.--
Cost of operation and maintenance: per annum per capital cost: (installation only)	5% for h.p.
Lifespan for installation on average:	10 years
Number of households per water point:	5 or 10
Basic needs for water:	per capita 15 l per day: per household 100 l/per day per head of cattle 45 l/day: per household

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	5% of \$ 14 000.- div. by 12 and 5 households:	per hh: \$ 11.70
Year 6 to 10:	add 100/10% of \$ 17 000 div. by 12 and 5 hh:	per hh: \$ 40.00

b) in case of 10 households per water point:

Year 1 to 5:	per hh: \$ 5.85
Year 6 to 10:	per hh: \$ 20.00

BOREHOLE WITH DIESEL ENGINE:

Cost for rws water point (WPC responsibility above ground):	\$ 55 000.--
Cost borehole (Govt. responsibility):	\$ 40 000 to \$ 120 000.--
Cost of operation and maintenance: per annum per capital cost: (installation only)	30%
Lifespan for installation on average:	10 years
Number of households per water point:	5 or 10
Basic needs for water:	per capita 15 l per day: per household 100 l/per day per head of cattle 45 l/day: per household

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	30% of \$ 35 000.- div. by 12 and 5 households:	per hh: \$ 175.00
Year 6 to 10:	add 100/10% of \$ 55 000 div. by 12 and 5 hh:	per hh: \$ 266.70

b) in case of 10 households per water point:

Year 1 to 5:	per hh: \$ 87.50
Year 6 to 10:	per hh: \$ 133.35

BOREHOLE WITH SOLAR PUMP:

Cost for rws water point (WPC responsibility above ground):	\$ 60 000.--
Cost borehole (Gvt. responsibility):	\$ 40 000 to \$ 120 000.--
Cost of operation and maintenance: per annum per capital cost: (installation only)	1%
Lifespan for installation on average:	10 years
Number of households per water point:	5 or 10
Basic needs for water:	per capita 15 l per day: per household 100 l/per day per head of cattle 45 l/day: per household

Note: The maintenance cost for this installation is very low which makes it very attractive. To avoid a rush into this technology with the consequent enormous capital investment required by Government, some costs the installation will be charged to the users from the beginning. This charge will be 5% p.a. of the solar installation @ \$ 40 000 i.e. half replacement cost.

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	1% of \$ 40 000.- div. by 12 and 5 households:	per hh: \$ 6.70
	5% of \$ 40 000.- div. by 12 and 5 households:	<u>per hh: \$ 33.30</u>
	Total:	per hh: \$ 40.00

Year 6 to 10:	add 100/10% of \$ 20 000 div. by 12 and 5 hh and 50/10% of \$ 40 000 div. by 12 and 5 hh:	per hh: \$ 106.70
---------------	----------------------------------------------------------------------------------------------	-------------------

b) in case of 10 households per water point:

Year 1 to 5:	per hh: \$ 20.00
Year 6 to 10:	per hh: \$ 53.35

BOREHOLE WITH WINDMILL:

Cost for rws water point (WPC responsibility above ground):	\$ 45 000.--
Cost borehole (Govt. responsibility):	\$ 40 000 to \$ 120 000.--
Cost of operation and maintenance: per annum per capital cost: (installation only)	5%
Lifespan for installation on average:	10 years
Number of households per water point:	5 or 10
Basic needs for water:	per capita 15 l per day: per household 100 l/per day per head of cattle 45 l/day: per household

Based on the above figures the following cost per household has to be paid per month:

a) in case of 5 households per water point:

Year 1 to 5:	5% of \$ 25 000.- div. by 12 and 5 households:	per hh: \$ 20.90
Year 6 to 10:	add 100/10% of \$ 45 000 div. by 12 and 5 hh:	per hh: \$ 95.90

b) in case of 10 households per water point:

Year 1 to 5:	per hh: \$ 10.45
Year 6 to 10:	per hh: \$ 47.95

COST OF WATER FOR INDIVIDUAL HOUSEHOLDS PER MONTH

Technology	if used by 5 households per point		if used by 10 households per point	
	Year 1 to 5	Year 6 to 10	Year 1 to 5	Year 6 to 10
1. Handpump on dug well	4.20	15.90	2.10	7.95
2. Handpump on borehole	11.70	40.00	5.85	20.00
3. Diesel eng. on borehole	175.00	266.70	87.50	133.35
4. Solar pump on borehole	40.00	106.70	20.00	53.35
5. Windmill on borehole	20.90	95.90	10.45	47.95
6. Piped water scheme	n.a	n.a	4.56	6.43

APPENDIX 16

**AGREEMENT BETWEEN THE MAWRD AND
OGONGO-OKALONGO LWC**

A G R E E M E N T

BETWEEN

O G O N G O - O R A L O N G O :

LOCAL WATER COMMITTEE

AND

DIRECTORATE OF RURAL WATER SUPPLY

AGREEMENT

between:

OGONGO-OKALONGO LOCAL WATER COMMITTEE

and

DIRECTORATE OF RURAL WATER SUPPLY

1. The Directorate of Rural Water Supply shall entrust the Ogongo-Okalongo Local Water Committee with the **USER OWNERSHIP** of the Ogongo-Okalongo Rural Water Supply Scheme
2. No section or part of the scheme and its facilities may permanently be removed by any of the partners of the agreement.

3. **RESPONSIBILITIES OF THE DIRECTORATE OF RURAL WATER SUPPLY:**

- to guarantee a sustainable water supply to the community,

- to employ a Rural Water Extension Officer for the area who will assist the Local Water Committee in carrying out its functions,

- to assist, through the Rural Water Extension Officer, the Local Water Committee with setting up and training Water Point Committees,

- to assist in arranging for major maintenance and repair jobs which are beyond the capacity of the local community,

- to carry out on-the-job training for the caretakers, appointed by the Local Water Committee and the Water Point Committees and

- to advise on technical and financial matters when requested

4. RESPONSIBILITIES OF THE LOCAL WATER COMMITTEE:

- to operate and maintain the scheme in a sustainable way
- to carry out preventive and routine maintenance and minor repairs
- to finance the operation, maintenance and repair activities from funds collected from the end users
- to set the tariff for the end users from which all activities can be financed
- to set up and train Water Point Committees, with the assistance of the Rural Water Extension Officer
- to direct the Water Point Committees to collect financial contributions from the end users
- to make sure that the scheme is well looked after,

- to ensure that all members of the community have access to the available water,

- to encourage the Water Point Committees to maintain and improve their water points,

- to direct all communications with the Government to the Rural Water Extension Officer,

- to appoint one or more caretakers, as members of the Committee, to advise and assist the Water Point Caretakers,

- to report all maintenance and repair requirements, which go beyond the capacity of the local community, to the Rural Water Extension Officer,

- to keep proper records of all income and expenditure in a Treasurer's account book, and

- to report regularly, on standard Water Committee Meeting Reports, to the Directorate of Rural Water Supply on financial and technical progress.

5. THE AGREEMENT

The Agreement is entered into voluntarily by both parties.
 Either party may call for the agreement to be altered at any time.
 If the other party does not agree with the proposed alteration, the dispute should be referred to arbitration.
 In each case, an Arbitration Committee is to be set up, consisting of representative of the Central Water Committee, of the Department of Water Affairs and a local Councillor.
 The decision of the Committee will be binding.

SIGNED ON BEHALF OF THE OGONGO-OKALONGO LOCAL WATER COMMITTEE IN

Okalongo ON THIS THE *27th* DAY OF *May* 19*94*

THE CHAIRPERSON *[Signature]*

THE SECRETARY *[Signature]*

THE REGIONAL COUNCILLOR (OGONGO CONSTITUENCY) *[Signature]*

THE REGIONAL COUNCILLOR (OKALONGO CONSTITUENCY) *[Signature]*

SIGNED ON BEHALF OF THE DIRECTORATE OF RURAL WATER SUPPLY IN

Okalongo ON THIS THE *27th* DAY OF *MAY* 19*94*

THE MINISTER *[Signature]*

THE DEPUTY PERMANENT SECRETARY *[Signature]*

APPENDIX 17

REPORT ON PROGRESS OF CALUEQQUE PHASE II PROJECT

CALUEQUE PHASE II
PROJECT OVERVIEW - JULY 1996

BACKGROUND

The scope of this project is set out in the planning report entitled 'Phase II of the re-instatement of the Calueque-Olushandja component of the Calueque dam water supply scheme' - Report No 2700/1/7/2-ME1. Briefly these are as follows:

at Calueque dam:-

procure and install 600 rpm motors to replace the existing 500 rpm units (increasing pump capacity to 3 m³/s for each unit from the present 2 m³/s)

upgrade the power supply to 11 kV and replace motor starters and controls

procure one standby pump

partially complete the hydraulic steelwork to allow impoundment of 35 Mm³ by the placement of one stoplog in the slot of each flood sluice

complete the installation of the control sluice gates to fully operational level

partially complete the northern embankment of the dam for said impoundment

and at Olushandja dam

repair and complete the north wall pump station structure

procure and install a pumping system to allow the extraction of water from the dam into the canal to Ogongo

connect the south wall pump station to the power grid and provide a secure structure for the swithgear

repair and commission the south wall sluice gates and stoplog system

The project costs were estimated as follows:

Olushandja dam	N\$ 2,3 million (excl consulting fees)
Calueque dam - structural works	N\$ 5,4 million (incl consulting fees)
pumps and power supply	<u>N\$ 8,4 million</u> (excl consulting fees)
TOTAL	<u>N\$16,1 million</u>

A request for grant aid in the Amount of N\$ 18,5 million was submitted to the Netherlands Government which had financed the initial re-instatement project. The amount made provision for an environmental study to be carried out to integrate environmental management into the project. In October 1984 the Netherlands Government provided funding for the project in the amount of Dfl 10,44 million (N\$ 18,64 million) for disbursement not later than December 1996.

OLUSHANDJA DAM

At that time the work planned for the Olushandja dam was already in progress. The pump system in the north wall had been designed for 2x 500 l/s upgradeable to 2 x 650 l/s. The planning report had recommended 2 x 1600 l/s pumps as the terms of reference had required full utilisation of the transport system whereas the design was done on the basis of a realistic assessment of the demand for the following ten years. Similarly, a 3-ton crane was installed as opposed to the 8-ton unit recommended. The repair of the North Wall pump station structure and installation of the pumps was scheduled for the 1995/96 financial year and has been completed. At the south wall the power connection from the grid and the construction of a secure swithgear structure have also

been completed. However, certain work at the sluices has not been completed to date. An extensive Environmental study of the impacts of the future utilisation of the Olushandja Dam is in the final draft report stage and requires submission to the Department for discussion and approval.

CALUEQUE DAM

When the budget for 1995/96 was authorised, the procedures for the works at Calueque dam were set in motion.

STANDBY PUMP

The first was a request for a budget price from the sole agents (NEC Engineering Sales and Services) for the standby pump. This was received after some months and the Dutch Government was then approached for a waiver from their recommended procurement procedures to allow a negotiated contract. Approval was received in January when lack of response was followed up and Tender Board approval was subsequently sought and granted. Because of the time which had lapsed NEC were requested to submit a revised quotation which was received after some three months. The quotation, submitted according to a detailed contract and specification which had been drawn up by the Department, was within the budget and the contract concluded by a letter of appointment in May 1996.

MOTORS AND ELECTRICAL WORKS

During the latter part of 1995 The Netherlands was approached for approval to appoint Emcon as consultants for the electrical works for the project. Approval was duly granted and Emcon appointed to procure the motors, swithgear and power supply and supervise the electrical installation. Tenders for the motors were issued according to DGIS Limited International Bidding procedures and an award was made to Siemens. Delivery is scheduled for November 1996. As a result of numerous difficulties experienced with the control console, which would be replaced with the installation of the new switch boards, this item was also procured by standard Namibian tender procedures and is due for installation in August. The new console has been designed to cater for the existing as well as the new motors which require virtually identical protection and instrumentation, but also provides additional facilities for future linking to a telemetry system.

CALUEQUE DAM STRUCTURE

On the basis of the planning report estimates, Lund Consulting Engineers were appointed to issue tenders for the Hydraulic steel and structural works for the Calueque dam in October 1995. The appointment was done in terms of ACE Model Form 1 for the design, tender and construction stages. The fee estimate was within the limit of Dfl 150000 recommended by the DGIS for direct contracting and Lund Consulting Engineers have an association with the original consultants for the project giving them access to all engineering information necessary for the execution of the work.

All works on the Kunene River are subject to discussion within and approval by the Permanent Joint Technical Commission (PJTC) on the Kunene Basin between Angola and Namibia. After approval was obtained from the PJTC during the November 1995 meeting in Luanda to proceed with the work on the dam, pre-qualification documents were issued internationally for the hydraulic steelworks. This action resulted in a protest from the Angolan authorities which was subsequently clarified at the next meeting in May 1996. After that meeting, both the hydraulic steelwork and civil tenders were issued, the former to the pre-selected tenderers and the latter by international advertising. A site meeting was arranged and successfully held in June and numerous issues of concern to potential contractors clarified. In the last week of June a communication was received from the Angolan PJTC that certain of the procedures of the 1969 agreement should be followed. The relevant procedures under clause 4.2.6 of the 1969 Agreement require the following:

- i the contract documents and drawings are provided to the Angolan authorities for examination and adaptation for Angolan law,
- ii the edited documents are returned, corrected and translated into Portuguese,
- iii the tenders are advertised internationally and must be submitted concurrently in Angola and Namibia,
- iv the Angolan authorities make comments and recommendations to the Namibian authorities regarding the award of the contracts and
- v the final decision regarding award is made by the Namibian authorities after consultation with the Angolan counterparts.

The consultants were immediately instructed to arrange for the translation of the documents into Portuguese.

In the light of the scope of the original contracts, which today would be worth some N\$ 300 million, these procedures are warranted and real international competition could be expected. However, as the extent of the work to be done is very limited, presently estimated at N\$ 12 million divided between two contracts, these procedures were not considered necessary and no instructions given that they should be followed. Translation and approval by Angola could be completed by the end of August. Allowing a further 6 weeks for tendering and then 4 weeks for adjudication and approval, the earliest possible date for award is mid-November 1996

This will probably have problematic implications for the grant aid from the Netherlands as funds cannot be expended before December 1996. It would be impractical to require the contractor to commence with the work in November because the water levels in the river will be rising and remain high until May-July 1997. This expenditure can therefore only be disbursed during the 1997/98 financial year.

The present delay on the Calueque dam structure components of this project thus presents two problems which must be dealt with:

- i the expiry of funding from the Netherlands in December 1996 and
- ii the necessity for funds in the 1997/98 financial year.

The components of the project relating to the larger motors and the standby pump are in progress and although the pump will have to be paid in advance to meet the disbursement deadline, this should not pose any problems.

PROJECT EXPENDITURE

The expenditure for the project, past present and future is set out in the table below

ITEM	1994/95	1995/96	1996/97	1997/98
OLUSHANDJA DAM	300000	905000		
CALUEQUE DAM				
SPARE PUMP			1100000	
MOTORS			2100000	
SWITCH GEAR			750000	
CIVIL WORKS				7000000
HYD STEEL WORKS				4500000
	300000	905000	3950000	11500000

The present estimated project cost is thus N\$ 16.655 million excluding consulting fees.

B W Haussler

July 1996

APPENDIX 18

**SUMMARY OF ENVIRONMENT IMPACT ASSESSMENT
OLUSHANDJA DAM PROJECT**

Figure 17

IMPACT SUMMARY TABLE

KEY
 Red = negative effects
 Green = positive effects
 Blue = unknown effect (scenario dependent)
 Dark green = No significant change/effect

WATER MANAGEMENT SCENARIOS

ISSUE	Dead storage level	Filling of dam slowly and retention of water at full capacity (max. change 30cm)	Varying water level (variations still unknown)	Retention of dam at 30 - 40% capacity and implementation of phased reservoir construction
1. SURETY OF WATER SUPPLY	<ul style="list-style-type: none"> Loss of surety of supply Low evaporation losses Alternative storage system would be required 	<ul style="list-style-type: none"> Gradual increase in surety in 2 months High evaporation losses High pumping costs 	<ul style="list-style-type: none"> Unknown - dependent on scenario adopted. 	<ul style="list-style-type: none"> Surety retained at 18 days and gradually improved as reservoirs are constructed. Evaporation losses initially as at present, but decrease over time.
2. HEALTH & WELL BEING	<ul style="list-style-type: none"> Decreased resource value. Increased pressure on remaining resource = decreased availability Possible decline in occurrence of bilharzia (highly dependent on effectiveness of mitigation). 	<ul style="list-style-type: none"> Increased habitat for disease bearing vectors. Higher incidence of water related disease. Mitigation more difficult. Retention of resource value of dam. 	<ul style="list-style-type: none"> Well timed and planned draw downs could help with plant, and therefore bilharzia snail control Draw downs could have flushing effect temporarily improving water quality & therefore health Resource value of dam could decline (dependent on strategy adopted) 	<ul style="list-style-type: none"> Retention of resource value of dam Gradual decline in bilharzia and gastro-intestinal diseases (if mitigation effectively applied).
3. FISHING ACTIVITIES	<ul style="list-style-type: none"> Decreased fish population - lower socio-economic benefits. 	<ul style="list-style-type: none"> Surge (short term) in fish production and then stabilisation of population if resource well managed Possibility of introduction of alien <i>O. mossambicus</i> 	<ul style="list-style-type: none"> Dependent on scenario adopted. Breeding could be negatively affected if change too rapid or in wrong season. Possibility of introduction of alien <i>O. mossambicus</i> 	<ul style="list-style-type: none"> Fish resource remains as at present or improves if better managed. Possibility of introduction of alien <i>O. mossambicus</i>
4. WATER QUALITY ACCESSIBILITY & OWNERSHIP	<ul style="list-style-type: none"> Reduced water quality and accessibility. 	<ul style="list-style-type: none"> Initial improvement in quality and then re-establishment of quality similar to present (increasing salinity and nutrient levels) Improved accessibility to water for households on new water level boundary. 	<ul style="list-style-type: none"> Varied water quality and accessibility. Possible creation of a highly impacted zone between lower and upper water levels which could negatively affect water quality (increased erosion - turbidity). 	<ul style="list-style-type: none"> Water quality will remain as is or improve if sanitation programme is implemented Accessibility remains as at present.
5. SETTLEMENT AND HOUSING	<ul style="list-style-type: none"> No change. Some people may move closer to remaining water. 	<ul style="list-style-type: none"> Initial inundation of 30 - 40 homesteads. High resettlement and compensation costs (financial and socio-economic) Re-establishment of new settlement pattern and lifestyle i.e. declining residual effect over time. 	<ul style="list-style-type: none"> High relocation costs Creation of a non-settled area which may become communal grazing (when season and water level permit). 	<ul style="list-style-type: none"> No change (other than from population growth).
6. COMMUNITY ORGANISATION & MOVEMENT	<ul style="list-style-type: none"> No significant change unless people have to move to find alternative water sources. 	<ul style="list-style-type: none"> High impact during inundation period from household relocation process. Re-establishment of new access/organisation patterns over time. Longer walking distance if no bridge/ferry provided. 	<ul style="list-style-type: none"> Changing movement patterns and access routes according to water level. May be disruptive in terms of lifestyle and access to facilities (clinics, schools etc). 	<ul style="list-style-type: none"> No change. Community organisation/movement could be improved if bridge or ferry supplied.
7. SILVIPASTORAL AGRICULTURE	<ul style="list-style-type: none"> Reduced agricultural potential. Epaleka and Eloo gardens negatively affected due to less available and less accessible water. 	<ul style="list-style-type: none"> Initial flooding of homestead and market gardens - lost subsistence and income. Possible greater agricultural potential once relocation achieved Possible increased pressures on agricultural resources in area of relocation. 	<ul style="list-style-type: none"> Loss of agricultural land between low and high water levels, possibly on a permanent basis. Costs/difficulties of providing adaptable water pumping and irrigation facilities (to cope with varying water level) may negatively affect viability of market gardens. 	<ul style="list-style-type: none"> No significant change. Is potential for improving market gardening, particularly once reservoirs are installed.
8. OTHER SUBSISTENCE AND ECONOMIC ACTIVITIES	<ul style="list-style-type: none"> The potential to cultivate the rice related plant and breed the edible snail would be reduced or lost. 	<ul style="list-style-type: none"> The potential for resource development (rice plant, snail) would be maximised. 	<ul style="list-style-type: none"> Unknown - dependent on strategy, but it is likely that a changing environment is less likely to support development of plant and snail resources. 	<ul style="list-style-type: none"> Potential to develop the rice plant and snail resources is retained.
9. AQUATIC AND TERRESTRIAL FLORA	<ul style="list-style-type: none"> Decline in Aquatic flora - lost ecological & resource value. Seasonal regrowth of fringe vegetation = possible grazing benefit. 	<ul style="list-style-type: none"> Spread of Aquatic plants - increased ecological benefit. Inundation of fringe vegetation - lost grazing. Potential for flooding protected <i>Woodia</i> spp 	<ul style="list-style-type: none"> Aquatic and terrestrial flora will periodically die back and then reestablish themselves according to flooding regime - potential loss of ecological and resource value. 	<ul style="list-style-type: none"> No significant change.
10. FAUNA	<ul style="list-style-type: none"> Decline in fish population. Possible decline in ecological, biodiversity and resource value of dam. 	<ul style="list-style-type: none"> Maintenance and possible optimisation of faunal resource and conservation value 	<ul style="list-style-type: none"> Unknown - dependent on scenario adopted. Could be negative effects on fauna if fluctuations too rapid or extreme. 	<ul style="list-style-type: none"> No significant change. Improved management and conservation could bring ecological and resource value.

SIA in EIA report

* Positive impacts of high significance are shaded light grey; Negative impacts of high significance are shaded dark grey

Interest Group	Impact Statement	Scenario 1 Present Level	Scenario 2 Fluctuating Water Levels	Scenario 3 No Dam Scenario
		30% Capacity (1104 m.a.s.l)	Between Full Capacity (1106 m.a.s.l) and Dead Storage Level (1103,7 m.a.s.l)	No Dam
Eiao and Epalela market gardens; 30 households that will be inundated; residents and fishermen of Epalela; people living in areas in which people resettle.	IMPACT 1: The various management scenarios could affect the local settlement patterns and may also have an influence on the sub-regional settlement distribution (as a result of people relocating due to a rise in the water level or due to the decommissioning of the dam).	No impact	At full capacity: <i>Without mitigation:</i> MODERATE negative Relocation could result in increased settlement density and pressure on resources. <i>With mitigation:</i> LOW negative Mitigation could curb the impacts associated with an increase in settlement density.	<i>Without mitigation:</i> HIGH negative Could result in the disintegration of Epalela township due to the loss of fishing activities. <i>With mitigation:</i> MODERATE negative Establishment of new opportunities would take time to implement and it is uncertain whether these will be acceptable to the fishermen.
DWA; 30 households that will be inundated; market gardens; communities that buy produce grown by the market gardens.	IMPACT 2: If the dam was filled to its full capacity it would result in the inundation of 30 homesteads and the Epalela and Eiao market gardens.	No impact	Full capacity: <i>Without mitigation:</i> HIGH negative Relocation and relocation could affect the overall well-being of people. <i>With mitigation:</i> MODERATE to HIGH negative Residual impacts related to relocation likely to occur despite mitigation	No impact
Fisherman who fish for income generating purposes; households who fish for subsistence purposes; people who buy fish from the fishermen at local and regional settlements.	IMPACT 3: A decline in the fish resources of the dam will have a negative effect on the fishing activities associated with the dam, which may in turn alter the economic profile of the area.	<i>Without optimisation:</i> MODERATE positive No negative effects on fish; provides a source of food and income. <i>With optimisation:</i> HIGH positive Benefits to fisherman would be maximised; fishing carried out on a sustainable basis.	Full Capacity <i>Without optimisation:</i> MODERATE positive No negative effects on fish; provides a source of food and income. <i>With optimisation:</i> HIGH positive Benefits would be maximised; fishing carried out on a sustainable basis. Dead Storage Level <i>Without mitigation:</i> MODERATE to HIGH negative Impact of dead storage level on fish resources is uncertain. <i>With mitigation:</i> Uncertain Further investigation required.	<i>Without mitigation:</i> HIGH negative Loss of a source of income and food; will affect the overall well-being of people who are dependant on fishing. <i>With mitigation:</i> MODERATE negative Ensure the provision of alternative protein sources in stores; loss of a free food source.
People employed at Epalela and Eiao; local and regional communities who buy produce grown by the gardens	IMPACT 4: The Eiao and Epalela market gardens, which are situated on the immediate banks of the dam, are directly dependant on the dam for irrigation. A rise in the water level will result in the inundation of the gardens while the decommissioning of the dam could affect their access to water.	<i>Without optimisation:</i> HIGH positive Employment opportunities; provision of fresh produce locally and regionally. <i>With Optimisation:</i> HIGH positive As above	Full capacity: <i>Without mitigation:</i> HIGH negative Inundation; loss of food source; loss of employment opportunities. <i>With mitigation:</i> MODERATE negative Mitigation could reduce severity of impacts but financially costly for DWA. Dead Storage Level <i>Without mitigation:</i> MODERATE negative Short/medium-term impact on production and income generation. <i>With mitigation:</i> LOW negative Impacts can be allayed through mitigation.	<i>Without mitigation:</i> HIGH negative Loss of jobs; loss of a food source. <i>With mitigation:</i> Uncertain Feasibility of mitigatory measures is not certain.
30 households where agricultural land would be inundated.	IMPACT 5: A rise in the water level of the dam will result in the inundation of productive land used for subsistence agriculture	No impact	Full capacity: <i>Without mitigation:</i> HIGH negative Impact on primary subsistence crop. <i>With mitigation:</i> MODERATE to LOW negative Mitigation would reduce the severity of impacts	No impact
People who utilise the dam.	IMPACT 6: The decommissioning of the dam may result in the loss of the <i>Pila occidentalis</i> species (freshwater snails), which would eliminate a potential economic and subsistence opportunity.	<i>Without optimisation:</i> LOW positive Potential economic and subsistence opportunity but limited distribution of the species. <i>With Optimisation:</i> UNCERTAIN Further investigation into the potential of the species is required.	<i>Without optimisation:</i> LOW positive Potential economic and subsistence opportunity but limited distribution of the species. <i>With Optimisation:</i> UNCERTAIN Further investigation into the potential of the species is required.	<i>Without mitigation:</i> LOW negative Possible loss of species but impact is not certain. <i>With mitigation:</i> UNCERTAIN Further investigation into the possible impacts of decommissioning on the species is required.
Local people who are dependant on the economic opportunities presented by the dam; non-local labour.	IMPACT 7: The economic opportunities associated with the dam may result in the influx of non-local labour. This may have associated social effects such as competition for economic opportunities and conflicts between the local population and the non-local labour.	<i>Without mitigation:</i> MODERATE negative Potential to hinder local interests. <i>With mitigation:</i> LOW negative Management and control of an influx of non-locals would prevent associated impacts.	<i>Without mitigation:</i> MODERATE negative Potential to hinder local interests. <i>With mitigation:</i> LOW negative Management and control of an influx of non-locals would prevent associated impacts.	No impact

Table 2 (cont)

Interest Group	Impact Statement	Scenario 1 Present Level	Scenario 2 Fluctuating Water Levels	Scenario 3 No Dam Scenario
People in Zones A and B who own livestock	IMPACT 8: A change in the level of the dam may impact on the grazing land adjacent to the dam.	No impact	<i>Without mitigation:</i> MODERATE negative Potentially long-term effect on the grazing resources found in Zones A and B due to a inundation of grazing land around the dam and overgrazing of alternative resources. <i>With mitigation:</i> UNCERTAIN Mitigatory measures should be investigated.	<i>Without optimisation:</i> LOW to MODERATE positive Potential increase in grazing but impact is not certain. <i>With Optimisation:</i> UNCERTAIN Further investigation into the re-establishment of grazing is required
Households who utilise the dam for drinking, household and livestock purposes; health services in the area	IMPACT 9: Various freshwater snails are found in the dam. The management scenarios may affect the distribution of the freshwater snails, which will have an associated impact on the incidence of snail-borne diseases such as bilharzia in humans and liverfluke in cattle.	<i>Without mitigation:</i> HIGH negative Affects health and overall well-being of people. <i>With mitigation:</i> MODERATE negative Mitigation could decrease the distribution of snails and help to prevent the contraction of disease.	<i>Without mitigation:</i> HIGH negative Affects health and overall well-being of people. <i>With mitigation:</i> MODERATE negative Mitigation could decrease the distribution of snails and help to prevent the contraction of disease.	No impact
People who are dependant on the dam for drinking water, health services in the area.	IMPACT 10: The poor quality water in Ohushandja Dam has a negative impact on the health of the people who drink the water, causing diseases such as diarrhoea and gastritis.	<i>Without mitigation:</i> HIGH negative Affects health and overall well-being of people. <i>With mitigation:</i> LOW negative Mitigation would contribute to the reduction and prevention of disease.	<i>Without mitigation:</i> HIGH negative Affects health and overall well-being of people. <i>With mitigation:</i> LOW negative Mitigation would contribute to the reduction and prevention of disease.	No impact
Households who require access to the other side of the dam, but particularly households on the eastern side of the dam.	IMPACT 11: The presence of the dam obstructs access to community services and facilities.	<i>Without mitigation:</i> HIGH negative Affects access to services; potential safety hazard (people wading through the dam). <i>With mitigation:</i> MODERATE to LOW negative Mitigation would ensure better access but may take place over medium- to long-term.	<i>Without mitigation:</i> HIGH negative Affects access to services; potential safety hazard (people wading through the dam). <i>With mitigation:</i> MODERATE to LOW negative Mitigation would ensure better access but may take place over medium- to long-term.	No impact
People who have family or friends on the opposite side of the dam; communities on opposite sides of the dam.	IMPACT 12: The presence of the dam interferes with inter- and intra-community contact.	<i>Without mitigation:</i> HIGH negative Affects access; potential safety hazard (people wading through the dam). <i>With mitigation:</i> MODERATE to LOW negative Mitigation would ensure better access but may take place over medium- to long-term.	<i>Without mitigation:</i> HIGH negative Affects access; potential safety hazard (people wading through the dam). <i>With mitigation:</i> MODERATE to LOW negative Mitigation would ensure better access but may take place over medium- to long-term.	No impact
Health services in the study area; people who depend on these health services.	IMPACT 13: The incidence of water related diseases associated with the dam puts pressure on the health services in the area who have to attend to these problems.	<i>Without mitigation:</i> MODERATE negative Potential pressure on health services; potential to affect public health. <i>With mitigation:</i> LOW negative With mitigation the impacts can be successfully curbed.	<i>Without mitigation:</i> MODERATE negative Potential pressure on health services; potential to affect public health. <i>With mitigation:</i> LOW negative With mitigation the impacts can be successfully curbed.	No impact
DWA; regional users of the water supply network; Etunda Irrigation Project	IMPACT 14: The various management scenarios will provide different degrees of surety of water supply to the regions of northern Namibia.	<i>Without optimisation:</i> MODERATE to HIGH positive Provides a measure of surety, but does not optimise surety of supply. <i>No optimisation:</i> This scenario does not include raising the level of the dam.	<i>Without optimisation:</i> HIGH positive Optimises the surety of supply. <i>With optimisation:</i> Surety is optimised.	<i>Without mitigation:</i> HIGH negative Falls to ensure a security of supply. <i>With mitigation:</i> MODERATE negative Mitigation would improve surety of supply but it would not be optimised.
71 households and market gardens located below the recommended limit of settlement; people who utilise the dam, future Water Conservation, DWA.	IMPACT 15: The proposed commercialisation of the bulk water supply function may have a negative impact on people's land rights and rights to water use	<i>Without mitigation:</i> HIGH negative Uncertain impact; potentially affect overall well-being of people. <i>With mitigation:</i> UNCERTAIN Actions and associated impacts of commercialisation are uncertain and should be established.	<i>Without mitigation:</i> HIGH negative Uncertain impact; potentially affect overall well-being of people. <i>With mitigation:</i> UNCERTAIN Actions and associated impacts of commercialisation are uncertain and should be established.	<i>Without mitigation:</i> HIGH negative Uncertain impact; potentially affect overall well-being of people. <i>With mitigation:</i> UNCERTAIN Actions and associated impacts of commercialisation are uncertain and should be established.
DWA, SWAWEK.	IMPACT 16: The rate of evaporation from the dam decreases its overall efficiency	<i>Without mitigation:</i> HIGH negative Low efficiency. <i>With mitigation:</i> HIGH negative Mitigation would be financially costly for DWA and reduce the chance of it being implemented.	Full Capacity <i>Without mitigation:</i> HIGH negative Very low efficiency. <i>No mitigation.</i>	No impact
Department of Nature Conservation, DWA; people who utilise the dam who may be affected by the establishment of co-servancies	IMPACT 17: Changing the water level or decommissioning the dam could result, respectively, in a decline or a loss of natural resources of conservation value.	<i>Without optimisation:</i> LOW to MODERATE positive Resources are not negatively affected; potential to conserve resources. <i>With optimisation:</i> HIGH positive Protection of resources; environmental education	<i>Without optimisation:</i> LOW positive Resources would not be affected with the exception of a certain Hoodin species; potential to conserve resources. <i>With optimisation:</i> MODERATE positive Protection of resources; environmental education; costs associated with transplanting Hoodin species	<i>Without mitigation:</i> MODERATE to HIGH negative Loss of resources; opportunity to conserve resources would be lost. <i>No mitigation</i>

Table 3: Summary Table of Interested and Affected Parties

Interested or Affected Party	Description of the Party	Issues and Concerns
<i>Department of Water Affairs (DWA)</i>	The bulk water supply division of DWA is the proponent of the upgrading project. The aim of upgrading the Olushandja Dam is to improve surety of water supply to the regional water networks.	<ul style="list-style-type: none"> • Directly concerned with all aspects of the project. • DWA's particular interest is to improve the surety of water supply to the regions of northern Namibia.
<i>30 Households located within the full capacity level of the dam</i>	These homesteads (dwelling and the agricultural field) are located either partially or completely within the level of full capacity level (1106 m.a.s.l.).	<ul style="list-style-type: none"> • A rise in the water level would partially or completely inundate these homesteads. • These households would have to be relocated and/or compensated.
<i>Elao and Epalela market gardens</i>	These gardens grow fresh produce which is sold in the local settlements and in some of the regional centres. The gardens are situated on the immediate banks of the dam and are entirely dependant on the dam for water to irrigate their crops.	<ul style="list-style-type: none"> • A rise in the water level would result in the inundation of the gardens. • A decrease in the water level or the decommissioning of the dam, would affect their access to water.
<i>Households who utilise the dam for drinking, household and livestock purposes</i>	These households are situated primarily in Zones A but also in Zones B and C on the eastern side of the dam. (Refer to Fig. 3).	<ul style="list-style-type: none"> • The poor quality water in the dam negatively affects the health of these people. • If the dam is decommissioned they would lose their primary source of water.
<i>People who are dependant on the dam for fishing</i>	People fish for subsistence and income generating purposes. The fisherman residing at Epalela township are generally involved in commercial fishing while the households are involved in subsistence fishing.	<ul style="list-style-type: none"> • Changes in the water level may affect the fish populations, which would affect peoples' fishing activities. • Decommissioning of the dam would result in the loss of a food source and the loss of a source of income.
<i>Local and regional communities affected by impacts on the market gardens and fishing activities</i>	Local communities obtain fish and fresh produce from Eunda, Onesi and Epalela. Regional communities buy their fresh produce at Oshakati, Ruacana, Ondangwa, Ombalantu and Tsandi.	<ul style="list-style-type: none"> • A decline in supplies and fresh produce to these centres will result in a decrease/loss of a food source to the people who buy these supplies.
<i>People who require access to the opposite side of the dam</i>	People living on both sides of the dam, but particularly those who do not live close to the access points (north and south walls) and those the people living on the eastern side of the dam (facilities and services are limited).	<ul style="list-style-type: none"> • The dam obstructs access to facilities and services provided at Eunda and Onesi. • Interaction between family and friends living on opposite sides of the dam is constrained.
<i>Regional users of the bulk water supply system</i>	People utilising the water from the Etaka and Olushandja-Ogongo canal networks for domestic consumption and livestock watering.	<ul style="list-style-type: none"> • The regional users are dependant on a surety of water supply in the bulk water supply network. • Changes in the operation of Olushandja Dam may have associated implications for the bulk water supply network, and thus for the users of this network.
<i>Health services in the area</i>	There are four day clinics in the study area namely the Mahanene, Eunda, Onesi and Oshaala clinics.	<ul style="list-style-type: none"> • These clinics have to attend to the water related diseases associated with Olushandja Dam. • An increase in the incidence of disease may put added pressure on the clinics.
<i>Eunda Irrigation Project</i>	Eunda is a large scale agricultural project which is dependant on the bulk water supply system for irrigation purposes.	<ul style="list-style-type: none"> • In time, the project will utilise up to 2m³/s (from the total of 6m³/s abstracted from Calueque). This may have implications for water supply in the bulk water supply network. • Eunda would benefit from an increase in the surety of supply offered by Olushandja Dam.
<i>Department of Nature Conservation</i>	The Department of Nature Conservation is housed within the Ministry of Environment and Tourism.	<ul style="list-style-type: none"> • Nature Conservations' interest is the protection and management of the birdlife found at Olushandja Dam.
<i>SWAWEK (South West African Water and Electric Corporation)</i>	SWAWEK is legally responsible for the operation of the Calueque Dam.	<ul style="list-style-type: none"> • SWAWEK argues that both the Calueque and Olushandja Dams are inefficient because of the great evaporation losses. • SWAWEK feels that the water would be better used for the purposes of generating electricity.

SIA