

REPORT SNO 3790-98

**Water Resource Action
Plan - WRAP Zambia**

Mission Report, October 1997

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Abstract

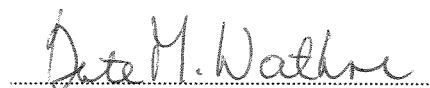
The proposed Water Resources Action Plan (WRAP) for Zambia was initiated by the Government of the Republic of Zambia (GRZ) by a request to the World Bank February 1997 to discuss possible support in the development of the nation's water resources management (WRM) capacity. The WRAP sets out to develop and implement strategies for national and local water resources management, at the same time building awareness and capacity across society. A basis for co-operation was formed during the initial World Bank - NORAD mission to Zambia April 12 to 23, 1997. A draft WRAP proposal was subsequently prepared by GRZ, and served as a basis for a second joint preparatory mission to Zambia October 20 to 31, 1997.

This Mission Report is a summary of findings and agreed follow-up actions after the last visit to Zambia. The report addresses some additional key issues and provides some supplementary assessment specifically called for by NORAD. In conclusion, the mission was pleased with Government's interest and commitment, and with the progress made by Government since the first mission. Funding to launch the process is secured and there is significant interest in full-scale funding of the program. However, the mission identified some potential constraints which might hamper the progress and achievements of the WRAP, such as resource limitations and current lack of cooperation between institutions dealing with WRM. The report discusses opportunities to cope with the bottlenecks.

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O-97204

WATER RESOURCE ACTION PLAN - ZAMBIA

**Preparatory Mission to Zambia
October 20 - 31, 1997**

Mission Report to NORAD

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Summary

The proposed Water Resources Action Plan (WRAP) for Zambia was initiated by the Government of the Republic of Zambia (GRZ) by a request to the World Bank February 1997 to discuss possible support in the development of the nation's water resources management (WRM) capacity. The WRAP sets out to develop and implement strategies for national and local water resources management, at the same time building awareness and capacity across society. A basis for co-operation was formed during the initial World Bank - NORAD mission to Zambia April 12 to 23, 1997. A draft WRAP proposal was subsequently prepared by GRZ, and served as a basis for a second joint preparatory mission to Zambia October 20 to 31, 1997.

This Mission Report is a summary of findings and agreed follow-up actions in connection with the April 97 mission to Zambia. The report addresses some additional key issues and provides some supplementary assessment specifically called for by NORAD. In conclusion, the mission was pleased with Government's interest and commitment, and with the progress made by Government since the first mission. Funding to launch the process is secured and there is significant interest in full-scale funding of the program. However, the mission identified some potential constraints which might hamper the progress and achievements of the WRAP, such as resource limitations and current lack of co-operation between institutions dealing with WRM. The report discusses opportunities to cope with the bottlenecks.

This document is a mission report prepared in response to the Terms of Reference for T. Damhaug's participation in the joint World Bank - NORAD WRAP mission to Zambia October 20 to 31, 1997. The report gives the writer's own perception and assessment of water sector issues related to the proposed Water Resources Action Program in Zambia. The statements and recommendations made herein do not necessarily reflect the opinion of the Government of Zambia nor those of NORAD or the World Bank.

ABBREVIATIONS

DWA	Department of Water Affairs
ECZ	Environmental Council of Zambia
ESP	Environmental Support Program
NEAP	National Environmental Action Plan
SSA	Sub-Saharan Africa
ZESCO	Zambia Electricity Supply Corporation
WRAP	Water Resources Action Plan
ZCCM	Zambia Consolidated Copper Mines
RCCC	River Catchment Conservation Committee
TF	Trust Fund
MEWD	Ministry of Energy and Water Development
MENR	Ministry of Environment and Natural Resources
MLGH	Ministry of Local Government and Housing
URWSP	Urban Restructuring and Water Supply Project

1. Introduction

A World Bank - NORAD Water Resource Action Plan (WRAP) mission visited Zambia in the period October 20 to 31, 1997. The World Bank Team comprised John Shepherd (Senior Water Resources Management Specialist/Team Leader, World Bank), Senai Alemu (World Bank Consultant on International Waters), and Ashok Subramanian (Senior Institutions Specialist, World Bank). Torbjorn Damhaug (Water Resources Management Engineer) from NIVA was funded by NORAD as a participant of the joint mission.

The overall objective of the mission was to work with the Ministry of Energy and Water Development (MEWD), and in liaison with other agencies and like-minded donors, on the further development of the proposed Water Resources Action Plan (WRAP), and to help put in place financing for it. The World Bank's Terms of Reference for the mission are attached as Appendix 1. The mission's Aide Memoire, which was reviewed and agreed in the wrap-up meeting with the Permanent Secretary (PS) for Energy and Water Development is attached as Appendix 2. This attachment also include the list of people met.

In addition to his role as a World Bank team member, the NORAD funded consultant was given the task of providing support to the Royal Norwegian Embassy, Lusaka including the following tasks and anticipated output:

Activities and focal points

1. consultations with relevant Zambian authorities, the joint World Bank mission team, and the Norwegian Embassy, Lusaka;
2. review of the draft proposal including objectives, phases, and work programme, and agree on a final version of the document;
3. review and guidance on budget for the WRAP process;
4. agree on an immediate action plan and the mode of financing;
5. promote a clear division of roles and responsibilities between the World Bank and other donors in the project development process;
6. promote a participatory process under Zambian initiative and leadership;
7. promote linkages between WRAP and other relevant national projects;
8. advise NORAD on the content and the financing of the project.

Expected Output

- ◇ Preparation of relevant documents (comments on the draft proposal, memos, input to the Aide Memoir etc.);
- ◇ Brief description of the mission, assessing the outputs with special emphasis on:
 - ⇒ participatory approach of the proposed process (WRAP) including considered methodologies, if relevant;
 - ⇒ co-operating aspects of the WRAP and relevant linkages to other projects.

The complete Terms of Reference for the above assignment is attached as Appendix 3. As part of the preparation of this assignment, Mr. Damhaug met with representatives of NORAD Oslo, SFT and NIVA, and was in contact with the Norwegian Embassy in Lusaka. This Mission Report highlights some additional key issues and provides some supplementary assessment as called for in the above Terms of Reference.

2. Review of the Draft WRAP Proposal

2.1 Areas of Activity

The MEWD and the mission agreed that the revised WRAP will maintain the following three broad areas of activity:

- ◇ an assessment of the water resources sector.
- ◇ strategy development; and
- ◇ development and implementation of detailed action plans for priority issues, including some pilot activities adopting the policies and strategies developed through the WRAP and endorsed by Government.

Special emphasis will be placed on a WRAP process with broad stakeholder participation including a program of public consultation and awareness raising.

It was recognised that the water resources sector assessment and strategy development be implemented in parallel as an interactive process. It was also agreed that the pilot project should start towards the end of the strategy development activity. The inter-linkages between the seven key elements of the WRAP and the three areas of activity are illustrated in the figure on the next page.

The mission discussed at length the contents of the various sections of the draft WRAP proposal, and a marked-up copy was given to the WRAP team for their consideration at the end of the mission.

WRAP STRATEGY DEVELOPMENT



Figure 1. WRAP Strategic Elements

2.2 Revised Budget

As a basis for further elaboration, the mission and the WRAP team prepared a draft budgetary framework attached in Appendix 7. The WRAP team will revise and finish the budget in conjunction with the revised proposal to be submitted to NORAD. The issue of remuneration or incentives for Zambian staff involved in the WRAP was raised by DWA during the mission. It was agreed that this question should be discussed with the PS and MEWD/DWA will make a proposal to WB/NORAD.

The earlier proposed funding arrangement for the first phase would need the US\$ 250,000 to be transferred via the World Bank's Trust Fund administration system, and it would require an Administration Agreement between NORAD, GRZ, and the World Bank. The Norwegian Embassy suggested to explore the possibilities for a more streamlined funding arrangement by means of bi-lateral funding directly to the MEWD-WRAP.

The final WRAP proposal will include a budget and a description of which components the first release of funds are going to cover. The formal request for transfer of funds will include particulars about the designated bank account, signatories, auditing arrangements, and procedures for progress and financial reporting. In addition, the request for funding of the second stage (less than US\$ 2 million) is scheduled in March 1998. The process of formalisation between Norway and the Ministry of Finance will need more than three months, so the second portion would tentatively be activated in the second half of 1998.

2.3 Time Schedule

It was agreed that The final WRAP proposal has to incorporate a revised time schedule reflecting main activities and milestones. A tentatively agreed time schedule is shown on the next page. Employment of WRAP co-ordinator and start-up of the program is scheduled to take place by the end of December 1997.

WRAP - PROPOSED TIME SCHEDULE	1997	19 98	19 99	20 00
22-okt-97				
Preparation and Supervision Missions	**	**	**	**
Mobilisation of funding	*****			
Project Management and Co-ordination				
Co-ordinating Team (CT)		*****	*****	*****
WRAP Co-ordinator		*****	*****	*****
Technical Task Team (WRAP TT)		*****	*****	*****
Public Awareness & Stakeholder Involvement Prog.		*****	*****	*****
Workshops, Training and Stakeholder Particip.				
High Level Workshop	**			
National Workshop incl. Stakeholders		***		
Donor Workshops		**	**	**
Study Tours		*****	*****	
Training Activities		***	*****	
I. Water Resources Sector Assessment				
1. Institutional and Legal Framework		*****	*	
2. Information		*****	**	
3. Human Resources Development		****	*****	
4. Water Resources Demand, Supply and Infrastr.		*****	*****	
5. Economics and Financing		*****	*	
6. Water and Environment		*****	**	
7. International Waters		*****	****	
II. Strategy Development		*****	*****	*****
III. Kafue Basin Pilot Project			*****	*****
IV. Mobilization for WRM Implementation				*****

3. Participatory Approach of the WRAP Process

3.1 Objectives

A key point in the TOR for the NORAD funded mission member is to promote a participatory approach under Zambian initiative and leadership, since stakeholder participation is essential for the success of integrated water resource management. Therefore, the identification and meaningful participation of stakeholders in water resources decisions poses a special capacity-building challenge in the WRAP process. In response to this challenge, the WRAP will include a stakeholder analysis based on various groups of water use or interests. The analysis will include identifying all stakeholder groups, identifying competing stakes and interests at various levels, identifying the management functions relevant for stakeholder participation, and develop effective mechanisms to conduct dialogue with and mediate among stakeholders. mechanisms help each stakeholder group gain the confidence. Of particular importance is the need to involve women as significant actors and stakeholders in water resources management. It is also the intention that the stakeholders will be linked to the WRAP process at the management level through broad stakeholder representation in the WRAP Co-ordinating team, and at the working level through participation in the respective Sub-Task-Teams. Moreover, the action plan Water Resources Management Strategy - and the setting the setting of national priorities - is also supposed to occur with the involvement of all major stakeholders at the earliest stages of planning and implementation of the WRAP.

3.2 Institutional Framework

The different actors in the broad institutional WRM framework are mentioned and discussed in Appendix 6. The challenge for the WRAP is to promote an operative institutional framework for integrated water resource management, divided into an appropriate institutional and sub-catchment structure. Basically the WRAP should build on the existing and evolving network of catchment conservation committees, water committees promoted by the Water Board and the Ministry of Environment and Natural Resources. The network should be expanded as and when needed and driven by the communities and stakeholders themselves. The figure overleaf is a simple illustration of the existing framework for water resource management.

WRM Framework

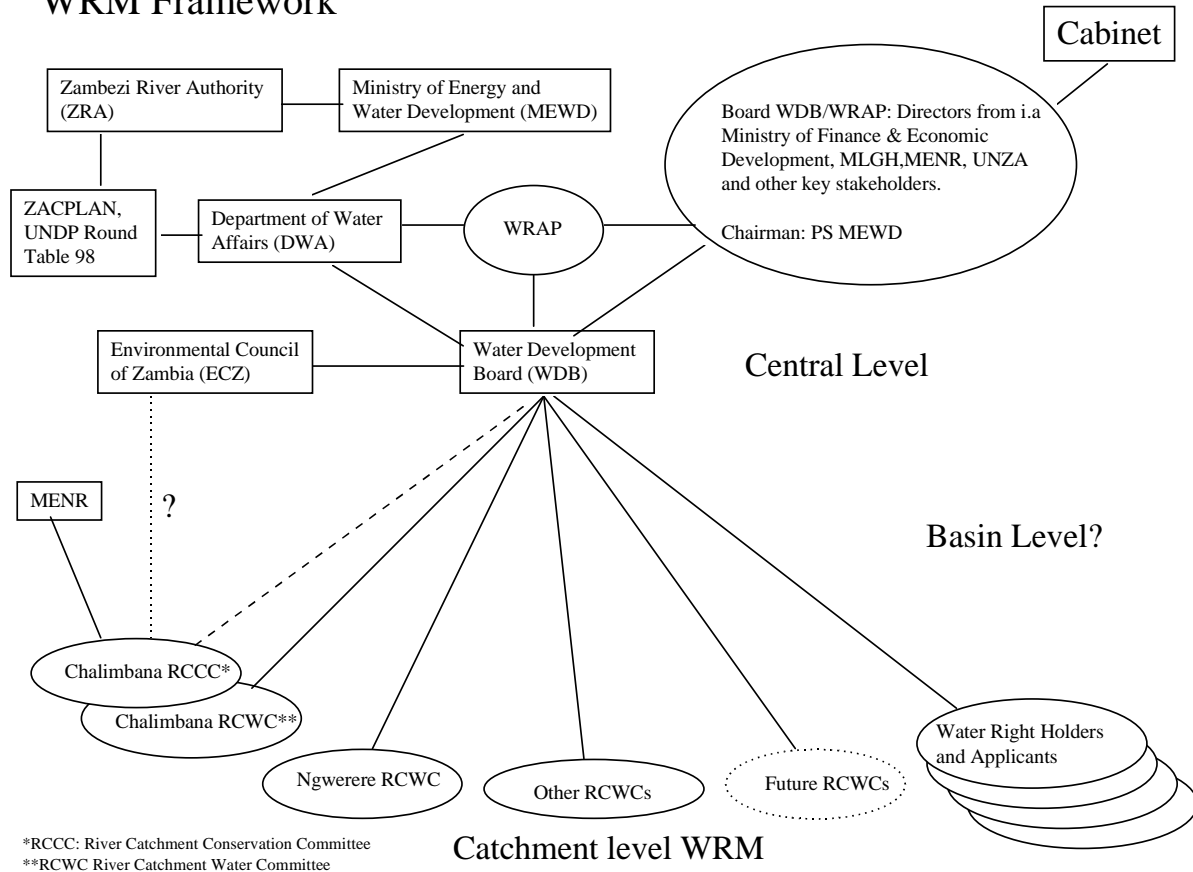


Figure 2. WRM Elements of the Institutional Framework

3.3 Constraints

Although the mission noted the dedication of the PS (MEWD) and the WRAP team in ensuring Zambian ownership and stakeholder involvement, it is necessary to consider potential risks that the project will not achieve the planned sustainability. This section is a summary of points made by people met during the mission, supplemented by some own reflections.

- ◇ Inter-ministerial co-ordination and stakeholder commitment to the WRAP might become more time consuming than anticipated, given the long term process of raising awareness among all parties. Like other SSA countries Zambia does not have a long history of stakeholder participation in water resources management.
- ◇ Attention should be paid to the tuning of the project targets if they turn out not to be feasible considering the limited domestic capacity and tight time schedule for the implementation of the WRAP. A result might be to make the approach more pragmatic and allow longer time for project preparation and implementation.
- ◇ The most important indicator is that there will be results on the ground in terms of participatory activities is actually taking place at central and local level, even if the outcome of these activities are not ideally in accordance with the original plans.
- ◇ DWA staff claimed that the SADCC international river basin co-operation initiatives, including some hydrology projects, are more driven by donors and consultants than by the riparian states themselves. So many studies have been carried out but DWA feels that they are moving nowhere.

This could explain the previously limited Zambian involvement in the international river initiatives.

- ◇ During the preparatory discussions the WRAP team raised the point that it could be a problem to achieve broad participation in the WRAP process unless there are some incentives in place to encourage the co-ordinating and task teams to fully concentrate and give priority to work on the action plan. The team should discuss this issue further in detail and come up with a proposal to the donors.
- ◇ Effective water resource management including human resources development and retention will incur substantial costs and therefore mechanisms for long-term financing of WRM is an important issue to be addressed under the WRAP. There is a risk that the WRM cost recovery process will meet some opposition from the water users and some politicians. The process to explain and build understanding of the need for increasing the water licensing fees and bulk water charges to sustain an efficient WRM might take longer time than planned.
- ◇ The mission noted that so far it has been limited interaction and co-ordination between ECZ and DWA in the field of water resources management. It is also difficult to create the necessary interactive WRAP process between all ministries and departments concerned.
- ◇ Another potential constraint of the WRAP process if the World Bank would not be capable to assure adequate resources and continuity of key project staff to support the program over the next two years. Another aspect that has to be addressed is to secure funding for the remaining parts of the project.

3.4 Opportunities

Many opportunities have already been mentioned in the Initiating Brief and will not be repeated here.

- ◇ Concerning decentralised management of water resources the new structure of river catchment conservation committees poses an important structure for stakeholder participation in integrated water resources and catchment management at local level. The Water Development Board is already engaged in promoting the creation of sub-catchment water and catchment conservation committees. The WRAP will explore opportunities to strengthen recent initiatives towards local community performance and formation of sub-catchment and water committees, and in a systematic way promote similar institutional arrangements in other catchment areas. Utilise the existing and evolving network of catchment conservation committees, water committees etc. Expand as and when needed and driven by the communities themselves. Possible that these could act as advisory groups to executive Water Board functions at basin or regional level.
 - ◇ One good example of local WRM initiatives is the establishment of the Ngwerere River Catchment Water Committee. In this regard, the Water Board has initiated measures to stimulate farmer involvement in local water resources management. The mission met with representatives of this stakeholder driven Water Committee, which is currently handling the distribution of water along a stream fed by rainwater and treated urban wastewater from Lusaka. The Committee was initiated to address problems of water allocation since, over the past ten years, demand had grown far ahead of supply and it was felt that resolving the allocation issue among themselves might be more efficient than approaching the centralised Water Board to arbitrate on water rights. That done, the Committee is presently managing the nearly 15 water abstraction points along the stream, with some of them feeding perimeters used by smallholders. To avoid bias, a medium-sized landholder has been elected as the Chairman. A full-time paid operator is being employed to ensure equitable distribution.
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- ◇ Another example is the Chalimbana River Catchment Conservation Committee, co-ordinated by the Natural Resources Department within the Ministry of Environment and Natural Resources (MENR), and actively assisted by the Water Development Board. The development objective is to ensure the conservation of the environment and sustainable use of natural resources in the Chalimbana River Catchment area. The process is aimed at creation of a Catchment Conservation Plan to be endorsed by the environmental authorities. The committee has previously, with the support of the MENR achieved to have part of the catchment officially declared a protected forest area. When it comes to WRM, the Water Development Board is in the process of forming a Water User Association for the Chalimbana River Catchment similar to the one for the Ngwerere Catchment. The Chalimbana River Catchment would assist the Water Development Board in the monitoring of water use and would compliment the activities of the Chalimbana River Catchment Conservation Committee. An issue which should be addressed during the forthcoming development of the framework of River Catchment Conservation Committees is whether the Environmental Council of Zambia (ECZ) should be the secretariat of this process supported by the Ministry of Environment instead of the ministry being directly involved.
 - ◇ At central level, the MEWD has demonstrated its commitment to improving the WRM, and willingness and ability to take the lead in this process through the preparation of a sound draft proposal and the involvement of key staff during the preparatory process. The PS, MEWD has appointed a team of competent and dedicated key staff members from the Water Board/DWA, led by Cecil Nundwe, to participate in the preparations of a proposal for a WRAP process.
 - ◇ It has been suggested by MEWD/DWA staff that the WRAP should push toward concerted efforts between ZCCM, prominent farmers and involve schools in the rehabilitation of rain gauges and hydrometric stations, and improve collection of meteorological and hydrological data. Moreover, the initiative would include use of PCs for data processing and dissemination. This activity can be started soon since no Cabinet approval is needed for this component.
 - ◇ The fact that all decision makers in the Water Development Board, including the chairman, are proposed as members of the WRAP Co-ordinating team offers an opportunity for a strong integration of the WRAP in the WRM structure in Zambia.
 - ◇ Establishing a Documentation Centre. The various officials and others we met showed a great deal of interest both in institutional questions and in enabling stakeholder participation. As was evident during the discussions, the Department is keen to establish a documentation centre to assist experts and stakeholders working on the WRAP with conceptual notes and international experiences during the course of their work in formulating a water resources strategy. DWA was advised to contact NORAD to explore the possibility of using the NORAD-supported MEWD capacity building project ZAM 061 to assist in setting up a proper library in the DWA.
 - ◇ The WRAP offers opportunities for and co-ordinated with on-going water related sectoral and cross-sectoral programs concerning the environment, such as the NORAD funded institutional and capacity building support to ECZ, assisted by the Norwegian State Pollution Control Authority (SFT). As an immediate action it was suggested that key WRAP team members be invited to participate in the forthcoming Stakeholder Consultative Workshop on the Kafue River in Copperbelt, November 26 to 28, 1997. In response to this need, the Norwegian Embassy in Lusaka has advised the workshop committee to invite a high ranked WRAP team member to participate and give a presentation of WRAP at this event.
 - ◇ Long term: Creation of a National Water forum, political at PS level and a Technical Secretariat for promotion of participatory WRM. DWA to be developed into a small secretariat with mandate to promote WRM at all levels (national, regional, basin, local) with possibilities to draw upon outside expertise/centres of excellence.
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- ◇ Inventory of existing national expertise on the water resources sector, outside the Govt. to support the government in planning and implementation of water sector interventions. Capacity building through centres of excellence with necessary analytical and research skills (economy, law, social science etc.) at universities and academia, foundations or private centres. (The NORAD supported capacity building in Copperbelt represents an opportunity).
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4. Linkages to Other Projects

During the preparatory meetings in Oslo between NORAD, SFT and the consultant it was agreed to establish a summary of the major water resource management projects in Zambia, in order to identify gaps, overlaps and possibilities for enhanced co-ordination and interaction between projects as well as the ministries involved.

The consultant was also requested by NORAD Oslo to examine the progress and current status of the “Rehabilitation and Improvement of the Hydrometric Network”. This issue was discussed with the Hydrological Section, DWA and their advisor WMO, Geneva. It was concluded that the NORAD funded installation of five telemetry based hydrometric stations should be re-designed and re-budgeted. More details about this task are given in the attached Aide Memoire and the fax message to NORAD, Oslo (Appendix 4).

A tentative list of WRM related projects in Zambia are attached as Appendix 5. The list is under preparation and will be supplemented before the next WRAP mission. A summary of projects is given in the table below.

No	Title	Ministry/Client	Funding	Duration	Comments
001	Water Resources Action Plan (WRAP)	MEWD/DWA Water Board	NORAD UNDP WB	1997 - 1999	Umbrella project for WRM capacity building in Zambia
002	Rehabilitation of the Hydrometric Network	MEWD/DWA	NORAD	1994 -	Links to WRAP established during mission
003	Chalimbana River Catchment Awareness Project	MENR Water Board	NORAD	1996	Links to WRAP established through Water Board
004	ZACPRO 6 Development of Integrated WRM for Zambezi River Basin	ZRA	NORAD DANIDA	1994 -	Links to WRAP process are needed
005	SADC Round Table Conference on Integrated Water Resources Development Oct 98	In Zambia: DWA Water Board	UNDP	1997 - 98	Links to WRAP established
006	SADC-HYCOS	SADC-Water	EU	1995 -	Establish links to ZACPRO 6 and WRAP needed
007	National Water Master Plan	MEWD	JICA		No follow-up actions until now. WRAP will link the MP to the WRM strategy
008	Capacity Building in Institutions dealing with Environmental Impact Assessment in SSA	MENR	WB Norway TF	1997 -	Mission to Zambia, Zimbabwe, Mozambique, Tanzania Nov. 97
009	Environmental Support Program (ESP)	MENR	WB Donors		Need link to WRAP
010	Urban Restructuring and Water Supply Project (URWSP)	MLGH	WB NORAD	1995 -	Link to URWSP through the WRAP

					Co-ordinating Team
011	Inventory of Hydraulic Works	MLGH	NORAD?	1996 -	Awaiting requested info. from IC Zambia
012	Water Quality Guidelines and Regulation Project	ECZ	NORAD	1997 -	
013	Industrial Pollution Prevention Program	ECZ	NORAD	1997 -	

5. Immediate Action Plan and Funding

5.1 Sharing of Responsibilities between World Bank and Donors

The World Bank will be the leading funding agency and will provide its own specialists to assist the WRAP project. NORAD and UNDP will be substantial contributors to the funding of the WRAP, and they will be closely involved in the monitoring of the project. The possibilities to get other donors on board will be explored during the course of the initial phase of the project. NORAD and UNDP will receive progress and financial reports and be invited to participate in review missions and major milestone events like seminars and workshops. Key communication will take place in parallel to the World Bank and NORAD with copies to UNDP. It has been agreed that the PS of MEWD will lead the co-ordination of donors involved in the WRAP. He will call together and chair regular meetings of these donors, who will include the World bank, UNDP, NORAD and other donors.

5.2 Funding the WRAP process

The mission followed- up on the possibilities of funding the first year of the WRAP, and it was encouraging to learn that the main donors met NORAD and UNDP confirmed their support to the proposed approach as reported in the attached Aide Memoire. The requested transfer of US\$250,000 from Urban Water Supply and Infrastructure Project (URWSP) under MLGH to WRAP under MEWD has now been approved by MLGH. However, during the mission, Norwegian Embassy, Lusaka also mentioned the possibilities of using a bi-lateral funding arrangement for the US\$250,000 instead of the transfer from the URWSP. NORAD will further explore this option and inform MEWD about the outcome of the above.

Long-term funding of WRM: The long-term financing of water resources management was discussed at length during the two missions as effective WRM will incur substantial costs.

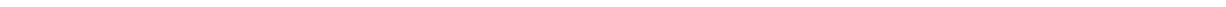
5.3 Next Steps

The agreed next steps in order to formalise and launch the WRAP, are stated in the Aide Memoire. Regarding the submission of a revised WRAP proposal, which was supposed to be finished by mid November 1997. However, MEWD/DWA has informed that due to the fact that the advisory staff of DWA has to deal with the upcoming Zambezi River water abstraction issues¹ some delays will be expected. The Ministry has informed that the WRAP will be given highest priority after they have dealt with this emergency. Informal contact will be kept with DWA during the preparations to provide support and monitor the progress.

The PS suggested a cross-sectoral Round Table Seminar with key stakeholders to launch the project shortly after it has been approved and funded. In addition to this an important step for the WRAP team is to present the plan to Cabinet and raise the awareness of central politicians to obtain their support in the future.

¹ The unilateral decision of Zimbabwe to go ahead with the water transfer scheme from Zambezi to Bulawayo has initiated hectic activities within GRZ to establish how the Government is going to handle this situation. MEWD currently pays a lot of attention to this issue in order to explain the situation to the politicians and to raise public awareness and understanding. The ZRA has been identified as the forum where this issue is going to be discussed and possibly be resolved. This will, however, lead to some delays in finalising the revised WRAP proposal.

6. APPENDICES



Appendix A. Statement of Mission Objectives of the World Bank mission

THE WORLD BANK/IFC/M.I.G.A.
OFFICE MEMORANDUM

DATE: September 24, 1997

TO: Ms. Phyllis Pomerantz, Country Director, AF202
Jeffrey S. Racki, Technical Manager, AFTU1

FROM: K. John Shepherd, Senior Water Resources Management
Specialist, AFTU1

EXTENSION: 34665

SUBJECT: Zambia Water Resource Action Plan.
Statement of Mission Objectives

A mission on this project will take place in Zambia from October 20 to 31, 1997. Mission members will include David Grey (Oct. 20-24), Ashok Subramanian (Oct. 26-31) Torbjorn Damhaug, consultant funded by NORAD (Oct. 20-31) and myself (Oct. 20-31). To the extent that time permits, Richard Beardmore will participate in kick-off and wrap-up meetings with the Ministry, and such other key meetings as he can attend given that this period coincides with his supervision mission on the Urban Restructuring Project.

I will proceed from Malawi to Zambia to commence this mission, following completion of the supervision mission for the Malawi National Water Development Project, for which mission separate SMOs have been prepared.

1. Mission Objectives. The draft WRAP proposal of June 24, 1997, prepared by the Ministry of Energy and Water Development and received by the Bank on September 12, 1997, will form the basis of our discussions with the Ministry and other stakeholders. The objective of the mission will be to review the objectives, phases, and work program, including the budget as given in the proposal, and to come to an agreement, by the end of the mission, on a final version of the document, the immediate action plan, and the mode of financing.

2. Work Plan. The first few days of the mission will focus on a discussion of the objectives, a detailed review of each of the phases, the sequencing of the phases, organization of the WRAP activity and a review of the budget proposals. The Ministry would then proceed with revisions and further development of the documentation including the project budget. At the weekend (Friday Oct. 24 is Independence Day) and the beginning of the second week of the mission we would undertake short field trips in the Kafue basin. Ashok will join us on the second field trip, which will include sites and issues, the solutions of which will require extensive stakeholder involvement. On return to Lusaka, we will discuss problems and issues in water quantity and quality faced by various stakeholder groups, and thus assist the Ministry to identify some priority issues that could be addressed even with available resources at the local level. We would then work with the Ministry to review the output of the work on revisions to the WRAP documentation and the project budget.

3. Roles of mission participants will be as follows:

David Grey will lead the team during the four days of his presence. He will lead discussions with the Ministry and will focus on the strategy for the WRAP project, the interlinking between components, and interaction with other Ministries and Projects. I will lead the mission after David \$B!G (Bs departure, and will be responsible for ensuring the consistency between the physical action plan and the human resources and financial budgets. I will work with the Ministry on aspects of the project related to water usage and demand, including urban, industrial, irrigation, instream environmental requirements etc. and on strategies for reduction of pollution and its effects. Torbjorn will be responsible for hydrological aspects of the project (water availability, droughts, floods, system yield and water quality), and for securing NORAD funding. Ashok will be responsible for stakeholder consultation and participation aspects of the project, and in particular for ensuring that the methodologies of the project make full and effective use of this approach to water resources management.

4. An Aide-Memoire and a back-to-office report will be prepared.

Appendix B. Aide Memoire

**ZAMBIA WATER RESOURCES MANAGEMENT
Water Resources Action Program
Government of Zambia / Government of Norway / UNDP / World Bank
DRAFT AIDE MEMOIRE
October 30, 1997**

Introduction.

A World Bank - NORAD Water Resources mission comprising John Shepherd (Senior Water Resources Management Specialist, World Bank), Torbjorn Damhaug (Water Resources Management Engineer, NIVA, funded by NORAD), Senai Alemu (World Bank Consultant on International Waters), and Ashok Subramanian (Senior Institutions Specialist, World Bank), visited Zambia in the period October 20 to 31, 1997. The objective of the mission was to work with the Ministry of Energy and Water Affairs, and in liaison with other agencies and like-minded donors, on the further development of the proposed Water Resources Action Plan (WRAP), and to help put in place financing for it.

The mission met with the Permanent Secretary and senior staff of the Ministry of Energy and Water Development (MEWD), the Director, Deputy Director and senior staff of the Department of Water Affairs (DWA), the Director of the Department of Energy, senior staff of the Water Development Board, the Chief Executive of the Zambezi River Authority, officials of ZESCO and the of Ministry of Agriculture, the Assistant General Manager of Zambia Sugar, representatives of the Farmers' Union, the Ambassador and senior staff of the Royal Norwegian Embassy, and the Assistant Resident Representative and senior staff of UNDP. At the request of the Permanent Secretary, MEWD, Mr. Alemu presented to a high level Zambian Government internal workshop on international rivers, an address on lessons from world-wide experience on dispute resolution, equity and capacity building. We were received with great hospitality by all whom we met, and would like to place on record our gratitude for this, and for the efforts of the staff of the Ministry of Energy and Water Development, the Department of Water Affairs and the Water Development Board in organizing our meetings and arranging and conducting our site visits.

WRAP - Discussions on the Draft Proposal.

The mission acknowledged the commitment of the Ministry to the proposed Water Resources Action Plan, and the great deal of thought and concerted effort that had gone into the preparation of the draft Proposal. MEWD/DWA staff and mission members discussed the project document in detail and agreed on further improvements. It was agreed that the major elements of the WRAP would consist of:

- an assessment of the water resources sector;
- strategy development; and
- the development and implementation of detailed action plans for priority issues, including some pilot activities.

WRAP Objectives, Scope of Work and Phasing. WRAP would be anchored within the development objectives of the country and would build on past efforts, including the National Water Policy, 1994, and the National Water Resources Master Plan Study, 1995, to establish a framework for sector development. The WRAP would offer opportunities for the co-ordination of water resources sector assessment, strategy development and subsequent programs, with on-going related sectoral and cross-sectoral programs such as those concerning the environment (e.g. Environment Support Program) and

international waters (e.g. ZACPRO 6). Among the broad issues discussed was the proposal contained in the WRAP draft that the Water Resources Sector Assessment and Strategy Development activities would take place in two sequential phases. In discussions, it was recognised that different elements of the Sector Assessment will need different time for preparation and Government approval, and preparation of strategies in some sub-sections can be started before all Sector Assessment activities are completed. It was therefore agreed that these two components be implemented as a dynamic and interactive process. Some elements, such as legislation and regulation, might need a relatively long time for preparation and consensus building, while others, such as water information services, would need less time to be ready for implementation. Thus a parallel and interactive approach would allow the WRAP process to be more responsive to priorities and opportunities arising as the Program progresses. It was agreed that this approach would be incorporated into the revised WRAP Proposal. The first activity in the WRAP would be the detailed work planning of the Sector Assessment activities, and scheduling could be revised and updated as the Sector Assessment and Strategy Development activities evolve.

Points agreed in relation to the seven components of cross sectoral water management issues were:

- 1) Institutional and legal framework: Through the WRAP process, proposals would be developed for an appropriate legal framework, institutional mechanisms for intersectoral communication, and for organisational arrangements (including community and user organisations as well as the private sector) to ensure effective water management.
- 2) Information: Through the WRAP, ways would be identified to assess and improve the national hydrometric data collection systems and services.
- 3) Human resources development: A program of capacity building in water resources management, both within and outside Government, would be formulated.
- 4) Water resources demand, supply and infrastructure: In view of the increasing competition for water, the WRAP would help in identifying the water systems under stress, and in formulating strategies to match supply and demand, incorporating the evaluation of system potential and limits.
- 5) Economics and financing: Under this component, present trends towards financial sustainability and the incorporation of incentives for efficient use of water, would be reinforced.
- 6) Water and the environment. The WRAP offers the opportunity for the Ministry of Energy and Water Development and the Ministry of Environment and Natural Resources to work closely together to help strengthen implementation of existing policies and plans for management of the water environment.
- 7) International waters. Through the WRAP, Zambia would identify the problems and opportunities it faces in this area, and would prepare a strategy for strengthening its capacity to deal with these issues in international forums.

The entire WRAP process would use a participatory approach with broad stakeholder consultation. An output of WRAP would also be a strategy for stakeholder participation in water resources management throughout the country.

Kafue Basin Pilot Project. It was agreed that the pilot project in the WRAP should be designed to incorporate findings of the resource assessment and strategy formulation activities while, at the same time, conclusions resulting from the pilot project should be used as complementary inputs to fine-tune the strategy development for WRM. DWA and the mission noted that the pilot project's two major components - developing an innovative institutional framework for the Kafue River Basin, and enhancing knowledge about the physical (climatological, hydrological, hydrogeological, environmental) characteristics and processes of a distinct, representative catchment within the Kafue River Basin, would need to go hand in hand in to bring about a multi-objective river basin management and development plan for the entire Kafue River Basin. More ideas and insights will emerge and develop through the various exercises and interactions during the execution of the project.

A summary of agreed comments and amendments in relation to the above aspects of the document is contained in Attachment 1.

Financial support for WRAP Activities.

WRAP Management and Co-ordination. During discussions between UNDP representatives and the mission, the Assistant Resident Representative of UNDP confirmed that UNDP was maintaining a close interest in the WRAP and was committed to providing some US\$200,000 financial support for the WRAP co-ordinator and other associated expenditure over 24 months. Subject to the provision of satisfactory WRAP documentation including relevant budget information at an early date, the UNDP could provide its facility in time for disbursement to commence early in the new year.

WRAP Implementation - First six months. In discussions between the MEWD, the mission and the Royal Norwegian Embassy, it was reconfirmed that NORAD would be providing US\$250,000 towards the first six months work on the WRAP. H.E. the Ambassador confirmed that these funds would be made available on a bilateral basis and indicated that he had already received a letter from the Ministry of Local Government agreeing to the transfer of these funds to this program. The MEWD and DWA will now prepare a Project Document for submission to the Royal Norwegian Embassy, proposing in detail what the funds would be used for. The MEWD plans to submit the Project Document [by mid November, 1997]. Subject to a satisfactory submission, NORAD would need two to three weeks to process the request, following which funding would be available to MEWD.

WRAP Implementation - Next two years. It was also reconfirmed that the Royal Norwegian Embassy would consider bilateral funding support for the subsequent two years of WRAP activities. It was agreed that inception reports should be prepared for each of the 7 issues addressed in the Water Resources Sector Assessment. The inception reports should contain work plans and budgets for the ensuing two years July 1998 to June 2000. The budgets would include the Kafue Basin Pilot. For the first year they would be in detail, and for the second year indicative only. The reports would be completed by mid March, 1998, and the information would be drawn together to form a project document for submission to the Royal Norwegian Embassy by end March, 1998.

WRAP Implementation - Other Pilot and post-Pilot Activities. In the event that the proposed strategies are likely to require a scope of activities sufficient to warrant additional financial support, the Government envisaged that other donors, including the World Bank, would be invited to register an interest in providing such support.

Donor Co-ordination.

The Permanent Secretary will lead the co-ordination of donors interested in assisting the Government in the WRAP process. He will convene and chair regular meetings of these donors, who will include the UNDP, the World Bank, NORAD and other donors.

ZAMBIA WATER RESOURCES MANAGEMENT
Water Resources Action Program
DRAFT AIDE MEMOIRE
October 30, 1997

Attachment 1 To the Aide Memoire

International Waters:

It was agreed that Zambia's shared water resources will be best managed only if basin-wide, integrated approaches are mandated. While the need for such integrated approaches is widely recognized, it is essential to deal with the fact that there exists an imbalance among co-riparian states in southern Africa in the level and extent of capacity for Integrated Water Resources Management (IWRM). It was therefore agreed that the objectives and scope of work in international rivers in the WRAP should be geared towards narrowing the gap and levelling the field so that Zambia will build the capacity and confidence required to develop sound strategic goals. Such well founded and clearly set goals would facilitate conditions to harmonize the internal with the external (the national with the international) and will help promote regional cooperation in IWRM. The WRAP document's statements of objectives and scope of activities in international waters would be amended accordingly.

Water Information.

Water information is fundamental to integrated water resources management and to planning and operation of water resources development projects. The DWA team stressed the importance of using the WRAP as an instrument in assessing and improving the conventional national hydrometric data collection systems in Zambia. They also brought to the mission's attention the opportunities of reinforcing the national hydrological services by joining the "Sub-Saharan Africa Hydrological Observation System" (SADC-HYCOS). The need for strengthened hydrological services, and international co-operation in this area, has been accentuated by the apparent increasing frequency of drought in the SADC region caused by El Nino / Southern Oscillation events. This system will involve installation of Data Collection Platforms (DCPs) and telemetric data transmission at major hydrometric stations in Zambia. The network will also be inter-linked with the rest of the SADC-HYCOS network to provide effective data collection, transmission and analysis in the region, and enhance the hydrological co-operation and transparency among states and river basins.

It is understood that there is an agreement between NORAD and DWA that NORAD will support the installation of five DCPs, and DWA has also sought funding from other sources for eight more stations. DWA invited the mission to assess the proposal contained in the NORAD funded project "Rehabilitation and Improvement of the Hydrometric Network" which includes installation of the first five DCPs. In brief, the mission suggested that the system should be limited to only include hydrological data collection (not water quality, because automatic measurement of these parameters is still unreliable) and it should be re-specified and the costs revised in consultation with WMO, the advisor of DWA on this project. DWA agreed upon the proposed approach, and it is understood that this approach is also supported by NORAD.

Stakeholder involvement and awareness raising.

It was recognised that the involvement of all major stakeholders is an essential activity for setting of priorities for the water resources management strategies. It was therefore suggested that the issues of awareness building and participation of civil society as stakeholders in water resources management could be given rather more emphasis in the WRAP process. This activity could be incorporated into work plans and budgets. This would ensure stakeholder participation at the earliest stages of planning and implementation of the Program.

The WRAP should include components that explicitly address the following questions:

- 1) What are the specific objectives of stakeholder participation ? Suggested objectives are: (i) to develop a shared vision of future needs and present challenges; (ii) to gain an appreciation of the perspectives and viewpoints of various stakeholders; and (iii) to formulate water resources strategy through collaboration and negotiation among water related sectors and stakeholders.
 - 2) Who are the stakeholder groups ? Stakeholders could be: national, regional, local, or international; governmental agencies, user groups, or private sector agencies.
 - 3) What are the available (and effective) mechanisms for their collective representation in water related policy discussions? Such mechanisms could include various forums already set up under earlier programs or projects (e.g., water committee or catchment committee at the local level and Farmers' Union or Environmental Council at the national level).
 - 4) What are the available formal or informal institutional arrangements for their participation in water resources planning and management ? For instance, what were the arrangements for discussions of the Water Policy in 1994 ? These arrangements could include consultative forums through which inter-sectoral meetings are presently organized. Are the present arrangements satisfactory ?
 - 5) What arrangements must be put in place to ensure systematic participation based on the diagnosis of the above paragraph?
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ZAMBIA WATER RESOURCES MANAGEMENT
Water Resources Action Program
DRAFT AIDE MEMOIRE
October 30, 1997

Attachment 2
List of Persons Met

Name, position	Institution
Mr. Romance C. Sampa (Principal Secretary)	Ministry of Energy and Water Development
Mr. A. Hussen (Director)	MEWD, Department of Water Affairs, DWA
Mr. P. Chola (Deputy Director)	
Mr. C. Nundwe (Water Engineer)	
Mr. C. Chileshe (Sr. Hydrologist)	
Mr. O. Sangulube (Ch. Water Eng, Wat Res)	
Mr. C. Maseka (Hydrogeologist)	
Mr. N. Makuto (Chairman)	Water Board
Mr J. Kampata (Secretary - Water Eng.)	Water Board
Mr J. H. Chilo (Water Officer)	
Mr. W. Serebje (Director)	MEWD, Department of Energy
Mr. L. M. Aongola (Planning Officer)	Ministry of Environment and Natural Resources, Planning and Information Department
Mr. I. Zandonda (Inspector Water Poll. Con.)	Environmental Council of Zambia (ECZ)
Mr. J. Shawa /Chief Economist)	Ministry of Agriculture, Food and Fisheries, Department of Economics and Market Development
Mr. G.W. Sikuleka (Chief Agriculture Specialist)	
Mr. M.J. Tumbare (Chief Executive)	Zambezi River Authority
Mr. J. du Plessis (Agriculture Manager)	Zambia Sugar, Nambola
Mr. M. C. Soko (Assistant Res. Rep.)	UNDP
Mr. A. Muchanga (Programme Analyst)	
Mr. V. Simango	WMO Geneva, Technical Co-operation Department (by phone)
Mr. J. Lomoy (Ambassador)	Norwegian Embassy, Lusaka
Mr. G. Stuve (Second Secr. Agriculture)	
Mr. N. Dean (Farmer)	Member, Ngwerere Water Committee and Zambia National Farmers Union
Mr. R.L. Dean (Farmer)	Member, Zambia National Farmers Union
<i>During mission preparations in Norway Mr. Damhaug met with the following people:</i>	
Mr. E. Ryan	NORAD, Oslo
Mr. T. Færden	SFT, Oslo
Mrs. G. Sorte	SFT, Oslo
Mr. K.J. Aanes	NIVA
Mr. J. Sorensen	NIVA
Mr. J.L. Bergli	NIVA

Appendix C. Terms of Reference for the NORAD Funded Team Member

Involvement in the preparation of the possible joint World Bank- NORAD funded project "Water Resources Action Plan" (WRAP) in Zambia.

Background The Water Resources Action Program, WRAP is a possible joint World Bank - NOR AD supported project with the objectives to strengthen national policies, strategies and institutional setting for water resources management.

A basic principle of Water Resources Management is to separate the regulatory functions from the supply functions (e.g. water supply, hydropower generation, irrigation) to avoid conflicts of interest. As a result the ongoing re-organisation of the water sector in Zambia all water supply functions will be transferred from Department of Water Affairs (DWA) under the Ministry of Energy and Water Development (MEW) to the Ministry of Local Government and Housing (MLGH).

It is proposed that the WRAP will have three main areas of activity: Strategy Development Public Consultation, and Pilot Implementation of a basin-wide WRY within the Kafue River Basin WRAP will be as much process as product oriented driven by national authorities and stake holders, with the support of external partners and expertise when appropriate.

A World Bank Mission is planned to take place Oct. 20 - 31, with the following Mission Objective: "The draft WRAP proposal of 24. June 1997, prepared by MEW and received by the Bank on September 12, 1997, will form the basis of our discussions with the Ministry and other stake holders. The objective of the mission will be to review the objectives, phases, and work program me, including the budget as given in the proposal, and to come to an agreement by the end of the mission, on a final version of the document, the immediate action plan and the mode of financing".

NOR AD will fund one participant in the mission.

Objectives and Tasks

The consultant will:

1. Act as a partner in the World Bank team in the development of the water resources management strategy and participate in joint mission with the World Bank;
2. Promote a clear diversion of roles and responsibilities between the World Bank and other donors in the project development process;
3. Promote a participatory process under Zambian initiative and leadership;
4. Promote linkages between WRAP and other relevant national and regional projects;
5. Advice NOR AD on the content and the financing of the project.

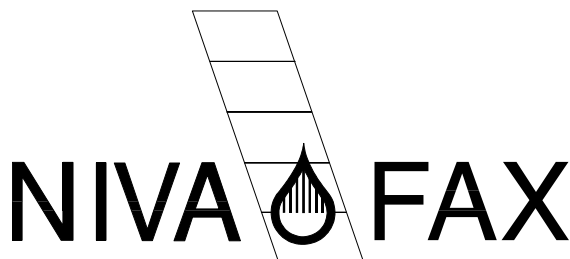
In addition to his participation in the WE team, the consultant will submit a report to NOR AD with a brief description of the mission, assessing the outputs and with special emphasis on:

- ◇ the participatory approach of the proposed process (WRAP) including considered methodologies if relevant;
 - ◇ co-operating aspects of the WRAP and relevant linkages to other projects
-

**NORWEGIAN INSTITUTE
FOR WATER RESEARCH**

**Appendix D. Fax to NORAD,
Oslo**

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Enterprise No. 855869942



TO:	NORAD	
ATT.:	Eldar Ryan	
FAX NO.:	47 22314509	
DATE:	23 October, 1997	J.No.:
FROM:	Torbjørn Damhaug	S.No.:
DIRECT PHONE:	Oslo: +47 22 18 5118	
	Zambia: Pamodzi Hotel, Lusaka: 260 1 250995	
E-MAIL:	torbjoern.damhaug@niva.no	

Number of pages incl. this:

**BRIEF - Rehabilitation and Improvement of the Hydrometric Network in
relation to the WRAP**

As agreed in Oslo, I have followed-up on the NORAD funded project "Rehabilitation and Improvement of the Hydrometric Network".

I met with Mr. O.L. Sangulube Chief Water Engineer (Water Resources) DWA and Mr. C. Chileshe Senior Hydrologist DWA, Mr. Israel Zandonda, Environmental Council of Zambia, and made a call to Mr. Simango WMO Geneva who is in charge of the WMO support to Zambia for this project.

The need for telemetric hydrological information systems. We recognised the need for improving the national hydrometric data collection systems by strengthening the conventional networks for data collection and ensuring a minimum number of reliable hydrometric information in the region, and the continuity of the monitoring. This will imply installation of Data Collection Platforms (DCPs) and telemetric data transmission at major hydrometric stations in Zambia. This system will also, as we discussed, be inter-linked with the EU-funded SADC-HYCOS network to provide effective data collection, transmission and analysis in the region, and enhance the hydrological co-operation in the region. It was mentioned that DWA has requested EU for funding of 8 telemetric stations in addition

to the 5 to be funded by NORAD. It is also worth mentioning that EU is now funding the construction of 50 DCPs in various SADC countries as part of the SADC-HYCOS program.

Not recommended to include water quality data sensors in the 5 DCPs. After some elaboration of the needs for real-time monitoring of water quality by the 5 stations we came to the conclusion that the NORAD funded system should only include hydrometric data. There are several arguments supporting this recommendation:

- The sites for hydrometric measurements do not necessarily represent the optimum sites for quality measurements.
- The selected sensor do not cover the critical pollution parameters, although some correlation might exist.
- Priority should be given to design and implementation of conventional river monitoring programmes in co-operation with ECZ before introducing automatic monitoring. Possible needs for automatic monitoring of certain “hot-spots” have to be justified through the monitoring programme. In order to make sense, an automatic monitoring activity would have to be linked to a decision making framework and mitigation measures.
- ECZ is involved in water pollution monitoring and control issues, and there is an identified need for joint or co-ordinated efforts between DWA, ECZ and other relevant institutions in dealing with these challenges. It is therefore premature to establish automatic water quality monitoring before a framework is in place. The WRAP represents an opportunity to facilitate links and interactions between the actors.

What happened to the ZESCO hydrometric stations. As you indicated, CIDA has sponsored installation of automatic hydrometric stations in Zambia (12-13) and other SADC countries under a Hydroelectric Program. These stations are based on radio-transmission (not satellite), and due to problems with the radio systems many of the stations are out of order. I have not had chance to see ZESCO yet to get more details. It could, however, be mentioned that DWA receives data from the operating stations on diskettes from ZESCO, which they enter into their database.

Costs of DCPs has been substantially reduced. The manufacturers price of DCPs has dropped to US\$ 5-6,000. This will possibly also affect the cost of the NORAD funded investment, a new bidding process through Zambia Tender Board has been suggested.

The WRAP will facilitate enhanced water related data. The Technical Component 2 “Information” in the WRAP proposal addresses the issue of enhanced water information services. This section will be revised to include the mission’s findings and recommendations.

Appendix E. WRM Related Projects in Zambia

The fact sheets presented in this appendix are not fully completed, and process of complementing the information and identifying other WRM related projects in Zambia will continue.

Project Sheet no.	WRM 001
Title	Water Resources Action Plan (wrap)
Objectives	<ul style="list-style-type: none"> Strengthen national policies and develop strategies for national and local WRM, at the same time building awareness and capacity across society, and to improve WRM in the Kafue River basin.
Duration	1997-1999
Scope of Work	<ol style="list-style-type: none"> Strategy development: Identifying key issues constraining effective WRM, undertaking analysis of these issues, identifying possible solutions and recommending options for implementation Consultation: designing and implementing a national program for public consultation and awareness rising in water resources management Pilot implementation: implementing a basin-wide integrated WRM planning program within the Kafue River Basin, adopting the policies and strategies developed through the WRAP and endorsed by the Government
Water Resources Management Issues	(see objectives)
Executing Ministry/ Institution	MEWD - DWA
Zambian key Contact Person(s)	Mr. R. C. Sampa (PS) Mr. C. Nundwe (Adviser)
Funding Agency (ies)	NORAD WB
Contact Person (s)	NORAD Oslo: Mr. Eldar Ryan Norwegian Embassy, Lusaka: Mr. Gudbrand Stuve World Bank D.C.: Mr. John Shepherd
Foreign Supporting Expertise	NIVA, Oslo: Mr. Torbjørn Damhaug
Budget by year (US\$)	Total 1.4 mill. 1997: 250', 1998: 800' 1999: 350'
Status progress	Identification mission WB/NORAD: April 97 Preparatory mission WB/NORAD: October 97
Assessment of Achievements, Constraints, and Opportunities	Positive response and active participation from MEWD/DWA. Good opportunities for a WRM strategy with a strong Zambian ownership, but it should be accepted that it will be a time-consuming process.

PROJECT FACT SHEET No.	WRM 002
Title	Support to the Chalimbana River Catchment Conservation Committee
Objectives	<ul style="list-style-type: none"> • The development objective is to ensure the conservation of the environment and sustainable use of natural resources in the Chalimbana River Catchment Area; • The immediate objective is to provide input to a management plan for the area in close collaboration with MENR; • The main purpose of the Environmental Awareness Workshop was to bring together the local community to identify environmental problems and jointly map out solutions and strategies which would help improving the management of the catchment area; • The process will lead to a Catchment Conservation Plan.
Duration	Dec. 1995 - Jan. 1997
Scope of Work	The project will bring together the local community in the catchment area from the state-land on the upper stream and trust-land on the down-stream of the river. Arrange a Grass-root Environmental Awareness Workshop for Local Community in Trust land January 1996. At this workshop a number of papers were presented, and resolutions reached. The main issues were: (i) water, (ii) land, (iii) vegetation management, and (iv) communication within the society on these matters.
Water Resources Management Issues	The main issue in this supporting activity is to facilitate public awareness and community involvement in catchment protection including WRM. On WRM the Water Development Board is in the process of forming a Water User Association for the Chalimbana River Catchment similar to the one for the Ngwerere Catchment. The Chalimbana River Catchment would assist the Water Development Board in the monitoring of water use and would compliment the activities of the Chalimbana River Catchment Conservation Committee.
Executing Ministry/ Institution	Chalimbana River Catchment Conservation Committee
Zambian key Contact Person(s)	Mr. M. Banda, Director of Natural Resources Department-MENR (co-ordinating body) Mr. R. Kunda, Chairman Chalimbana River Conservation Committee. Mr. P.L. Mwamfuli, PS Ministry of Environment and Natural Resources (MENR) Mr. J. H. Chilo, Water Development Officer DWA-MEWD & Water Development Board
Funding Agency	NORAD
Contact Person(s)	Mr. Gudbrand Stuve, Norwegian Embassy, Lusaka
Foreign Supporting Expertise	None
Budget by year (US\$)	US\$ 1,300
Status progress	
Assessment of Achievements, Constraints, and Opportunities	The workshop agreed upon a Plan of Action The PS MENR stated that the workshop was a milestone in the efforts to involve the community in the proper management of natural resources. The next step will be to draft the conservation plan for the catchment to be presented to the community at the next meeting. The committee has also previously arranged an awareness raising seminar among local stakeholders that focused on the need for an integrated management plan for the catchment area supported by the MENR. The committee achieved to have an area in the outskirts of Lusaka officially declared a protected forest area.

Project Sheet no.	
Title	Rehabilitation and Improvement of the Hydrometric Network
Objectives	The goal of the project is to contribute to efficient water resources management. through an economically sustainable and technically reliable data collection, transmission and processing system.
Duration	
Scope of Work	It is agreed to install an initial network of telemetric stations for water data collection in the upper regions of the Zambezi and Kafue river basins including mechanisms for transmitting these real-time data to DWA's water resources database in Lusaka for further processing and dissemination. It is envisaged that this network will in future be extended to other major hydrometric stations in Zambia, and also be part of the SADC-HYCOS network and hydrological co-operation in the region. Originally the project include delivery and operationalising of 5 Data Collection Platforms (DCPs) configured as a satellite based telemetry network for measuring water levels, rainfall and a number of water quality parameters. The hydrometric data will be used for day to day water resources management in the Zambezi and Kafue river basins, both at national and river basin level..
Water Resources Management Issues	
Executing Ministry/ Institution	Ministry of Energy and Water Development (MEWD) - Department of Water Affairs (DWA)
Zambian key Contact Person(s)	Mr. O.L. Sangulube Chief Water Engineer (Water Resources) DWA Mr. C. Chileshe Senior Hydrologist DWA
Funding Agency (ies)	NORAD
Contact Person (s)	
Foreign Supporting Expertise	WMO has a contract to assist DWA in project formulation and specifications, and to arrange for the use of GTS/METEOSAT satellite system. OCEANOR has prepared a tender for the supply of a their "River Watch" system.
Budget by year (US\$)	US\$ 625,000
Status progress	Funding approved, Implementation pending due to technical and conceptual clarification
Assessment of Achievements, Constraints, and Opportunities	Hydrological services are fundamental to integrated water resources management and in conjunction with the planning and operation of water resources development projects. The UNDP/World Bank project "Sub-Saharan Africa Hydrological Assessment" (1990) and subsequent studies and initiatives has clearly documented the need for improving the national hydrometric data collection systems. The rehabilitation of conventional hydrometric networks in the SADC region is now being reinforced through the Sub-Saharan Africa Hydrological Observation System (SADC-HYCOS) as means to improve hydrological services across the region. by strengthening the conventional networks for data collection and ensuring a minimum number of reliable hydrometric information in the region, and secure the continuity of the monitoring. This will imply installation of Data Collection Platforms (DCPs) and telemetric data transmission at major hydrometric stations in Zambia. This network will also be inter-linked with the rest of the SADC-HYCOS network to provide effective data collection, transmission and analysis in the region, and enhance the hydrological co-operation across the river basins. As an

	extension of the NORAD funded telemetric station DWA has requested EU for funding of 8 more stations.
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Project Sheet no.	
Title	ZACPRO 6 “Development of an Integrated Water Resources Management Plan for the Zambezi river basin”
Objectives	Immediate objective: Capacity building activities for the relevant sector institutions at basin and national level.
Duration	1994 -
Scope of Work	Suggested: Establishment of a broad stakeholder participation including a list of all stakeholders at different levels, their potential roles; and suitable mechanisms for communication, and channelling of their interests and inputs; Establishment of “Zambezi River Basin Commission” (ZAMCOM) as an institution with mandate to develop and implement the “Integrated Water Resources Management Plan” IWRM; Strategy and time plan for how the financial responsibility for the project can be transferred from donors to the basin States.
Water Resources Management Issues	The proposed National Committee in Zambia has to become part of the WRAP.
Executing Ministry/ Institution	The responsibility for implementation of phase 1 is ZRA under a Memorandum of Understanding with SADC-ELMS and directed by a steering committee. Proposed National Committees as important tools to achieve national participation. Suggested to establish a Project Preparation Group (PPG) guided by a project steering committee.
Zambian key Contact Person(s)	
Funding Agency (ies)	NORAD - DANIDA - SIDA
Contact Person (s)	
Foreign Supporting Expertise	Geoscope AB Åke Nilsson, Sweden
Budget by year (US\$)	Project Preparation: 100,000
Status progress	
Assessment of Achievements, Constraints, and Opportunities	The ZACPRO 6 provide an important instrument for development and implementation of an integrated water resources management plan for the Zambezi river basin. It is important that it will be concerted interactions between the WRAP and ZACPRO 6. DWA staff claim that there is a lack of mechanisms to get Zambians involved in the ZACPRO preparations

Project Sheet no.	
Title	SADC Round Table Conference on Integrated Water Resources Development October 1998.
Objectives	Intended to mobilise and co-ordinate additional development assistance required for strategic and integrated water resource planning and development, with special focus on the role of water in economy.
Duration	Preparations: 1997 - 98, Conference October 98 (tentatively)
Scope of Work	Each country prepares Country Situation Reports (CSRs) which in turn be consolidated into Regional Integrated Water Resource Management strategies.
Water Resources Management Issues	
Executing Ministry/ Institution	In Zambia: MEWD
Zambian key Contact Person(s)	Mr. Katai, Deputy PS MEWD, Mr. Kasimona DWA Mr. Patric Chipmuy, Mr. Saka Mbewe (Consultants) A number of different stakeholders
Funding Agency (ies)	UNDP
Contact Person (s)	
Foreign Supporting Expertise	
Budget by year (US\$)	US\$50,000
Status progress	Zambia is preparing CSR
Assessment of Achievements, Constraints, and Opportunities	The CSR preparation process is supposed to contribute to building knowledge and consensus amongst stakeholders within member States. It is important that the Round Table preparation and implementation process has strong links with the WRAP.

Project Sheet no.	
Title	SADC-HYCOS Project
Objectives	The SADC Communities vision of HYCOS-SADC goes beyond the concept of having a network of satellite based telemetry system for observing water cycle parameters for selected stations. The strategy is to have a SADC water resources information management system that combines conventional hydrometry, telemetry technology and appropriate information handling, exchange and networking. The goal is to have a network of national hydrology and water resources computerised databases linked to a regional one., to monitor and disseminate real time and long term water resources data or forecasting and issuing warning of floods and droughts, planning and management of water resources development, and environmental management. This is in the spirit of the Protocol on Shared Water Resources.
Duration	1995-
Scope of Work	The UNDP-World Bank Sub-Saharan Africa Hydrological Assessment has identified the needs for investments in hydrological data networks and services. This is being followed up by the SADC-HYCOS initiative supported by EU and WMO. This system will use satellite based telemetry networks to provide real-time data from data collection Platforms (DCPs) installed at hydrometric stations of key national and regional importance. In total .. telemetric DCPs have been installed in SADC region, and a contract of 50 more stations has just been awarded.
Water Resources Management Issues	<p>Regional hydrometeorological projects are having a significant WRM impact, in promoting exchange of hydrological and environmental information across the region, and in building mutual understanding and capacity at national and regional level. Given that most rivers and lakes in SSA are shared by more than one country, it is essential to create an enabling environment for information-sharing to encourage the optimal development and management of the water resources. HYCOS-SADC could also form the nucleus of a system that would eventually provide information for computer-assisted markets for inter-sectoral water allocation. Eventually, SADC-HYCOS is expected to be linked to other continents to form a world hydrological network.</p> <p>The ZACPRO 6 core project under the Zambezi River Action Plan is an important link for SADC-HYCOS as deals with development and implementation of and Integrated Water Resources Development Plan for the entire Zambezi River Basin.</p>
Executing Ministry/ Institution	
Zambian key Contact Person(s)	
Funding Agency (ies)	
Contact Person (s)	
Foreign Supporting Expertise	
Budget by year (US\$)	
Status progress	
Assessment of Achievements, Constraints, and Opportunities	

Project Sheet no.	
Title	ZACPRO 6 “Development of an Integrated Water Resources Management Plan for the Zambezi river basin”
Objectives	Immediate objective: Capacity building activities for the relevant sector institutions at basin and national level.
Duration	1994 -
Scope of Work	Suggested: Establishment of a broad stakeholder participation including a list of all stakeholders at different levels, their potential roles; and suitable mechanisms for communication, and channelling of their interests and inputs; Establishment of “Zambezi River Basin Commission” (ZAMCOM) as an institution with mandate to develop and implement the “Integrated Water Resources Management Plan” IWRM; Strategy and time plan for how the financial responsibility for the project can be transferred from donors to the basin States.
Water Resources Management Issues	The proposed National Committee in Zambia has to become part of the WRAP.
Executing Ministry/ Institution	The responsibility for implementation of phase 1 is ZRA under a Memorandum of Understanding with SADC-ELMS and directed by a steering committee. Proposed National Committees as important tools to achieve national participation. Suggested to establish a Project Preparation Group (PPG) guided by a project steering committee.
Zambian key Contact Person(s)	
Funding Agency (ies)	NORAD - DANIDA - SIDA
Contact Person (s)	
Foreign Supporting Expertise	Geoscope AB Åke Nilsson, Sweden
Budget by year (US\$)	Project Preparation: 100,000
Status progress	
Assessment of Achievements, Constraints, and Opportunities	The ZACPRO 6 provide an important instrument for development and implementation of an integrated water resources management plan for the Zambezi river basin. It is important that it will be concerted interactions between the WRAP and ZACPRO 6. DWA staff claim that there is a lack of mechanisms to get Zambians involved in the ZACPRO preparations.

Project Sheet no.	
Title	The National Water Resources Master Plan
Objectives	
Duration	Completed October 1995
Scope of Work	
Water Resources Management Issues	
Executing Ministry/ Institution	MEWD
Zambian key Contact Person(s)	
Funding Agency (ies)	JICA
Contact Person (s)	
Foreign Supporting Expertise	Team of Japanese water experts
Budget by year (US\$)	
Status progress	
Assessment of Achievements, Constraints, and Opportunities	<p>The Master Plan is a very comprehensive description of the socio-economic conditions, the current and predicted water demands within various sectors, the environmental and water quality situation, and the hydrological network including water information services. Although the master plan addresses many important water resources issues, it only briefly touches key water management issues, such as legislation, institutional framework, capacity building, and stakeholder participation. Analysis of these issues and strategy development will be core elements of the WRAP, building upon the Master Plan.</p>

Project Sheet no.	
Title	Urban Restructuring and Water Supply Project (Credit 2725-ZA).
Objectives	a) Provide immediate solutions to the most severe water and sewerage infrastructure deficiencies in nine key areas b) test out community generated and managed water and sanitation demonstration projects which meet articulated needs at an affordable price, while strengthening local council' capacities to support community based initiatives in Lusaka and the participating Copper belt councils, and c) initiate broader institutional and financial reforms required for providing organisational incentives for investing in, operating and maintaining infrastructure based on residents' perceived needs and willingness to pay.
Duration	1995 -
Scope of Work	a) water Supply and sanitation system rehabilitation, b) community based water and sanitation demonstration projects, and c) sectoral and local government reform and capacity building
Water Resources Management Issues	a) The Kafue River Basin Study, which was originally a component under the URWSP, is highly relevant for the WRAP. b) Exchange of staff training and institutional building experience between URWSP and WRAP.
Executing Ministry/ Institution	URWSP: Ministry of Local Government and Housing (MLGH) DISS Kafue basin study: Now under MEWD
Zambian key Contact Person(s)	Mr. N. Mampala (PS)
Funding Agency (ies)	World Bank, NORAD and other donors
Contact Person (s)	
Foreign Supporting Expertise	Norwegian Consultancy Companies
Budget by year (US\$)	23.8 mill US\$
Status progress	
Assessment of Achievements, Constraints, and Opportunities	The Kafue River Basin Study was initially proposed as a component under the World Bank/NORAD project Urban Restructuring and Water Supply Project (Credit 2725-ZA). It was agreed with the Ministry of Local Government and Housing that this project component should be transferred to the proposed WRAP. Moreover, the proposed study by international consultants would almost certainly be doomed to join earlier ones already on the shelf. A new approach was needed, one that builds and/or utilises local capacity and strengthens ownership, commitment and awareness among local institutions and more broadly among the civil society. Without this, water resources management will not be sustained, however good the study. Therefore, it was agreed that the Kafue River Basin Study should instead be an institutional- capacity- and awareness building pilot project, driven entirely by Zambians.

Project Sheet no.	
Title	Capacity Building in Institutions Dealing with Environmental Impact Assessment in Sub-Saharan Africa (SSA)
Objectives	Establish a network of EIA practitioners and experts linked to the national EIA practice. Explore options for, and suggest a framework for, expanding the EIA capacity of SSA countries, and identify capacity building and institutional development challenges to be addressed.
Duration	1997 -
Scope of Work	Fact finding mission to Zambia, Zimbabwe, and Tanzania will take place by the end of November 1997.
Water Resources Management Issues	Important to link the EIA initiative in Zambia to the WRAP.
Executing Ministry/Institution	In Zambia MENR
Zambian key Contact Person(s)	
Funding Agency (ies)	World Bank via the Norwegian Trust Fund
Contact Person (s)	Olav Kjoerven WB
Foreign Supporting Expertise	NIBR/NIVA
Budget by year (US\$)	US\$76,000 (initial study)
Status progress	Project identified and TOR for the fact finding mission prepared.
Assessment of Achievements, Constraints, and Opportunities	Contact is established with the Norwegian team of consultants and the WRAP mission. DWA will be kept informed about the EIA project.

Project Sheet no.	
Title	
Objectives	
Duration	
Scope of Work	
Water Resources Management Issues	
Executing Ministry/ Institution	
Zambian key Contact Person(s)	
Funding Agency (ies)	
Contact Person (s)	
Foreign Supporting Expertise	
Budget by year (US\$)	
Status progress	
Assessment of Achievements, Constraints, and Opportunities	

Appendix F. Regulatory and Institutional Framework for WRM in Zambia

LEGISLATION

Appropriate and enforceable water resource legislation is a pre-requisite for effective water resources management. The legislation of water resources management in Zambia is governed by two major acts, the Water Act (1964) and the Environmental and Pollution Control Act (1992). The Water Act is the regulatory document through which the regulation and appointment of public water is administered. Under this act the Water Development Board of Zambia is empowered to issue rights for public water use. The existing legislation is inadequate for efficient and integrated water resource management by the water authorities. Important omissions in the current legislation are: (i) the Act defines groundwater resources as private water. It allows free use of private water by any landowner for any use, nevertheless the same document ascribe ownership of all water resources (ground and surface) to the President of the Republic of Zambia; and (ii) the Act assign no authority to issue public water abstraction rights of water courses which form the boundary between Zambia and her neighbours.

Water resources legislation is currently under revision, and a new water act is being drafted. Basically the Water Act shall regulate the extraction, abstraction, impoundment and use of water, and the regulations for the establishment of the Water Development Board in charge of granting and administration of water rights. It has been decided that this process will be finalised under the WRAP.

The regulatory and planning framework for water resources management in Zambia is weak and is increasingly unable to cope with a situation of growing water demand, deteriorating quality and conflict between users (hydropower, irrigation, urban water supply and mining). However, several important policy and planning initiatives are being taken that will facilitate the improved management of water resources. These include the National Water Policy (November 1994), the National Water Resources Master Plan (October 1995), the ongoing water supply sector reform program, and the drafting of a new Water Act.

INSTITUTIONAL FRAMEWORK

Objectives:

Ensure adequate separation of regulator and service provider functions and resolve the interface between various regulators.

Establish an operative institutional framework for integrated water resource management, divided into an appropriate central, river basin and sub-catchment framework.

1. Regulators and co-ordinators

National Commission for Development Planning (NCDP)

Responsible for resource mobilisation, donor co-ordination, inter-ministerial co-ordination, national policies and guidelines.

Ministry of Energy and Water Development (MEWD) - Department of Water Affairs (DWA)

DWA is the main public institution having the responsibility of water resources planning and management. Until the re-organisation of the water supply and sanitation sector, which was initiated in 1993, it was a lack of clear distinction between sector responsibilities leading to a situation where the

Department of Water Affairs combined water resources management function and those of provision of water supply and sanitation services. Important institutional reforms are now being made, shifting the responsibility of water supply from the MEWD/DWA to Ministry of Local Government and Housing. Government (MLGH)/ local councils, thus separating regulatory functions from service provision services, leaving DWA free to be the manager of the nation's water resources. DWA is now in the process of handing over its previous responsibility for provision of water supply in small towns and rural areas to the MLGH. The Government recognises the WRAP process as a good opportunity to significantly enhance the role of DWA as a water resources executive regulator (quantity, quality and price) as its water supply service functions will be substantially reduced. It is however a clear need to build DWA's capacity, beyond the traditional skills of hydrology, hydrogeology and water engineering, to include resource economics and law and strategic planning.

Water Development Board (WDB)

General

The Water Development Board is a statutory body which provides a foundation for water regulation, with a secretariat and technical staff provided by DWA. The members of the Board represent a range of public and private stakeholders. WDB issues water rights to the different users either for domestic (primary uses), irrigated agriculture (secondary uses), industrial, or hydro-electricity generation purposes (tertiary uses). The Board is only empowered to issue water rights for surface water abstraction, as regulation of groundwater is not covered under the present Water Act. All new applications are supposed to undergo a technical and hydrological assessment by the Water Officer seconded from the Ministry of Energy and Water Development (MEWD). The Water Officer is responsible for the preparation of a report with his/her recommendations to the Board. Before approval, water right applications are advertised in a national newspaper and the Government Gazette for public display as an opportunity for consideration and potential objections from people concerned. The Water Development Board's secretariat has inadequate capacity to perform its tasks, although the Water Officer is doing an outstanding effort to keep pace with the steadily increasing workload. His involvement was recognised by several representatives of watershed committees visited during the field trips of the mission.

The Board, although weak and poorly funded, has long been responsible for water allocation and issuing of water licenses. The need for a strengthened Water Development Board to be in charge of water rights and licensing in an efficient way cannot be over-emphasised. It is necessary to enhance the Board's access to reliable information about the quantity, quality and variations of available water resources at river basin and catchment level in order to establish sound principles for equitable water resources allocation and issuing of water rights. There has been situations where the total amount of licensed water in a certain catchment is exceeding the available amount of water which can be shared between the stakeholders. The scarcity of water will inevitably be exacerbated during periods of drought, which in turn might lead to severe user conflicts. Therefore, the Water Board should revise existing water rights so that they will reflect the actual water requirements of the users. It is also necessary to establish a database with water right information linked to the hydrological database, as a tool for water demand management.

Implementing all functions of water resources management assigned to the Water Development Board will have substantial running costs which have to be financed through a range of funding mechanisms, including fees for issuing and renewal of water rights and charges to be paid for water abstracted. A water measurement regulation was set up in 1994 in order to encourage more effective use of water and generate income to the Water Board. Fees and revenues from issuing of licenses and sales of bulk water collected by the Board are transferred directly to Treasury and are not returned. Apart from that the current water fees and bulk water tariff are insignificant compared to the cost recovery need to finance water resources management, including the maintenance of water resources assets. Innovative funding mechanisms including fees and bulk water charges, community action and private sector

investments will be addressed under the WRAP. It will be considered to introduce a bridge funding arrangement during a transition period to cover the WRM financing gap until a new cost recovery structure and revenue collection system is in place.

Environmental Council of Zambia (ECZ)

ECZ is responsible for management and enforcement of environmental legislation, establishment of standards, water pollution monitoring and control, hazardous waste management, implementation of environmental assessment, and undertake environmental education programs.

The mission noted that there is limited interaction between projects and water resources management activities under the auspices of ECZ and those performed by MEWD-DWA/Water Development Board. The WRAP process offers opportunities to facilitate links and co-ordination between DWA, the Water Board, ECZ and other relevant institutions in dealing with water related environment and pollution control issues. The importance of co-ordination between ECZ and the water resources management authorities was also stressed by the director of ECZ at the recent annual meeting of the Industrial Pollution Prevention Program (IPPP).

Ministry of Environment and Natural Resources (MENR)

MENR has the role as policy formulation and advisory body, dealing with effluent standards and EIA. MENR is hosting the National Environmental Action Plan (NEAP) and the Environmental Support Program (ESP), and there are significant water resources components in these projects. The mission noted that there is not a clear sharing of responsibility between MENR and ECZ, and it appears to be some risk of duplication of responsibilities and environmental management efforts, for example related to environmental information services. The mission was informed that MENR is interested to see what comes out of the WRAP process, but seems hesitant to get involved in it right from the beginning. Therefore, it is considered necessary to raise MENR's awareness of the WRAP and promote a closer co-operation between their common activities on water resource issues.

Catchment committees and local community initiatives

Some sub-catchment committees have already been formed on private initiatives driven by a recognised need for better management and sharing of scarce resources (e.g. Chalimbana, Ngwerere and other). To build awareness and promote water resources responsibility and management at the watershed level will be a central strategy of the WRAP.

2. Water Users and Service Providers

Ministry of Local Government and Housing (MLGH)

MLGH is basically responsible for physical planning and provision of urban water supply services through large district councils.

Ministry of Agriculture, Works and Fisheries (MAFF)

Department of Agriculture

The ministry focuses on dam construction for irrigation and watering of livestock, and to a less degree on development of irrigation systems. The present area of irrigated agriculture is 50,000 ha, and another 34,000 ha is under development, whereas the total irrigation potential is estimated to 300-400,000 ha. The policy of the Government is to promote development of small scale farming (banana, sugar cane, rice) with provision of water from large dams. The Agriculture Sector Investment Program provides credit for new investments in land and irrigation development. The best source of information is the JICA supported National Water Resources Master Plan (1994).

The ministry informed that that there is an increasing consumption of water for irrigated agriculture, especially in the Kafue river, which ultimately is likely to cause further conflicts among the competing uses of water. MAFF emphasised the key role of the Water Board in managing water rights, and the need for a efficiently working licensing system where all ministries and departments concerned work

together. In that respect the ministry is supportive to the WRAP initiative, and willing to consider an active involvement.

Zambia Electricity Supply Corporation (ZESCO)

Responsible for regulation and utilisation of water in hydropower generation plants. The Water Right held by ZESCO to regulate the Kafue river by means of the Itezhi-tehi Dam for the generation of electricity at the Kafue Gorge dam has restricted the water use for other sectors, especially the development of irrigated agriculture. In the last decades ZESCO has increasingly objected to the granting of water rights to irrigated agriculture downstream the Itezhi-tezhi dam, claiming that this would adversely affect the hydroelectricity production at Kafue Gorge.

Ministry of Energy and Water Development (MEWD) - Department of Energy

The Department of Energy is responsible for preparation of a new hydropower policy and rural electrification. The Director is aware of the water resources conflicts in connection with the Kafue Gorge hydropower scheme, but did not express any particular enthusiasm regarding a possible participation in the WRAP process.

Zambia Consolidated Coppermines Limited (ZCCM)

Responsible for provision of water and sewerage services in mine locations. ZCCM is contributing substantially to the Kafue river flow by pumping of large quantities of groundwater from the mines to the Kafue river.

Lusaka Water and Sewage Company and the Chipata Water and Sewage Company

Companies providing water to Lusaka City and Chipata Town respectively.

Local Authorities

These are predominantly urban municipalities and small urban township councils, responsible for maintaining urban water supply and sanitation schemes, and to a lesser degree involved in WRM.

Ministry of Community Development and Social Welfare

Responsible for development of point sources and sanitation in rural areas, and management of social welfare aspects of water and sanitation projects.

Ministry of Health

Responsible for the maintenance of acceptable sanitary conditions and water quality standards for human consumption.

Ministry of Works and Supply (MOW)

Responsible for water supply and sanitation in governmental institutions.

Ministry of Education (MOE)

Responsible for operation of water supply schemes at some educational institutions.

Ministry of Tourism

Dealing with water development for scenic and historic importance.

National Council for Scientific Research (NCSR)

Responsible for catchment studies and research on water resources potential and quality aspects. The level of activity is currently very low.

3. International Co-operation Institutions

The Zambezi River Commission (ZAMCOM)

Progress is being made towards the establishment of the ZAMCOM under the Zambezi Action Plan (ZACPLAN). The Protocol on Shared Water Resources has been signed by the governments and Zambezi River Commission. However, Zimbabwe has recently made a unilateral statement indicating that Zimbabwe will transfer water from Zambezi to Bulawayo and Botswana, disregarding the plans and demands of the neighbour states.

Zambezi River Authority (ZRA)

Bi-lateral river basin organisation between Zambia-Zimbabwe mainly to ZRA is sharing hydrological data with downstream users, such as the Kabora-Bassa hydropower scheme in Mozambique. The information exchange will be intensified.

Appendix G. Preliminary Budget for the WRAP

WRAP - TENTATIVE BUDGET	Unit	No.	Unit cost	Total	1997	19 98	19 99	20 00
				0				
World Bank - NORAD Missions								
Project Management and Co-ordination								
<i>WRAP Co-ordinator</i>								
Salary Co-ordinator	mm	30	7000	210000				
Accounting and Administrative Support			L/S	12000				
Travel			L/S	4000				
Per Diem			L/S	4000				
Other Expenses			L/S	5000				
<u>Sub-total WRAP Co-ordinator</u>				<u>235000</u>		<u>47000</u>	<u>47000</u>	<u>47000</u>
<i>WRAP Co-ordinating Team (CT)</i>								
Travel			L/S	20000				
Per Diem			L/S	20000				
Other Related Expenses			L/S	10000				
<u>Sub-total CT</u>				<u>50000</u>		<u>10000</u>	<u>10000</u>	<u>10000</u>
<i>Technical Task Team (WRAP TT)</i>								
Travel			L/S	15000				
Per Diem			L/S	15000				
Other Related Expenses			L/S	20000				
<u>Sub-total TT</u>				<u>50000</u>		<u>15000</u>	<u>15000</u>	<u>10000</u>
<i>Public Awareness & Stakeholder Involvement Prog.</i>								
Consultants, International	mm	0.50	12000	6000				
Consultants, Local	mm	2	4000	8000				
International Travel	trips	1	3000	3000				
Per Diem	days	15	200	3000				
Project Related Expenses			L/S	10000				
<u>Sub-total Public Awareness & Stakeholder Involvement</u>				<u>30000</u>		<u>6000</u>	<u>6000</u>	<u>6000</u>
<i>Workshops, Training and Stakeholder Particip.</i>								
<i>High Level Workshop</i>								

Consultants, International	mm	0.2	12000	2400				
Consultants, Local	mm	1	4000	4000				
International Travel	trips	1	3000	3000				
Per Diem, Consultant	days	7	200	1400				
Per Diem Participants			L/S	5000				
Workshop Expenses			L/S	20000				
Other Related Expenses				10000				
Sub-total High Level Workshop				45800		45800		
National Workshop incl. Stakeholders								
Consultants, International	mm	1	12000	12000				
Consultants, Local	mm	2	4000	8000				
International Travel	trips	1	3000	3000				
Per Diem Consultant	days	30	200	6000				
Per Diem Participants			L/S	20000				
Workshop Expenses			L/S	30000				
Other Related Expenses				15000				
Sub-total National Workshop				94000		94000		
Donor Workshops								
Consultants, International	mm	0.2	12000	2400				
Consultants, Local	mm	1	4000	4000				
International Travel	trips	1	3000	3000				
Per Diem Consultant	days	30	200	6000				
Per Diem Participants				10000				
Workshop Expenses			L/S	12000				
Other Related Expenses				5000				
Sub-total Donor Workshop				42400		14133.33	14133.33	14133.33
Study Tours								
International Travel (CT)	trips	8	3000	24000				
Per Diem	days	80	200	16000				
Related Expenses			L/S	15000				
Sub-total Study Tours				55000		27500	27500	
Training Activities								
International Travel	trips	6	3000	18000				
Per diem	days	200	200	40000				

Fees and Other Related Expenses				30000				
<u>Sub-total Training</u>				<u>88000</u>		<u>29333.33</u>	<u>29333.33</u>	<u>29333.33</u>
I. Water Resources Sector Assessment								
1. Institutional and Legal Framework								
Consultants, International	mm	1.5	12000	18000				
Consultants, Local	mm	6	4000	24000				
International Travel	trips	1	3000	3000				
Per Diem	days	45	200	9000				
Project Related Expenses			L/S	10000				
<u>Sub-total 1</u>				<u>64000</u>		<u>64000</u>		
2. Information								
Consultants, International	mm	1	12000	12000				
Consultants, Local	mm	4	4000	16000				
International Travel	trips	1	3000	3000				
Per Diem	days	15	200	3000				
Project Related Expenses			L/S	10000				
<u>Sub-total 2</u>				<u>44000</u>		<u>44000</u>		
3. Human Resources Development								
Consultants, International	mm	0.5	12000	6000				
Consultants, Local	mm	4	4000	16000				
International Travel	trips	1	3000	3000				
Per Diem	days	15	200	3000				
Project Related Expenses			L/S	10000				
<u>Sub-total 3</u>				<u>38000</u>		<u>19000</u>	<u>19000</u>	
4. Water Resources Demand, Supply and Infrastr.								
Consultants, International	mm	2	12000	24000				
Consultants, Local	mm	8	4000	32000				
International Travel	trips	2	3000	6000				
Per Diem	days	60	200	12000				
Project Related Expenses			L/S	10000				
<u>Sub-total 4</u>				<u>84000</u>		<u>42000</u>	<u>42000</u>	
5. Economics and Financing								
Consultants, International	mm	0.5	12000	6000				

Consultants, Local	mm	5	4000	20000				
International Travel	trips	1	3000	3000				
Per Diem	days	15	200	3000				
Project Related Expenses			L/S	10000				
<u>Sub-total 5</u>				<u>42000</u>		<u>42000</u>		
6. Water and Environment								
Consultants, International	mm	1	12000	12000				
Consultants, Local	mm	6	4000	24000				
International Travel	trips	1	3000	3000				
Per Diem	days	30	200	6000				
Project Related Expenses			L/S	10000				
<u>Sub-total 6</u>				<u>55000</u>		<u>55000</u>		
7. International Waters								
Consultants, International	mm	2	12000	24000				
Consultants, Local	mm	7	4000	28000				
International Travel	trips	2	3000	6000				
Per Diem	days	60	200	12000				
Project Related Expenses			L/S	10000				
<u>Sub-total 7</u>				<u>80000</u>		<u>80000</u>		
<u>SUB-TOTAL I (1 - 7) Assessment</u>				<u>372000</u>				
II. Strategy Development								
Consultants, International	mm	2	12000	24000				
Consultants, Local	mm	18	4000	72000				
International Travel	trips	2	3000	6000				
Per Diem	days	60	200	12000				
Project Related Expenses			L/S	10000				
<u>SUB-TOTAL II Strategy Development</u>				<u>124000</u>				
III. Kafue Basin Pilot Project								
Consultants, International	mm	3	12000	36000				
Consultants, Local	mm	25	4000	100000				
International Travel	trips	3	3000	9000				
Per Diem	days	90	200	18000				
Project Related Expenses			L/S	30000				
<u>SUB-TOTAL III Kafue Basin Pilot Project</u>				<u>193000</u>		<u>96500</u>	<u>96500</u>	

IV. Implementation of the WRAP				0						
(Budget to be established)										
<u>GRAND TOTAL</u>				<u>1329200</u>	<u>0</u>	<u>414800</u>	<u>358967</u>	<u>226333</u>	<u>207967</u>	<u>68000</u> <u>14133</u>

Appendix H. Comments on the Draft Report

(From the Norwegian Embassy, Lusaka 17/12/97)

Hei Torbjørn!

Har skummet gjennom ditt utkast til rapport og synes den er meget god. Har ingen spesifikke kommentarer. Eneste lille bidrag er at du ikke skal bruke NORAD Lusaka men den norske ambassaden.

Vi avventer fortsatt forslag til oppstartingsaktiviteter fra MEWD. Jeg snakket med fungerende direktør på Dep. of Water Affairs, Mr A. Hussen i går. Han sa at forslaget snart er ferdig til oversendelse til ambassaden. Det er imidlertid ikke så mye vi kan gjøre før forslaget foreligger.

Benytter anledningen og ønsker deg god jul og godt nytt år. Jeg ser fram til videre samarbeid om WRAP i året som kommer.

Hilsen Gudbrand

From NIVA

Etter avtale med Eldar oversendes utkast til rapport. Som du ser så er den litt "røff" enda, men den gir hovedsubstansen. Venter på noen innspill fra DWA og Water Board for å komplettere innholdet.

Imøteser kommentarer eller forslag.

hilsen Torbjorn

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