

Project Document
prepared for submission to
the Netherlands Government -
DOW/PO/OP

May, 1996

Library
IRC International Water
and Sanitation Centre
Tel.: +31 70 30 699 60
Fax: +31 70 35 699 64

Collaborative Programme for Capacity Building in the Water Sector of Zimbabwe and the Southern Africa Regio

the development of a sustainable education, training and research capacity in water resources management and sanitation at the University of Zimbabwe and the Institute of Water and Sanitation Development in Harare, Zimbabwe (1996 - 2001)



University of Zimbabwe
Faculty of Engineering
Department of Civil Engineering

Harare, Zimbabwe



Institute of Water and
Sanitation Development

Harare, Zimbabwe



International Institute for
Infrastructural, Hydraulic and
Environmental Engineering

The Netherlands

Collaborative Programme for Capacity Building in the Water Sector of Zimbabwe and the Southern Africa Regio

the development of a sustainable education, training and research capacity in water resources management and sanitation at the University of Zimbabwe and the Institute of Water and Sanitation Development in Harare, Zimbabwe (1996 - 2001)

LIBRARY IRC
PO Box 93190, 2509 AD THE HAGUE
Tel.: +31 70 30 689 80
Fax: +31 70 35 839 1
BARCODE: 14665
LO: 024 ZWq6

TABLE OF CONTENTS

EXECUTIVE SUMMARY

List of Abbreviations

1	INTRODUCTION	1
2	PROJECT DESCRIPTION	3
	2.1 JUSTIFICATION OF THE PROJECT	3
	2.1.1 International priority	3
	2.1.2 National priority	4
	2.1.3 Regional context	5
	2.2 DEVELOPMENTAL AND LONG TERM OBJECTIVES OF THE PROJECT	6
	2.3 IMMEDIATE PROJECT OBJECTIVES	7
	2.4 PROJECT OUTPUTS	8
	2.5 PROJECT ACTIVITIES	9
	2.6 PROJECT INPUTS	13
	2.7 COMPLEMENTARY ACTIVITIES FUNDED BY OTHER DONORS	14
3	RELEVANCE OF THE PROJECT	15
	3.1 RELEVANCE FOR RECIPIENT COUNTRY AND ITS NEIGHBOURS	15
	3.2 CONNECTIONS WITH THE NETHERLANDS DEVELOPMENT COOPERATION OBJECTIVES AND PRIORITIES	15
	3.2.1 Poverty alleviation	16
	3.2.2 Women in development	17
	3.2.3 Environment	17
	3.2.4 South-South cooperation	17
4	FEASIBILITY / SUSTAINABILITY	19
	4.1 EXTERNAL CONDITIONS	19
	4.2 FEASIBILITY / SUSTAINABILITY ANALYSIS	19
	4.3 MEANS (INPUTS) / RESULTS (OUTPUTS) RELATION ANALYSIS	22
5	IMPLEMENTING INSTITUTIONS	23
	5.1 UNIVERSITY OF ZIMBABWE, DEPT. OF CIVIL ENGINEERING	23
	5.2 INSTITUTE FOR WATER AND SANITATION DEVELOPMENT	24
	5.3 IHE DELFT	25
6	PROJECT ORGANIZATION	27
	6.1 OFFICIAL AUTHORIZATION	27
	6.2 RESPONSIBILITIES OF THE FUNDING AGENCY	27
	6.3 OPERATIONAL MANAGEMENT WITHIN IMPLEMENTING INSTITUTIONS	27
	6.4 REPORTING	29
7	BUDGET	31
	7.1 CONTRIBUTION OF THE NETHERLANDS GOVERNMENT	31
	7.2 LOCAL COST FINANCING	31
	DOCUMENTATION AVAILABLE AND USED	35

- I Memorandum of Agreement IHE / UZ / IWSD
- II Some basic Development Indicators for Southern Africa
- III Stakeholders in Zimbabwean WRM Strategy
- IV Tentative Time Schedule
- V Brief Outline of Major Items of the MSc course
- VI Tentative List of Equipment
- VII Detailed Cost Estimate

EXECUTIVE SUMMARY

1 NAME OF THE PROJECT

COLLABORATIVE PROGRAMME FOR CAPACITY BUILDING IN THE WATER SECTOR OF ZIMBABWE AND THE SOUTHERN AFRICA REGION: the development of a sustainable indigenous education, training and research capacity at the University of Zimbabwe and the Institute of Water and Sanitation Development.

2 NAMES AND ABBREVIATIONS OR ACRONYMS OF THE IMPLEMENTING INSTITUTIONS

- * University of Zimbabwe, Faculty of Engineering, Department of Civil Engineering. (UZ/DCE), Harare, Zimbabwe.
- * Institute of Water and Sanitation Development (IWSD), Harare, Zimbabwe.
- * International Institute for Infrastructural, Hydraulic and Environmental Engineering (IHE), Delft, The Netherlands.

3 COUNTRY

Zimbabwe

4 LOCATION

University of Zimbabwe, Harare

5 SHORT DESCRIPTION OF THE PROJECT

The project aims to strengthen the capacity of the Department of Civil Engineering, University of Zimbabwe and of the Institute of Water and Sanitation Development to enable them to address the capacity building needs for water resources management and water and sanitation in Zimbabwe and the Southern African region. The project will comprise staff development, the implementation of a Masters programme in water resources management, the development of strong research and information programmes and the implementation of short courses for practising professionals. The main target group of countries will be Zimbabwe, Botswana, Zambia, Namibia, Malawi, Uganda, Kenya, Tanzania and Mozambique.

6 STARTING DATE OF THE PROJECT

August 1, 1996

7 COMPLETION DATE OF THE PROJECT

July 31, 2001

8 CONTRIBUTION OF THE NETHERLANDS GOVERNMENT

DFL 4,692,813 for the 5 years programme

9 CONTRIBUTION OF THE IMPLEMENTING INSTITUTIONS

UZ (in kind)

- * Academic staff of UZ and IWSD and other support and management staff.
- * Office space, classrooms, facilities and utilities.

IHE (in kind)

- * Making available its lecture notes and materials that has been developed on the basis of 38 years of experience in water and environmental engineering.
- * Buildings, research facilities, library, etc.

LIST OF ABBREVIATIONS

DCE	Department of Civil Engineering
Dfl	Dutch florins
DGIS	Directorate General for International Cooperation
DPO/IO	International Education Division, DGIS
DWD	Dept. of Water Development, Ministry of Lands, Agriculture & Water Development
GDP	Gross Domestic Product
HRD	Human Resources Development
IHE	International Institute for Infrastructural, Hydraulic and Environmental
IOP	International Education Projects (DGIS fund)
IRC	International Reference Centre
IWRM	Integrated Water Resources Management
IWRMSD	Integrated Water Resources Management for Sustainable Development
IWSD	Institute of Water and Sanitation Development (Harare)
MLAWD	Ministry of Lands, Agriculture and Water Development
MLGRUD	Ministry of Local Government, Rural & Urban Development
MOF	Ministry of Finance
MOHCW	Ministry of Health & Child Welfare
MSc	Master of Science
NAC	National Action Committee for Rural Water Supplies and Sanitation
NFP	Netherlands Fellowship Programme
NGO	Non Governmental Organization
NL	The Netherlands
ODA	Overseas Development Administration (UK)
OECD	Organisation of Economic Cooperation and Development
OPMC	Operational Project Management Team
PhD	Doctor of Philosophy
SADC	Southern African Development Community
SE	Sanitary Engineering
SSA	Sub Saharan Africa
ToT	Training of Trainers
UADE	Union Africaine des Distributeurs d' Eau
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Education Scientific and Cultural Organization
US\$	United States Dollar
UZ	University of Zimbabwe (Harare)
WHO	World Health Organisation
WRMS	Water Resources Management Strategy
WMO	World Meteorological Organisation
WSS	Water Supply and Sanitation

1 INTRODUCTION

The Government of Zimbabwe has an active programme aimed to improve the accessibility of safe water supplies and sanitation to all of its population, especially the poor, and to improve the management of one of its most limiting resources for development, water. It is recognised that one of the major factors constraining the achievement of these objectives, is the availability of skilled and experienced personnel. The University of Zimbabwe and National University of Science and Technology produce civil engineering graduates and carry out much of the research which supports these goals. The Institute of Water and Sanitation Development was formed to assist Government in capacity building, research and technical support in the water sector.

In an effort to address the need for improved management of the water resources of Zimbabwe, the Government has initiated the preparation of a Water Resources Management Strategy. The preparation of this strategy entails a considerable demand for professional expertise. The implementation of the strategy will demand capacity building in its broadest sense of human resource development, institutional reform and improved information management.

The University of Zimbabwe (UZ), the affiliated Institute of Water and Sanitation Development (IWSD) and the International Institute for Infrastructure, Hydraulic and Environmental Engineering (IHE), Delft, have taken the initiative to start an education, training and research cooperation programme to address the capacity building needs of Zimbabwe, and to a lesser extent the Southern Africa region, in water development.

The programme will improve the production of senior level professionals, provide increased access to in-service training, and improve the research and information inputs to policy formulation such that Zimbabwe will be prepared to deal in a sustainable way with the rapidly increasing technical and institutional complexity caused by the increasing demand for water (Agenda 21, UNCED 1992).

This initiative, that also has a focus on the neighbouring countries, has been worked out by the cooperating parties since June 1993, on the basis of a questionnaire, containing 23 questions, made by the Directorate General for International Cooperation (DGIS/DPO/IOP) of the Netherlands Ministry of Foreign Affairs.

From 13 - 18 December 1993, a Refresher Course for African alumni of the Netherlands Fellowship Programme (NFP) on Integrated Water Resources Management was conducted by IHE in close cooperation with the UZ in Harare. During this period a team of IHE and UZ, supported by staff of the Ministry of Lands, Agriculture and Water Development, has discussed the cooperation programme and came to an agreement on concepts, approaches, contents and the organisational framework.

The initial project proposal was submitted to DGIS in the DSO format. Discussions with DGIS, the Netherlands Embassy and the counterpart organizations led to the rewriting of the document for submission to the IOP programme. Reason was that the IOP programme would better serve the project objectives. This project document is updated and represents the views of all cooperating parties.

Technical Review by (Date)

2 PROJECT DESCRIPTION

2.1 JUSTIFICATION OF THE PROJECT

2.1.1 International priority

In recent international meetings and conferences (Delft, 1993; Rome, 1993 and Paris, 1993) attention was drawn to the fact that Africa suffers from an enormous lack of capacity to carry out research, studies and develop policies for the region's development in general and in the water sector, in particular.

In Rome, at the Technical Consultation on Integrated Rural Water Management in 1993, African countries emphasized that there is large need for the exchange of experiences and knowledge between countries, and particularly among developing countries. In Delft, at the Conference on Water and the Environment: Key to Africa's Development, in 1993, African participants recognized in the published "Delft Agenda" the fact that lack of career opportunities and the occurrence of brain-drain are major constraints for development. The observation often heard is that there appears to be more knowledge on Africa outside the continent than inside. Representatives from African countries stated that this is an unfortunate situation, and that if Africa wants to take matters in its own hand, then the first problem to solve is the lack of a knowledge base and of study and research capacity.

A World Bank Staff Working Paper (1990) confirms these problems in its African-wide survey as follows:

- The share of scientific research, including the area of engineering and technology, in Sub Saharan Africa (SSA) is approximately 0.4% of the world's total publications, measured according to the Science Citation Index provided by the Institute of Scientific Information. Publications in the medical and biological fields have a lion's share while very few are in the physical and, especially, engineering sciences.
- The number of students in higher education at level 6¹ and 7 in SSA per 100,000 population in SSA compared to Latin America and OECD-countries are 49, 1428 and 1592, resulting in a ratio of 1:29:32. The ratio for natural science is 1:11:23, and for engineering 1:72:72. In Zimbabwe the proportion of Higher Education students enrolled in Science and Technology (e.g. engineering) disciplines was 10 in the period from 1986-1989, while Kenya, Ghana and Nigeria showed figures of respectively 32, 42 and 39.

These ratios show the high need for human resources development in the field of engineering. It promotes the improvement of the production capacity of the higher education institutes in SSA countries in general, and Zimbabwe in particular, even when knowing that the unit costs in the field of engineering are usually higher than in the other fields.

Many other international documents addressed the need for human resources capacity building in the water sector in SSA:

- Agenda 21/Chapter 18 on Freshwater systems: to achieve the goals as mentioned under Item A on Integrated Approach for the Development and Management of Water Resources, training of water managers at all levels, expansion of training and education facilities in the developing countries, exchange of knowledge and the conduct of techno-scientific research is highly needed.

¹ Level 6 corresponds to a required minimum of 3 - 4 years post secondary education; level 7 entails at least one more year of study than level 6.

- **UNDP/The World Bank, Global Consultation on safe water and sanitation for the 1990s, The New Delhi Statement:** ".... Training of professionals, managers, technicians and extension workers builds competence and confidence. Information, education and communication strategies must be integrated within Human Resources Development (HRD) policies. Women must be trained and guaranteed equal employment opportunities at all levels of staff and management..... Education is a key part of the new approach...."
- **UNDPs Delft Declaration, A Strategy for Water Sector Capacity Building (1991):** ".....Countries and External Support Agencies recognize the importance of capacity building for sustainable development at national, sub-regional and local level. Capacity building consists of three basic elements: creating an enabling environment with appropriate policy and legal frameworks, institutional development, including community participation, and human resources development and strengthening of managerial systems."
- **An International Action Programme on WATER and sustainable agricultural development, A strategy for the implementation of the Mar Del Plata Action Plan for the 1990s (FAO):** "Particularly, training and human resources development should be actively pursued through assessment of current and long term human resources requirements and training needs...."
- **WMO/UNESCO Report on Water Resources Assessment, Progress in the Implementation of the Mar Del Plata Action Plan and A Strategy for the 1990s, Strategy Component 4 on Human Resources Development, education and training, Actions International and Regional Organizations:** ".....prepare appropriate materials, syllabi, and courses for use by national and regional organizations...."

IHEs own inventories in some other SADC countries (e.g. Mozambique, Zambia, Tanzania, Malawi and Botswana) show that experts in the water sector are very supportive of this initiative, especially when it could contribute to the establishment of a Regional Network or Centre on water issues.

2.1.2 National priority

This project has a high priority on the list of the Government of Zimbabwe. The Workshop on Water Resources Management in Southern Africa, held in Victoria Falls from 5-9 July 1993, addressed the following key issues:

- the country needed to develop a water resources management strategy, as distinct from employing consultants to prepare a master plan;
- water resources planning and management must cover the full spectrum of resources and users;
- it must be able to cope with periods of scarcity, which must be anticipated as occurring with increasing frequency and severity as demands on water grow (e.g. events such as the recent drought should be considered as "normal" rather than an emergency);
- the water resources management strategy must be developed primarily by Zimbabweans. Moreover, the full depth and breadth of available skills must be mobilised to this end. The process must be seen to be truly representative of all interests.
- Use of external consultants should only be resorted to for support and capacity building in situations where local capacity is at present insufficient to meet the targets. Direction of the strategy development process should remain firmly in the hands of the stakeholders, their appointed agents and the government agencies charged with this responsibility. There must be no grounds for suspicion of undue influence being brought to bear by donors and other external agencies. Based on these key issues the Government of Zimbabwe, represented by its Ministry of Lands, Agriculture and Water Development, and supported by the British Overseas Development Administration, prepared plans for the development of a Water Resources Management Strategy (WRMS) for Zimbabwe. The documents for the development of the WRMS were to be approved in January 1994 by a Steering Committee in which relevant stakeholders are represented (see Annex III).

The need for obtaining appropriately trained and competent human resources and the provision of specialised training to update and upgrade the present corps of professionals working in the water sector is emphasized in the "Guidelines for the Development of a Water Resources Management Strategy for Zimbabwe", Volumes 1 and 2, November 1993.

For the first time the DCE is now producing enough (BSc) graduates to satisfy the number of vacant posts for civil engineers. This does, however, not reflect the extreme shortage of experienced professionals in the field of water resources management, as government departments have been experiencing a 30% annual turnover of newly qualified staff for the last ten years (Dept Water Development). There are five posts for lecturers in Water Management and Engineering teaching in the BSc programme of the DCE. Only 3.5 of these posts are filled. The only Zimbabwean is a retired part-time lecturer whilst the remainder of the staff are expatriate on short term contracts, paid at local salary rates. The loss and high turnover of these contract staff creates staffing crises on an almost annual basis. Post graduate (MSc, PhD) degrees are almost always obtained in overseas countries and theses and dissertations are not always addressing issues in Zimbabwe or the region. The basic problem of staffing in engineering at the University is not one of conditions of service, but rather the shortage of applicants who are trained to a higher degree level. The University of Zimbabwe has no higher degree programmes related to water and therefore is unable to educate students to a level where they are employable by the University as teaching staff (at least MSc degree is required for teaching staff).

In addition the lack of any advanced training in water means that while Zimbabwe is self sufficient in civil engineers, they have no opportunity to specialise and hence the country experiences a severe shortage of staff with education and training in hydrology, water resources management, water supply etc.

The demand for national expertise and the requirement for a national specialist institute in water is shown from the support given to the Institute of Water and Sanitation Development. This Institute was formed with the support and representation from the National Action Committee for Rural Water Supplies and Sanitation (NAC), the Department of Water (MLAWD), MLGRUD, MOHCW, UZ and MOF to address the capacity building needs (other than through formal education) of the water sector. Whilst having previously focused on the rural water sector it is responding to increasing demands from the urban sector and for specific activities related to the development of the Water Resource Management Strategy. The Institute does not have the capacity to respond to this high level of demand due to staff constraints and space constraints.

2.1.3 Regional context

The Southern Africa region has very limited opportunities for higher education in relation to water resources, water supply and sanitation. Most of these are in South Africa, which have not been available in the past, and are likely to be stretched in trying to cater for the new demand placed from within South Africa following majority government. South Africa is therefore likely to offer few opportunities to other countries for several years. Those graduates seeking higher education in the field of water therefore have sought such education elsewhere. All countries of Southern Africa have recognised the importance of water resources management since the 1992 drought combined with which there have been several new policy initiatives within the region emphasising sound management of water resources.

SADC has a programme of water resource management for the Zambezi basin; many donors have been supporting reorganisation of water utilities and departments in Southern African countries; most countries were represented at a seminar organised by the Economic Development Institute (World Bank) and IWSD in Zimbabwe in 1993 on water resource management; and World Bank has developed a new policy document on water resource management. All of these initiatives have strengthened the interest in water.

It is believed that this project in Zimbabwe will assist many of our neighbouring countries with formal training through the MSc programme and the opportunity to gain immediate practical experience and share ideas through the short course programme.

No surveys of demand have been carried out for training at MSc level. However, IWSD holds a postgraduate 4 month course annually in water supply and sanitation which attracts in excess of 60 acceptable applications from Africa and has had an average of 15 participants over the last 5 years of which 40% have been regional. Many of these people express the desire for an opportunity to advance to an MSc level. The MSc offers a recognized degree for engineers and allows the holders to favourably position themselves in the market. Justification can be found in the complexity of the problems facing the Southern African region. There is a regional need for specific expertise in the water sector, which requires a home base clustering knowledge and research.

The MSc level is being considered as the minimum level required for obtaining sufficient knowledge and experience in the specific managerial and technical problems the region faces and to be accepted

2.2 DEVELOPMENTAL AND LONG TERM OBJECTIVES OF THE PROJECT

The programme will contribute to the process of institutional and human resources capacity building of Zimbabwe, and the SADC² countries with respect to their water resources, in a way that is compatible with the principles of sustainable development.

Long term objectives

- i. To strengthen the capacity of the University of Zimbabwe / Faculty of Engineering / Department of Civil Engineering in such a way, that it will be able to manage and maintain the staff and facilities essential to the components *water, sanitation and environment* of the existing engineering BSc programme and to the research objectives of the Department of Civil Engineering (DCE).
- ii. To strengthen the existing Institute of Water and Sanitation Development (IWSD) to enable it to expand its capacity to set up and conduct specialised short courses for practising professionals and provide technical, information and research support to the water sector of Zimbabwe and the neighbouring countries (SADC).
- iii. To establish a regional MSc programme in Water Resources Management for Sustainable Development at the University of Zimbabwe to be run by the DCE and IWSD.
- iv. To support DCE and the IWSD to establish research programmes and facilities aiming at the sustainable development of the water resources of Zimbabwe and its neighbouring countries.
- v. To facilitate the development of institutional links between the UZ/DCE and IWSD on the one hand, and universities and similar institutes in the region and overseas.

All objectives will directly contribute to the capacity building components of the Water Resources Management Strategy of the Government of Zimbabwe.

2.3 IMMEDIATE PROJECT OBJECTIVES

From the long term objectives three areas of immediate capacity building support can be identified:

- A. strengthening of the Department of Civil Engineering and the Institute of Water and Sanitation Development through staff development and improving facilities;
- B. development of new post-graduate programmes;
- C. dissemination of knowledge.

The immediate objectives are therefore as follows:

A. *Strengthening of DCE and IWSD*

- i. Development of new lecturing and research staff at MSc and PhD level to staff the Department of Civil Engineering and IWSD with Zimbabwean professionals able to contribute to the teaching, research and consultancy programmes of the two organisations.
- ii. Re-training and refreshing present staff dealing with water management topics in the existing BSc programme and in the training and consulting activities of the IWSD.
- iii. To examine the existing undergraduate syllabus, BSc Civil Engineering, to ensure that it is up-to-date with current developments regarding water resources management for sustainable development in Zimbabwe.
- iv. Training of technicians of DCE in the use of tools and equipment and upgrading the level of workers in relevant scientific and technical areas.
- v. Training of administrative and clerical personnel of DCE to deliver support services to management, teaching and technical staff.
- vi. To improve and develop teaching and training materials for short courses of IWSD focused on regional and local issues and conditions.
- vii. To improve education, training and research facilities: laboratories, library, access of students to standard texts, and transportation for educational field trips and practical work.
- viii. To establish institutional links with universities and institutes in the region and overseas.

B. *Development of new programmes*

- ix. To develop and establish a new MSc programme in Water Resource Management for BSc graduates from Zimbabwe and the neighbouring countries.
- x. To initiate and execute applied and strategic research programmes in the field of sustainable land and water management, which can be executed by the scientific (MSc/PhD) staff of the cooperating institutions.
- xi. To refresh, update and improve the knowledge and skills in Water Resources Planning and Management and to increase the environmental awareness and motivation of professionals in Zimbabwe, and from the region by means of short training courses. These short training courses will be implemented by IWSD and will provide sector professionals with up-to-date information about water and environmental management issues (e.g. legislation, allocation, modelling, urban water management, demand and supply, availability, quality, financial and management considerations).

C. Dissemination of knowledge

- xii. To develop an information service within IWSD to provide up-to-date information on water resources management and water supply and sanitation to sector professionals in Zimbabwe and the Southern Africa region as part of the IWSD in-service training and outreach programme.

2.4 PROJECT OUTPUTS

Direct outputs are:

- a sustainable MSc programme in water resources management for the Department of Civil Engineering within the University of Zimbabwe, able to supply staff to the UZ, the Government of Zimbabwe and the region.
- a strengthened Department of Civil Engineering within UZ with qualified Zimbabwean staff running the water section of the BSc programme and the MSc programme;
- a strengthened IWSD with a short course programme run on a cost recovery basis, plus an effective information management system, developing as a 'centre of excellence' supporting the water and sanitation sector in Zimbabwe and the Southern Africa region.

More specifically, these outputs can be grouped as follows:

a. Staff development

- 6 staff members will have obtained an MSc degree at IHE.
- 15 staff members will have obtained an MSc degree through attending the newly established course at the University of Zimbabwe.
- 3 MSc holders will have completed a PhD programme in a sandwich IHE/UZ programme.
- 2 MSc holders will have started under the new local PhD programme at UZ.
- 10 staff members will have been re-trained: two staff per year will have attended refresher courses in specialist areas and/or visited centres of excellence in neighbouring countries or in the Netherlands.
- 5 technicians of DCE will have been re-trained: all will have attended specialist short courses in laboratory management.
- 5 administrative and clerical personnel of DCE will have attended short courses related to office management and office technology in Zimbabwe.

b. New and upgraded courses

- improved and newly developed teaching and training materials, as well as new modules for short courses of IWSD. It concerns new short courses in water resource management and existing short courses in water and sanitation.
- a reviewed and updated BSc programme in Civil Engineering at UZ.
- improved training and research facilities for DCE and IWSD, including laboratory equipment, library inventory and books.
- a new MSc programme in water resources management for sustainable development within DCE. Additional support will also be given to develop a MSc programme in water supply and sanitation, as well as hydrology and irrigation, depending on demands.

c. Research

- research capacity (applied and strategic) in Zimbabwe on key issues facing the sustainable development of water resources in Zimbabwe and the region.

d. Dissemination of knowledge

- ten short courses - on average two per year - for approximately 25 professionals per course for participants from the Southern Africa region. Taking into account that part of the professionals will participate in all the courses, a number of approx. 140 professionals will be trained, apart from those coming on their own expenses from neighbouring countries.
- ten seminars over the 5-year period for participants from the region. These seminars will address key issues in the field of water resources management and will contribute in the dissemination and exchange of knowledge.
- an updated information management system for IWSD, aiming at making the information accessible for professionals in the region. Also a regular newsletter will be produced.
- technical and scientific publications in local, regional and international journals feeding in-country databanks, as mentioned in Agenda 21 Chapter 18.

2.5 PROJECT ACTIVITIES

Strengthening of DCE and IWSD

- i. Candidates will be selected, 3 per year for the first two years, to undertake training to MSc level at IHE, The Netherlands. They will be expected to be mainly graduates already working in the sector although outstanding new graduates may also be selected. The successful candidates will be bonded to the University giving the DCE the option to employ them. It is emphasised that this will be a short term measure as one of the aims of the project is to develop as soon as possible an indigenous training capacity in Zimbabwe. The returning MSc staff will be expected to strengthen the DCE teaching staff in water either full or part time and also contribute to the activities of the IWSD.

From the end of the second year 5 scholarships will be offered per year for students (Zimbabwean and regional) to attend the UZ MSc course.

- ii. Five PhD candidates will be identified for training over the five year period. They will be bonded and will eventually be expected to form the core teaching staff for the MSc programme. Three of the PhD students will be trained in a sandwich programme in collaboration with IHE. The remaining two will undertake their PhD entirely in Zimbabwe through the University of Zimbabwe. The research programmes of the PhD students will form the core of the research activities.

This education and training of high-level staff requires high efforts and time. In the Netherlands' system, the minimum required time for PhD training is 3 years full time, and 4 years in case educational tasks are being assigned to the PhD candidates (AIO system). The contribution of the PhD candidates in setting up courses for the new MSc programme in Zimbabwe and their active role in lecturing justifies the choice for a 4 year sandwich PhD programme.

Other reasons not to follow the Anglophone system of 2-3 years for a PhD study for three of the future core team Zimbabweans to save time and reduce the total duration of the project are:

The Masters programme, consisting of curriculum development/maintenance, teaching and research, requires high quality staff, which can not be trained in a two-year period. The newly developed PhD staff will be the "bearers" of this Masters Programme, which will be - in the initial stage - based on the quality standards maintained by the IHE, and gradually transformed from an international course towards a more African oriented course.

Transferring a course from Delft to Harare is not a matter of transferring materials and equipment, but it is also - and more strongly - a matter of transferring a scientific and technical culture which is committed to development in Africa. PhD-level trained might feel the need to exchange ideas with IHE staff in the future, and therefore it is relevant to build up durable relationships in this cooperation programme.

The effective and durable option of training these staff under a "sandwich" system (part of the work will be carried out in their own country and part of it in The Netherlands) secures Zimbabwean staff to identify themselves with the Masters Programme and their future tasks. Please note that training of PhD staff in an Anglophone system does not ensure the focus on acquiring development oriented knowledge and skills, and therefore will deliver more "European oriented" experts rather than development-oriented African staff.

- iii. Present staff members at DCE - in particular those dealing with water management topics - will be re-trained by attending suitable seminars and conferences, and being attached to other regional institutions. IWSD will pitch some of their courses at appropriate levels to make it worthwhile for DCE staff to attend.
- iv. Training of technicians: training opportunities will be identified in Zimbabwe or in the region. The training will address the following issues:
 - Operations, maintenance and servicing equipment
 - Preparing equipment for training and research exercises
 - Laboratory exercises and guidelines for safety
- v. Training of administrative and clerical personnel in Zimbabwe.
- vi. Education and training materials:
Attention will be given to a) developing materials with a focus on local conditions and problems and b) addressing the difficulty of supplying undergraduates with affordable text books in sufficient numbers.
- vii. The BSc curriculum will be reviewed and developed to assure its relevance to the rapidly developing situation regarding water resource management in Zimbabwe and the region.
- viii. Improvement of facilities
 - * Improvement of library facilities
For the education component of the BSc and MSc programmes and also of the specialised short training courses, the library facilities have to be developed at the DCE. In order to avoid duplication most of the input, in the form of scientific information, will be concentrated at the University or Faculty library. The elements forming this support will consist of supply of books, subscriptions to a limited number of selected journals and a literature data-base on CD-ROM, supplemented by a subscription to Current Contents on diskette. Together these elements provide access to information on a wide range of literature, including the most recent publications.

Especially a CD-ROM database is suitable for both use in the research component of a graduate course and to support the research programme. The information provided by Current Contents on the other hand is especially useful for the support of intensive research activities. CD-ROM requires additional computer facilities in the form of a CD-ROM reader while a high capacity hard disk is desirable for the work with Current Contents. The present Libraries are properly equipped (personnel and space) to accommodate books and the CD-ROM computers and peripherals. The project budget will have to make provisions for supplying the above mentioned.

- * **Upgrading laboratory facilities**
Both for basic environmental education and research the present laboratories, equipment, chemicals and maintenance were found to be unsatisfactory for this cooperation programme. As the practical work forms a key issue in environmental education and research, the laboratories play a key role in the cooperation programme. A tentative list of equipment to be provided from the project budget has been prepared and is shown in Annex VI. A more specific list will be prepared on the basis of the BSc/MSc curricula and the research topics to be followed at a later stage.
- * **Transport facilities**
To implement the programme project vehicles are necessary for the duration of the whole programme. Field observations are an absolute necessity to carry out research work in the field, for which one 9-seater 4WD car will be needed, and will have to be provided from the project budget.
As university staff and students in Zimbabwe do not have the opportunity to visit specific areas for their studies, and as a consequence, are not confronted with the potentials of their country nor the threats facing them in the near future, vehicles will be needed to organise field trips for students in the BSc and MSc courses. The University of Zimbabwe will have to make available means for group transportation for BSc, MSc and the participants in the short courses.

Development of New programmes

- ix. The establishment of a new MSc curriculum/programme in IWRMSD; This programme is developed to address the needs of professionals in Southern Africa for further training and education in the water sector. The demands are for a variety of specialist training and this will be addressed through the development of a modular MSc programme with a core on water followed by options for specialisation in one of hydrology, water resource management, water supply, or irrigation and a project in the specialist area. A brief outline of the MSc programme is presented in Annex V.
Regulations for an MSc course will be developed and passed through the University system during the first 17 months. At the same time a detailed course curriculum and course modules will be developed. The course will be offered for the first time in January 1998.
- x. Training course modules will be developed for a series of new short courses in water resource management and further materials will be developed to extend and improve existing short courses in water and sanitation currently given by IWSD. These will include: Community management; Monitoring water quality; Urban water conservation; Economics of water development; Urban water management; Urban sanitation.

Research activities and consultancy

- xi. A research programme will be prepared focusing on key sector issues and to which undergraduate and postgraduate students will be expected to contribute. An additional focus will be the training of sector staff in research methodology.

All research will pay attention to issues mentioned in Agenda 21, the DGIS policy on poverty alleviation (e.g. low cost approaches), women in development and institutional development (e.g. also taking into account participation of all stakeholders involved in the water sector).

Before embarking with a set of research subjects a general consultation session will be organised, involving all key players in the Southern African water sector, to agree about high priority issues.

Key research areas will be underground water pollution, options for demand management, sustainable land and water use systems, biological treatment of waste and community management of water supplies.

This is again a reason why the PhD-candidates need to be under the immediate supervision of IHE, who is actively involved in the activities of some multilateral agencies e.g. Symposium on Water Sector Capacity Building I - and forthcoming - II, the advisory function in the joint-initiative of the World Bank and the Union Africaine des Distributeurs d'Eau (UADE) to establish a Capacity Building Programme for the water and sanitation sector in Africa.

The research work of the PhD candidates will be carried out in Zimbabwe with joint supervision from UZ and Delft. The 'sandwich' type of PhD programme of IHE (duration of 4 years) requires an initial preparatory phase in The Netherlands of approx. 5 months after which the major research work will be carried out in Zimbabwe. Participants are further required to take annual (advanced) training in several subjects at IHE (approx. 2 months per year). At the end of the PhD programme the thesis will be prepared at IHE during a concluding period of approx. 6 months.

Sandwich PhD structure and visiting professors (also see timetable Annex IV)

	Year 1	Year 2	Year 3	Year 4
PhD Candidate 1 in NL: Zimbabwe	5 : 7	2 : 10	2 : 10	6 : 6
PhD Candidate 2 in NL: Zimbabwe	5 : 7	2 : 10	2 : 10	6 : 6
PhD Candidate 3 in NL: Zimbabwe	5 : 7	2 : 10	2 : 10	6 : 6
Visits of Supervising Professor / Ass. Professor	3	3	3	0

To keep the curriculum up-to-date and to be able to train MSc participants, it is vital that the scientific staff is enabled to carry out research themselves. In view of the curriculum to be developed for the BSc and the MSc programme, the involved parties will have to select a number of research topics.

The research should preferably:

- a. be derived from existing problems in the region and thereby contribute to the development of the sector;
- b. fit into the strategic research goals of one of the organizations in which future graduates will be employed;
- c. offer the possibility to staff members of different departments of the University of Zimbabwe, which contribute to the curriculum, to cooperate (promote inter-disciplinary research);
- d. be carried out with existing equipment or the equipment provided through this project.

Consultancy activities will be promoted professionally in order to generate additional income for the Department of Civil Engineering (DCE) and the Institute for Water and Sanitation Development (IWSD).

Dissemination of Knowledge

- xii. Two short courses per year and two seminars will be held for participants from the Southern African region on water resources management. The courses will focus on topical aspects of water resources management and will aim to improve decision making and consensus. The seminars will be awareness raising on issues requiring policy formulation.
- xiii. In collaboration with IRC (International Reference Centre, Den Haag) the IWSD will develop an updated information management system and further develop the library on water and sanitation. IWSD will produce a newsletter three times per year for circulation within the region.

2.6 PROJECT INPUTS

The following inputs are required to achieve all set goals:

Personnel inputs

- 1 long term expert (48 months) attached to DCE to develop the MSc curriculum and training materials and to provide the teaching support for staff on refresher training. Initially, this person will be an experienced Zimbabwean and will be replaced by an expatriate from IHE during his sabbatical leave in year 3. The salary of the project staff member will be paid by both the project and the University in year 5 (50% each) as a lead to the complete takeover of financial responsibilities in year 6 by the UZ.
- 1 long term expert from IHE (24 months) replacing the above mentioned Zimbabwean expert in year 3, with an overlap of two times 6 months. The expatriate will be a senior educational expert in the field of water resources with considerable experience in establishment, administration and teaching of higher degree post-graduate courses in water resources, who will oversee the implementation of the first MSc course.
- 1 long term expert attached to IWSD (60 months) to develop course materials and support the running of short courses and seminars and the development of a research programme on water resources management. The salary of this staff member will be taken over at 33% per year from year 4 through year 6 by IWSD reflecting the cost recovery nature of the programme.
- short term visiting senior experts from IHE to assist in implementing the MSc programme at UZ (1 x 14 days and 5 x 21 days).
- short term visiting senior experts from IHE to assist IWSD in developing a research programme (2 x 14 days).
- short term visiting senior lecturers and PhD supervisors from IHE (9 x 21 days).
- short term visiting consultants from IRC (2 x 30 days) to assist the IWSD in the development of an information strategy. They will advise on the development and management of the library service, the approach, method and financing of information dissemination, in determining the potential role of the institute in the development and dissemination of policy or sectoral analyses and in other methods of information management and dissemination.
- local / regional part time consultants and experts (21 months) to develop the course teaching materials in the first two years and to assist with specialist inputs to the teaching of the MSc in the three remaining years.
- local / regional part time consultants and experts (10 months) to provide specialist input for the short course programme in water resource management. Additional support for the short course programme as well as research activities will come from working with the consultants and experts visiting the UZ DCE. Close cooperation will ensure the best utilisation of visiting expertise.

UZ and IWSD will have an own contribution estimated at Z\$ 1,500,000 in the form of permanent staff salaries, support staff salaries, management staff time and accommodation.

Fellowships

- 6 foreign based MSc fellowships at IHE.
- 15 Harare based MSc fellowships at UZ.
- 3 PhD fellowships abroad under a sandwich programme IHE / UZ.
- 2 locally supervised PhD fellowships.
- 10 attendances in short training courses, local and regional, for DCE staff.
- 2 attendances in short training courses, local and regional, for IWSD staff.
- 10 fellowships for each of the short courses conducted by IWSD for UZ staff members.
- 10 fellowships for short training of technicians and administrative staff of DCE.
- 2 fellowships for short training of technicians and administrative staff of IWSD.

Travel and living costs

10 participants (5 local and 5 regional) will have costs covered for each of the two short courses / year. The remainder of the participants will source their own funds thus ensuring the demand driven nature of the short course programme and following IWSD principles of sustainability.

Travel and living costs will be required as part of the fellowships offered for staff development activities (6 foreign MSc, 15 local MSc, and three sandwich foreign/local PhD).

Travel costs include some regional travel to promote the short course programme as well as the regional travel associated with the refresher training of DCE staff.

Seminars on critical topics in water resource management will have two or three keynote speakers invited to stimulate interest and share experience.

Equipment and materials

Equipment (see Annex VI), educational materials, books, library facilities will be required to upgrade the DCE facilities for the MSc programme and to assist the development of the information system and short course programme of the IWSD.

Research

Research funds are to address the priority (specified) areas as well as to allow the MSc students some funding for field research activities. This is likely to include a vehicle, research equipment and library support.

The University of Zimbabwe and IWSD will provide additional support staff, space and facilities. A contingency of 3% of the total budget will be set aside in case of unforeseen problems, such as exchange rate fluctuations or additional equipment requirements.

2.7 COMPLEMENTARY ACTIVITIES FUNDED BY OTHER DONORS

The IWSD is a non profit organisation and is funded in part under an agreement with the World Bank. The World Bank provides a small amount of core funding with over 90% of the finances of the Institute being generated from activities.

There is a proposed Netherlands support to the Integrated Rural Water Supply and Sanitation Programme which is covering 2 districts over a five year period. The IWSD has been very active in supporting the capacity building and providing consulting support to these programmes in other districts and any strengthening of IWSD would increase its capacity to provide this support as the National rural water supply and sanitation programme continues to expand.

The DCE has had a cooperation programme with ODA and the University of Loughborough where staff support and staff exchange programmes were promoted. The DCE has had the benefit of staff development programmes although the rate of return of these students has been inadequate for the experienced staff turnover. This external support ended in 1992.

3 RELEVANCE OF THE PROJECT

3.1 RELEVANCE FOR RECIPIENT COUNTRY AND ITS NEIGHBOURS

In recognition of the capacity building needs of the water and sanitation sector an externally funded project (Training Centre for Water and Sanitation) was established in 1989. This centre was demand driven and focused primarily on the needs of the rural sector with the provision of training, consultancy and advisory services to sector professionals in Government, local authorities and NGOs. With the support of the University, the Ministry of Finance, the Department of Water and the National Action Committee, the Training Centre was changed into the Institute of Water and Sanitation Development with the aim of becoming a centre of excellence providing information, analysis and capacity building support.

With the critical shortage of civil engineers experienced after independence, the Department of Civil Engineering increased its capacity and now graduates approximately 40 Civil Engineers per year (38 in 1994). The number of new engineers is now adequate but the Department has had little success in attracting qualified Zimbabwean staff and sector professionals have little opportunity for post-graduate professional training. The result is a shortage of experienced and senior level engineers throughout the water and sanitation sector.

Regional participation in the MSc programme and short courses will contribute significantly to the sharing of experiences between Southern African countries and build a resource base for continued exchange. The IWSD has already considerable experience in regional short courses and has had participants from many neighbouring countries on previous programmes. The IWSD also maintains a mailing list of several hundred sector professionals from the subregion.

It is therefore believed that not only is the proposed programme relevant to Zimbabwe and the region but it will attract adequate support to maintain it.

The proposed MSc course will be multidisciplinary in that it will not only target engineers. Entry qualifications will include a range of disciplines to reflect that water resource management is not only a technical function but - among others - also has social, political, legal and health dimensions. The curriculum will reflect this by structuring the course so as to have technically biased and management biased modules. This broad based approach to the MSc and the short courses will allow the inclusion of a much greater catchment for the programme and also assist in reaching a better gender balance than is likely to be possible from the engineering field alone.

3.2 CONNECTIONS WITH THE NETHERLANDS DEVELOPMENT COOPERATION OBJECTIVES AND PRIORITIES

According to the policy document of the Netherlands Government (DGIS, 1992) for the Southern African Region from 1992 - 1995, cooperation will, among others, focus on the following sectors:

- Rural Development, to increase the production of food in the small-scale agriculture;
- Human resources development and research, also at university level.
- All activities should be integrated with environmental and gender issues, and focused on the alleviation of poverty.

This education, training and research project on Integrated Water Resources Management for Sustainable Development meets to all planned interventions of the Netherlands Government with regard to SSA, and Zimbabwe in particular. The project will contribute to the process of institutional and human resources capacity building in the water sector in Zimbabwe.

WATER, A POLICY MEMORANDUM (DGIS, 1989), Chapter 3, page 16: "...The transfer of knowledge and demonstration will remain key elements in Dutch assistance." And the objectives in paragraph 3.3., page 16: "...Other activities in this sector (Water and sanitation) include the responsible utilization and management of groundwater and surface waters, measures to improve the recovery and/or purification of waste substances, and steps to prevent or reduce environmental pollution...".

The objectives and activities of this cooperation programme also meet to the new policy-in-draft (4/12/1993) of the Directorate General for International Cooperation (DGIS) of the Netherlands Government on "**Water Management and International Cooperation**". This programme consists of all major principles on water mentioned in AGENDA 21 and the World Bank's policy on Water Resources Management (1993).

According to paragraph 4.2.3.1. the DGIS policy-in-draft will support initiatives for institutional and human resources capacity building to strengthen Integrated Water Resources Management (IWRM). It will support education institutions in setting and conducting programmes in IWRM; also it will support training of managers and technical professionals and on-the-job activities to strengthen the planning activities. The new policy-in-draft will also support initiatives with a pilot character in order to make clear the principles of IWRM to the recipient organisations, so that they can build up more confidence in the applications of IWRM.

In paragraph 4.2.5.2. on 'Knowledge Centres' the policy-paper-in-draft is intending to support the establishment of national and regional knowledge centres, where all relevant information, data and experiences with regard to IWRM will be brought together, accumulated and disseminated. These knowledge centres could be public research centres or universities, who will further establish regional networks.

The following paragraphs will elaborate on the specific impacts of the project on key issues mentioned in policy documents of DGIS.

3.2.1 Poverty alleviation

Human development and poverty alleviation

The project will not substantially and immediately contribute to a direct alleviation of poverty in Southern Africa, or more specific, in Zimbabwe, although, it is known that human development leads to better access to needed skills, markets and information. Training, in general, provides people individual, social and economic empowerment, which is defined as the process which enables the people awareness or consciousness to identify their goals, solve their problems, and through proper organization, gain access to resource and skills to determine and act on their own future by and for themselves. Good quality education can improve the use of natural resources and enhance options for diversifying incomes away from natural resources. More specific, poverty is closely related to inadequate access to land and water resources. Hence Integrated Water Resources Management contributes to solving poverty problems, whereas training in IWRM is a sustainable approach to strengthen Zimbabwe's capacity to solve its own poverty problems.

Poverty alleviation aspects incorporated in the project activities

The project will certainly focus on poverty aspects related to water and environmental resources management e.g. spread of diseases effecting health of the poor, impact of degradation of natural resources on decreasing productivity of the poor, and recovery of costs for services (e.g. water supply for human consumption and irrigation) to the poor. The impact of poverty on water and natural resources will also be emphasized; it will focus on constrains in time horizons of the poor people, struggling with day-to-day survival rather than long term planning of the use of natural resources. It will also focus on the poor's use of water and other natural resources taking risks (e.g. they have little choice but to over-exploit any available natural resources) with fewer means to cope.

Through its short courses and technical support to government and local authorities in both rural and urban areas the IWSD is directly impacting access to and sustainability of water supply and sanitation services for the poor. Improved capacity of the Institute will therefore contribute to this impact.

3.2.2 Women in development

Female participation in the project

The short course programme of IWSD has had almost 20% of female participants over the last two years. Women entering the field of engineering have been very few (1%) in the programmes of the Department of Civil Engineering. In order to increase the female participation the University of Zimbabwe is currently implementing a policy of affirmative action in favour of women on admission to the University. This is being done to correct a historical gender imbalance. It is the intention to increase the number of women in all the courses, including those in Engineering. As long as the women meet the entry qualifications for admission, they will be strongly encouraged to apply for participation in the project. Preference will also be given to female participants in the training courses, and in the staff development activities.

It is therefore expected that:

- any circular advertising the scholarships or short courses will encourage application from women, and;
- 50% of the scholarships will be allocated to women, provided that sufficient qualifying applications are received.

Gender-related issues

Water and environmental resources can be explored in a sustainable way only with the active participation of concerned people, including women. In the project attention will be paid to the role of women and their influence in policy formulation, design alternatives, investment choices and management decisions affecting them. In certain fields of research, where gender-related issues play an important role, these aspects will be dealt with in detail. In developing education and training materials the specific role of women in the daily process of water management will be highlighted if relevant. It is, for example, known that women - particularly those in relatively poor communities, spend a disproportionately large part of their time to seeing that their household is supplied with sufficient water of adequate quality. Management of water supply and environmental sanitation systems give ample attention to gender issues with the aim to enable women more time to be dedicated to their own and their households' development. Capacity building in WSS is a sustainable approach to reach this aim.

3.2.3 Environment

The project will expose all staff and participants to the latest environmental issues mentioned in Agenda 21 (UNCED), in particular chapter 18 on Freshwater Conservation. There will be a focus on their applicability in the development and implementation of strategies and cost-effective mechanisms for the ecologically sustainable management, protection, and restoration of recharge areas and water-dependent ecosystems e.g. wetlands and river basins. Environmentally sound water resources management is an integral part of IWRM.

3.2.4 South-South cooperation

Senior Southern African (NFP) alumni of IHE will be mobilised to contribute to the training programmes in Zimbabwe. Some of these Southern African professionals will be contracted and requested to lecture. This will give them an opportunity to share their experiences with Zimbabweans. The quality standards of these inputs will be jointly formulated and monitored by the

executing organisations. These efforts will improve the contacts between Southern African professionals in Integrated Water Resources Management for Sustainable Development, and would preferably lead to a network and exchange of information.

Regional participation in the MSc programme and short courses will contribute significantly to the sharing of experiences between Southern African countries and build a resource base for continued exchange. The IWSD has already considerable experience in regional short courses and has had participants from many neighbouring countries on previous programmes. The IWSD also maintains a mailing list of several hundred sector professionals from the subregion.

4 FEASIBILITY / SUSTAINABILITY

4.1 EXTERNAL CONDITIONS

External conditions which may influence implementation are listed below. For each condition it is mentioned how it will be countered so as to minimize the negative influence.

- a) **Financial constraints within the UZ which may limit the number of staff to be appointed. It is however a practice at the UZ that if the Department is allowed to introduce an MSc programme, additional staff posts are given to the Department, i.e. their costs are incorporated into the planned budget.**
 - > **The University has no record of restricting the recruitment of staff in Civil Engineering and actively encourages the recruitment of qualified staff, preferably Zimbabwean, to fill vacant posts. However, in order to positively influence these external conditions, the UZ will agree, as part of this proposal, to recruit qualified staff to all vacant water posts within Civil Engineering should suitable applicants be available.**
- b) **Students sent for training may not return or may prefer to work elsewhere.**
 - > **Trainees will be bonded to the University or IWSD in a legal contract which will assure their return and availability for appointment.**
- c) **Enough women may not apply for the programme or may not be eligible for the programme.**
 - > **Women will be encouraged to apply for scholarships in the publicity. The cross disciplinary nature of the MSc will enlarge the opportunity for women applicants.**
- d) **Expected conditions of service at the UZ may not attract enough graduates at a high enough calibre for postgraduate training.**
 - > **The University currently has over 1000 academics on staff (80 in Engineering) with expatriate staff receiving the same basic salaries as locals. Reason why it is found to be difficult to attract more Zimbabwean academic staff is not due to the conditions of service but is simply a consequence of the restricted number of local MSc and PhD holders. There is a sufficient number of BSc graduates available, but the MSc degree is the minimum required for teaching staff. The project will contribute to the development of existing staff and to the education at MSc and PhD level. The newly trained staff will strengthen the Department of Civil Engineering and deliver input to both the BSc and MSc programmes.**

4.2 FEASIBILITY / SUSTAINABILITY ANALYSIS

The development of the MSc programme in UZ is particularly included in this programme as a measure to ensure sustainability and overcome the necessity for external postgraduate education. After the initial training of staff externally, the MSc programme will ensure that staff in water can be trained in Zimbabwe thereby ensuring the availability of locally trained postgraduate and specialist staff for the University, the Government and private sector in the future.

The programme will not be able to address conditions of service issues as they affect retention of staff. However, as there is now a surplus of engineers in Zimbabwe (BSc level) and the country is undergoing a rapid economic structural adjustment programme, it is expected that this will result in more market related conditions of service at the University in the medium term plus a demand for higher degree training.

The University of Zimbabwe takes full responsibility for upgrading the BSc course in Civil Engineering. The DCE has a strong tradition in reviewing all its programmes on a regular basis and commits itself to adapt the water related courses in the BSc programme to the demands of the new MSc course. The sustainability of this BSc programme is not questioned. The course has been organized for years and has proved to be viable. The available academic staff (mainly expatriate) has been active in the programme over several years and has proved to be capable of running the BSc course, although it is recognized that strengthening of staff would be welcome. This capacity building project aims at a substantial development of staff from DCE and thus will deliver qualified personnel, able to enhance the desired sustainability of the BSc programme.

The MSc programme itself is designed to be sustainable. The intended modular structure will assist in ensuring enough applicants to keep the course viable and will provide for a much greater catchment area for potential students and also cater for as many varied needs of the region as possible. A single topic MSc is not considered to be viable and would not address the broad needs for water sector training. Sustainability is also encouraged through the establishment of a cost recovery course fee structure. As a regionally offered course, the fee would cover lecturing, course and accommodation costs.

Support has not been requested for all participants expected to attend the MSc. It is expected that some of the participants will identify their own funding and as the Netherlands support comes to an end the course should be well known enough to continue to attract participants.

UZ will contribute in making scholarships available for Zimbabweans to attend the MSc course. The Government recently proposed that higher degree students be offered the same facility as undergraduates of loans and grants for their education. This will particularly benefit the engineering graduate students whose numbers now exceed the employment opportunities.

One of the possible indicators of a successful introduction of the MSc programme would be the reallocation of scholarships by donors (Netherlands included) from northern institutions towards scholarships for participants at UZ/DCE. This would presume that the quality of courses on offer and the costs are competitive.

Analysis of the proposed MSc

Viability - applications.

The proposal states the estimated need for an MSc programme in the region on the basis of a) the lack of equivalent training opportunities in Africa, b) the shortage of trained and experienced staff in the water sector; c) IWSD experience with regional participants and d) the raised awareness and importance given to water in Africa given the increasing frequency of water shortages. Additionally it can be seen that many Africans leave Africa each year to take up training elsewhere. IHE alone has trained approximately 1150 Africans in the period 1957 - 95. Out of a total of 250 postgraduate diploma participants in 1995/96 80 are from Africa and 29 are doing an MSc. IHE state that these numbers from Africa have grown rapidly in the past five years and will continue to grow in the future.

It is therefore believed that there is a need for the MSc programme and that it will be adequately subscribed by the minimum needed of 10 - 15 students per year, reaching a level of 20 students/year in year 2001.

Viability - economic.

Previous studies have shown that governments in Africa rarely find the resources to send participants for training outside the country. There is a general reliance on external support for this purpose and, unfortunately, there is no reason to believe that this situation will change in the near future. However the MSc proposes that Netherlands support for scholarships will be limited to 5 per year and that additional participants will be expected to source their own funding. Applicants to IWSD postgraduate activities source their own funds and it is believed that the cheaper course and attractive venue of Harare will ensure an adequate number of participants.

The estimated minimum costs of running the MSc-course for full sustainability are as follows:

-	2 senior PhD-level staff	Z\$	2 x 129,000
-	3 mid PhD-level staff	Z\$	3 x 115,000
-	3 MSc level teaching assistants	Z\$	3 x 105,000
-	2 BSc level technicians	Z\$	2 x 83,000
-	1 Secretary/administrator	Z\$	1 x 57,000
-	housing and transport allowance	Z\$	11 x 18,360
-	block allocation and research grant	Z\$	8 x 12,000
-	Operations & Maintenance costs (incl. laboratory facilities, transport, office and library)	Z\$	180,000
	GRAND SUB-TOTAL	Z\$	1,618,960
	contingentioes (5%)	Z\$	80,948
	GRAND TOTAL	Z\$	1,699,908
		[US\$	170,000]

A rough estimate indicates an amount of US\$ 170,000 / 20 = US\$ 8,500 per student per year (at price levels of 1996, and assuming 20 students/year in year 2001), or say US\$ 710 per student-month. By comparison, tuition costs for the UNESCO-sponsored programmes in Cairo (Egypt) and Budapest (Hungary at VITUKI) are US\$ 1500.= respectively US\$ 1000.= per month. To compare such fees with those paid at IHE Delft is unreasonable since the real costs are subsidized.

Of relevance, however, is that the Netherlands Government grant aid per student-year to this institute is in order of US\$ 24,000.= (Ministry of Foreign Affairs, 1993).

The basic support fee of government sponsorship is currently Z\$ 18,700 per annum (US\$ 1,870) for Engineering undergraduates. This is broken down as follows:

-	tuition fees	Z\$	1,700
-	payouts (living expenses)	Z\$	13,100
-	on-campus accommodation @ Z\$ 17 per day	Z\$	3,700
-	other fees and levies	Z\$	200
		Z\$	18,700

If all the direct operational costs for the UZ MSc course are taken into account (i.e. costs for living and accommodation, tuition fee, excursions, utilities, books, etc.) then the costs per student-month will be approximately US\$ 710 + US\$ 1,870 / 12 = US\$ 865 per student-month, which is 57% less than the costs per student-month at IHE Delft.

To cover and sustain these costs UZ will have to find enough funds; most probably UZ will have to market and acquire fellowships (also regionally) at several donor agencies in Africa. With a good quality package we expect quite some attention from external support agencies, and people who would be willing to pay for the MSc course.

Short courses

The IWSD currently runs short courses on a full cost recovery basis. The development of a new programme in water resource management would involve start up costs and would contribute some scholarships but would not deviate from the principles of operation of all IWSD courses. In this regard, the IWSD would be gradually taking over the staff costs in year four and five.

4.3 MEANS (INPUTS) / RESULTS (OUTPUTS) RELATION ANALYSIS

Scholarships

The expenditure on scholarships and training related expenditure of Dfl 1,516,200 is a high proportion of the overall budget (33%) and is used directly in the production of personnel with enhanced skills and knowledge in the water resources and sanitation sector. These costs reflect the real costs of training and will result in the development of human resources currently lacking in the region and of great importance in the sustainable development and utilisation of water resources. These staff will also be responsible for institutional strengthening and most of them will be able to contribute to further capacity building through teaching at the Masters programme at the University of Zimbabwe and on the short course programme.

Personnel

Personnel consumes 39% of the budget and is a major investment cost of the programme. The staff contributing to the project are responsible for developing the MSc course, short courses, all teaching materials and contributing to some of the teaching. A significant cost at the beginning of any new programme is the development of course materials. These need to be of a good standard and will remain as the major resource for the future training of the MSc and short courses. The investment in personnel is therefore essential and will result in the major outputs of the project.

Equipment

Approximately 20% of the budget will be spent on equipment the main result of which will be a well equipped department of Civil Engineering with up to date resources to run an MSc programme in water.

The benefits of all of these components will continue long after the project has terminated and the comparatively low expenditure on running costs (excluding personnel) of 8% of the budget suggests that these costs may be feasibly taken up by the institutions at the end of the project period in order to continue the benefits. The continuing personnel costs will be reduced as the project enters a maintenance phase as a major investment of the personnel was in the development of the new programmes and materials.

5 IMPLEMENTING INSTITUTIONS

5.1 UNIVERSITY OF ZIMBABWE, DEPT. OF CIVIL ENGINEERING

Name of the institutions

University of Zimbabwe

- through the Department of Civil Engineering in the Faculty of Engineering.

Abbreviation or acronym

DCE, UZ.

Bank and account number

on application

Objectives of the implementing institution

The primary objective of DCE is teaching and research at graduate and postgraduate levels. The Civil Engineering curriculum has included a comprehensive water resources programme for the last 15 years. External examiners, members of the UK Institution of Civil Engineers, have consistently approved the standard of the BSc programme.

Role of the implementing institution in the development process of the country or region where the institution is established

DCE's role has been the production of well trained graduate Civil Engineers through the teaching of accredited courses, research, and postgraduate training. Consultancy is actively encouraged. DCE also offers technical advisory service to Government through membership of various committees e.g. the Standards Association of Zimbabwe.

Policy strategies of the institution

The DCE intends to continue teaching a well balanced undergraduate course based on four major subdivisions namely: Structures; Soils & foundations; Water and Sewage Treatment; and Transportation. It intends to establish MSc courses to continue engineering education to higher levels in these areas, and specialist areas within them. In the mean time, various lecturers are contributing to the short courses (not usually in water) being run by the Zimbabwe Institute of Engineers, managed by Speciss College, Harare.

Geographical scope of the implementing institution

UZ/DCE IS primarily Zimbabwean in focus. It does not have any regional students in its undergraduate programme due to the high demand from Zimbabweans, with many turned away annually, and the higher entrance qualifications demanded at the university of Zimbabwe than at most other regional universities. The policy of the University is to encourage regional links and development of regional programmes.

Activities of the implementing institution

The DCE has an annual intake of 40-50 students for the BSc Engineering degree programme. DCE's primary activity is the training of these students in accordance with an approved and accredited syllabus. All areas of civil engineering are covered - structures, transportation, water and public health engineering, and geotechnology. In the past a few postgraduates have been produced. A consultancy group is in place and functioning.

Staff

The DCE has total establishment of 19 academic posts distributed by subject as follows: Structures 7; Water 5; Transportation 2; Geotechnology 3 and Drawing 1. The academic chair is currently vacant. In addition to the academic staff there is a full complement of technical and administrative support staff.

At February 1995, of the 5 posts in water, 3 full time staff and one part time staff member are in post. The full time staff are all expatriate on two year contracts.

Premises, equipment and facilities

DCE has ample office, workshop and laboratory accommodation. For water resources there is a hydraulics laboratory and a public health laboratory. Both are reasonably equipped for the undergraduate courses. However, some equipment is obsolete and will need to be updated in order for them to be able to support the proposed water resources management MSc course. DCE has no vehicles of its own and hires from the University pool - which has been found to be an unsatisfactory arrangement.

Evaluations of the implementing institution, carried out by third parties

The ZIE has accredited the BSc honours degree in Engineering twice, the second time for the period 1994 -1996. The present and previous external examiners for the DCE have recommended that the Department apply to the Joint Board of Moderators of the Institutions of Civil, Structural and Building Services Engineers for British accreditation.

5.2 INSTITUTE FOR WATER AND SANITATION DEVELOPMENT

Name of the institutions

Institute of Water and Sanitation Development.

Abbreviation or acronym

IWSD

Bank and account number

Barclays Bank, FCDA Branch, Box 1279 Harare, Zimbabwe. Acct no. 6579101

Objectives of the implementing institution

IWSD As stated in the constitution, the objects for which the IWSD is established are:

- * to contribute to capacity building (human resource development, institutional strengthening and policy reform) in the water and sanitation sector;
- * to promote and undertake the training of water and sanitation personnel and trainers in technical, managerial, economic and social issues to increase performance and productivity;
- * to develop an independent advisory service to government, local authorities, the private sector and international organisations in management of water and sanitation.
- * to develop an information support service for state of the art information pertaining to all aspects of water supply and sanitation;
- * to promote and undertake applied research in the work place and at graduate and postgraduate levels in the area of water supply and sanitation.

Role of the implementing institution in the development process of the country or region where the institution is established

The IWSD was recently formed as a non profit, non government organisation from its predecessor, a World Bank funded project called the Training Centre for Water and Sanitation. The mandate of the IWSD is explained in the Policy Framework³ and a summary of the training activities is given in the annual report⁴. The IWSD is active in short courses held in Zimbabwe and the region, provision of consultancy services, research and information services. A summary of progress to Dec 1994 is given in the annual report and the Institute can be seen to be closely involved in the water and sanitation sector of Zimbabwe.

The Institute, through its consultancy, advisory, research and training activities, influences government policy and assists government implementation of effective water management, supply and sanitation strategies.

3 can be provided on request.

4 can be provided on request.

The IWSD operates as a non profit organisation but along commercial lines. Ninety percent of its income is at present derived directly from its activities and services and the intention of the management is to improve the sustainability of the organisation over the next four years and increase its ability to respond to sector needs. The current project should not undermine this approach.

Policy strategies of the institution

The IWSD has had a focus on rural water and sanitation and assisting the delivery of services to the poor through improving the capacity and quality of government and local authority staff to deliver and maintain services. An important thrust has been in support to policy formulation by government and the promotion of sustainable development through decentralisation and community management of services. The IWSD has itself been adopting an approach to enhance its own sustainability and relevance by adopting a cost recovery approach to all services rendered.

Geographical scope of the implementing institution

IWSD are primarily Zimbabwean in focus. The IWSD however attracts a large number of regional participants to its courses and carries out a number of regional assignments annually.

Activities of the implementing institution

The activities of IWSD are stated in the annual report and can be provided on request.

Staff

The IWSD has five professional staff dealing with water and sanitation of which two are engineers, two are health and one is a planner.

Premises, equipment and facilities

The IWSD is currently housed within the Civil Engineering Department free of charge using approximately 200 sqm of space. The IWSD has a full compliment of teaching and office equipment for its existing operations plus four vehicles, including a minibus, for field visits and student transport.

Evaluations of the implementing institution, carried out by third parties

The IWSD began as a World Bank executed project and was under the supervision of the World Bank and subject to annual tripartite reviews. The project was not formally evaluated at its termination but was commended as a successful project. The continuing relationship with the World Bank sees their support in the transition of the Institute to a fully sustainable Zimbabwean Institution. The Institute produces comprehensive annual reports and audited accounts which are open to public scrutiny, presented to members at an Annual General Meeting and also to the Ministry of Social Welfare.

5.3 IHE DELFT

International Institute for Infrastructural, Hydraulic and Environmental Engineering.

IHE is an international institute for scientific research and postgraduate education and training in the fields of water, the environment and transportation, located in Delft, the Netherlands. The institute, a non-profit organization, operates under the responsibility of the Netherlands Ministry for Education and Science, which recognizes its Diploma's and Degrees. The Institute is also supported by several international organisations such as UNESCO, WMO, WHO, UNDP, UNEP etc..

Its main aim is to contribute to the international exchange of knowledge and skills among professionals in institutions in countries in development. IHE understands the importance to have institutions and individuals in the developing world who can understand, assimilate and, if necessary, adapt this knowledge to local conditions.

IHE has conducted international postgraduate courses since its establishment in 1957. Since that time, many thousands of engineers and scientists from all over the world have come to Delft acquiring the knowledge and know-how crucial for them and their employers. Each year, IHE attracts professionals of more than 70 different nationalities.

IHE has 65 academic staff members, of which 14 professors and 17 associate professors. The total permanent staff of IHE amounts to 120, while a total of 400 guest lecturers provide much of the teaching in Diploma courses.

IHE's new and extended buildings were completed in 1992 and have been in use since then, which means that student and staff at IHE have the availability to modern and fully equipped facilities, including computer facilities and Environmental laboratories. Students at IHE have new and well equipped accommodation facilities and backup provided by Students' Affairs Department make studying in Delft an efficient activity.

IHE's main other activities include: tailor made courses in Delft and abroad is provided by IHE at the request of national and international organizations.

IHE provides its knowledge, skill and experience available within the framework of development project with a focus on institutional and human capacity building.

IHE has consolidated its research activities under the main theme: Integrated Water Resources Management and Ecology and Management of Aquatic Ecosystems in response to UNCED (United Nations Conference and Environment and Development), Rio de Janeiro.

IHE is one of the cooperating partners in the newly established "Aquatic Resources Management and Development Accord" (ARMADA), which has been an initiative of several distinguished European universities and research institutes involved in international environmental activities. The main aim is to provide appropriate post-graduate training and problem - oriented research for development in aquatic resources management.

IHE has broad experience in education, training, research and advisory activities in Africa, Middle East, Asia, South America and East Europe.

6 PROJECT ORGANIZATION

6.1 OFFICIAL AUTHORIZATION

The implementing parties, i.e. UZ, IWSD and IHE will submit this revised proposal to the Netherlands Embassy in Harare, which will pass it to DGIS/DPO in The Hague. DGIS/DPO will then continue with preparing its internal assessment memorandum for decision-making by the Minister and his Project Commission. After approval DGIS/DPO will conclude an agreement with IHE to implement the project in line with modality 3 of the DGIS procedures. This means that IHE will be held responsible for the project, while it will have made arrangements with UZ and IWSD agreed upon in a Memorandum of Agreement (see Annex I).

6.2 RESPONSIBILITIES OF THE FUNDING AGENCY

The Funding Agency - DGIS - has the authority to finance and to lay conditions and to designate the Netherlands party (IHE) and entrust an overseeing and monitoring organization (Netherlands Embassy in Harare) in the execution of project activities; to reduce or terminate financial support prematurely, to dispense (transmit) fund according to the agreed terms and project programme and conduct evaluation and inquiry in the project execution. The funding Agency DGIS is in general responsible in the drafting of the project contract and agreement and is the authority to respond to requests from implementing institutions (IHE / UZ / IWSD) to changes and modifications of the contents of the project document. DGIS will implement this according to the rules of 'modality 3' mentioned in its 'internal procedures for development cooperation'.

6.3 OPERATIONAL MANAGEMENT WITHIN IMPLEMENTING INSTITUTIONS

The several activities will be jointly carried out by the facilitating staff of IHE and staff of UZ and IWSD. Integration of project-related and regular UZ/DCE and IWSD activities will take place from the beginning of the project (see timetable Annex IV). Six months before the start of the MSc course at the UZ, and for a duration of 2 years, IHE's long term resident expert will be facilitating DCE and IWSD to set up, develop and secure the start of the MSc programme and the structure of the short courses. The management will also be done by UZ/DCE. These inputs will be gradually transferred to UZ/DCE and IWSD staff as new and retrained staff become available.

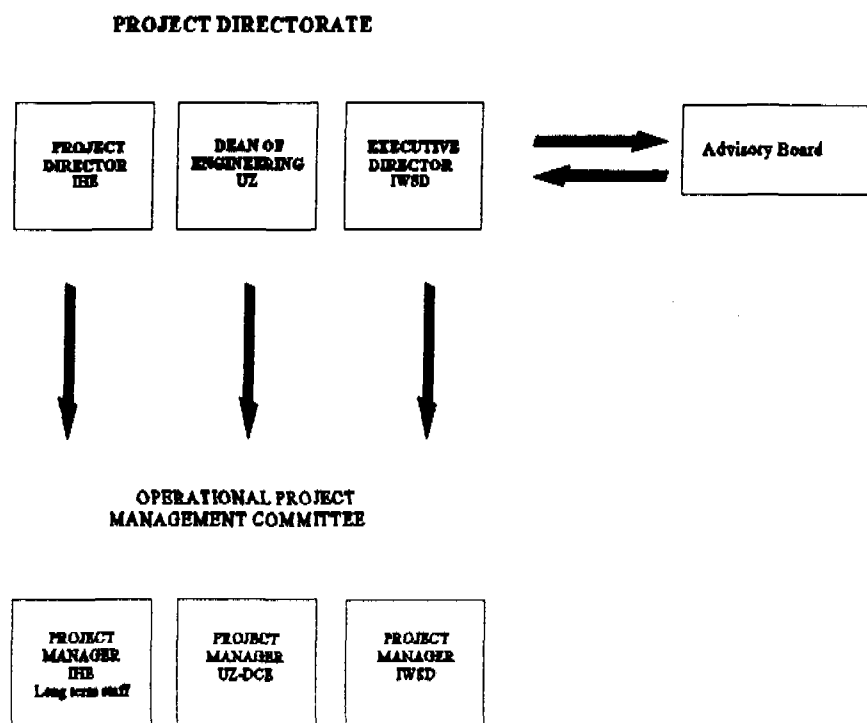
The three implementing organisations, IHE, UZ and IWSD are working toward the same objective of enhancing the capacity building support available to the water resources management sector of Zimbabwe and the Southern African region. It is therefore expected that the relationship between the organisations will be a collaborative one persisting beyond the project period.

The project organisation will be as follows:

- i. A **Project Directorate**, consisting of:
 - one IHE project director, based in Delft;
 - one UZ project director, (e.g. the Dean of Engineering) based in Harare
 - one IWSD project director, (e.g. the Executive Director of IWSD) based in Harare.
 - ii. An **Operational Project Management Committee (OPMC)**, consisting of:
 - One seconded IHE senior expert - project manager IHE in Harare;
 - One local Zimbabwean expert - project manager UZ/DCE, at PhD level;
 - One local Zimbabwean expert - project manager IWSD, at MSc/PhD level;
- supported by:
- One administrative secretary;
 - Short term visiting experts (Dutch, Africans);
 - Local Zimbabwean guest lecturers/experts.

- iii. An **Advisory Board** consisting of expert representatives of different stakeholders in the water sector of Zimbabwe. The Academic Board will advise on the matters concerning curricula, research themes, links/communications with the stakeholders, etc.

The diagram below may elucidate the organisation structure of this cooperation programme:



The tasks of the Project Directors of Directorate are formulated as follows:

- i. seeing that the project is implemented in accordance with the project document and approved budget, and if necessary taking measures in this regard;
- ii. making (in so far as desirable or necessary) amendments and/or additions to the project document to be submitted to the responsible agencies;
- iii. responsible for overall planning and quality control of the programme with respect to their specific field.
- iv. The Netherlands Director will maintain liaison between the university and the Netherlands Government in The Hague. The UZ/DCE and IWSD Project Directors will maintain liaison between the project team in field and their superiors in the management of the University and IWSD. The Netherlands Project Director will delegate the functions of maintaining liaison between the University and the representatives of the Netherlands Government (Embassy) to the Project manager in Harare, where necessary. The Zimbabwean Project Directors will maintain liaison between the University and IWSD and the Netherlands Embassy in Harare.
- v. Settling any disputes which arises with regard to day-to-day management as may be referred to it by any member of the Operational Project Management Committee.

The tasks of the IHE Project Manager in the OPMC in Harare will be:

- i. To carry out the scientific and technical tasks and duties, and represent the Netherlands Project Director where he is delegated.
- ii. To advise the other members of the OPMC on academic and managerial issues.
- iii. To implement the programme in accordance with the project document, the annual working plan and budget and the contract with the Netherlands Government.
- iv. To maintain operational day-to-day communications with all involved parties; regular communications between the project office in Harare and in The Netherlands.

The tasks of the local Project Managers in the OPMC will be:

- i. To carry out the tasks, duties and responsibilities required to implement the programme, in accordance with the project document, the annual working plan and approved budget and within the Agreement for this cooperation programme with the Netherlands Government.
- ii. To maintain operational day-to-day communications with the project team; maintain regular communications with each other and with the IHE resident and visiting experts, as well as with the Project Directorate.

The main inputs and responsibilities of all partners are described in Annex I, article 3.1.

6.4 REPORTING

Reporting, monitoring and evaluation will, in main terms, be carried out according to the following:

Monitoring

Bi-annual progress reports will be prepared by the Project Directorate to be submitted to the Netherlands Embassy (for reasons of accountability) and the Advisory Board (for information). It will normally include the following (input - output) monitoring items:

1. Personnel
 - staff of the project team
 - Visiting experts
 - Trainees
2. Equipment and instrumentation
3. Housing and vehicles
4. Progress of education, training, and research activities,
5. Colloquia, workshops, and symposium
6. Planning of activities for the next 6 months; adjustments
7. External contacts
8. Financial status

Evaluation

The following items will - among others - be normally included in the final evaluation:

1. Output: education, training, and research
2. Programme achievements and adjustments
3. Distribution of research findings among responsible organizations
4. Organizational and financial matters
5. Recommendations and /or continuation of the programme.

There will be one external evaluation at the end of the project.

Project completion report

Within six months after completion of the project, ten copies of the project completion report will be submitted by the implementing institutions to the Netherlands Embassy in Harare, summarizing the results achieved, comparing them with the aims set out initially as well as with amendments to the aims which have been approved by the authorities of Zimbabwe and The Netherlands in the course of the project.

The final report will also contain a clear account of expenditure with respect to the money the funding agency has contributed to the project. This report will be accompanied by a duly signed statement provided by a certified auditor. A signed and dated protocol of the transfer of the project goods will be attached to the final report.

Financial statements

Financial statements are to be submitted on a six-monthly basis. Financial statements account for spending in the previous six-month period and describe the required cash supplementation for the following six months. The information in these statements should relate to the project document and the annual work-plan.

7 BUDGET

7.1 CONTRIBUTION OF THE NETHERLANDS GOVERNMENT

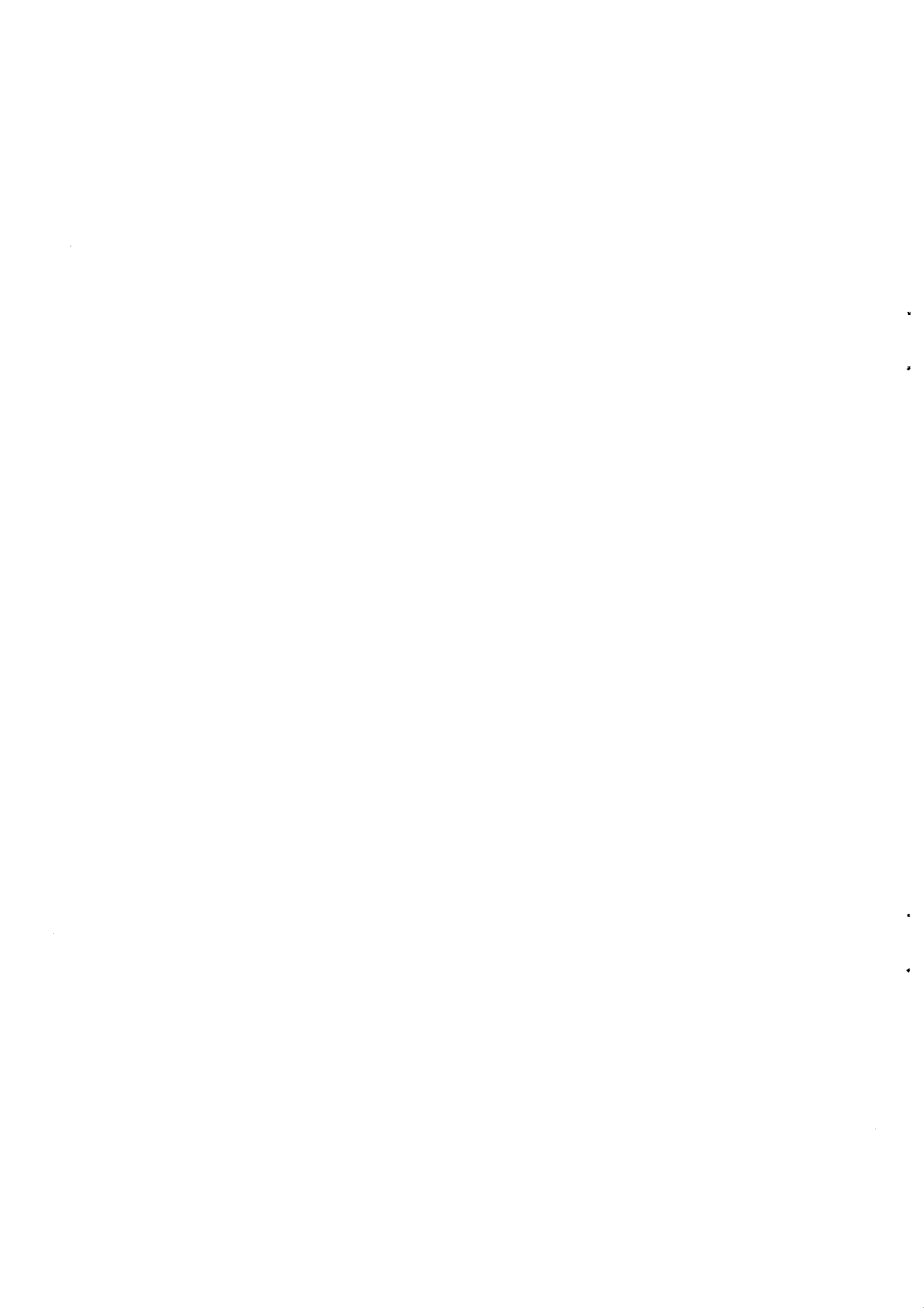
The budget that is required to implement the 5-year programme is shown in the table on the next page; details are presented in Annex VII.

A budget of Dfl 4,692,813 is foreseen. The local contribution is expected to include making available classrooms, office space, personnel and some utilities (water, energy) and general operations and maintenance.

7.2 LOCAL COST FINANCING

The goods and services (i.e. equipment, operational items, expertise, hotels and living spending, research work, etc.) that will be acquired from the project budget on the domestic 'market' of Zimbabwe will be approximately 40 percent.

Cost Item	Year 1 Dfl	Year 2 Dfl	Year 3 Dfl	Year 4 Dfl	Year 5 Dfl	TOTAL Dfl	TOTAL Z\$
PERSONNEL						1,794,079	
IHEs LT Staff No.1		217,694	304,038	152,669		674,401	3,746,672
IHEs ST MSc implementors	88,106	96,888				184,994	1,027,744
IHEs ST research IWSD	47,028					47,028	261,267
IHEs PhD supervisors			89,682	89,682	89,682	269,046	1,494,700
IRC info analysts	44,445		44,445			88,890	493,833
UZ LT expert	39,360	39,360		39,360	19,680	137,760	765,333
IWSD LT expert	39,360	39,360	39,360	29,520	14,760	162,360	902,000
UZ part time experts	15,200	28,400	35,000	35,000	35,000	148,600	825,556
IWSD part time experts	15,200	15,200	15,200	15,200	15,200	76,000	422,222
Reporting	1,000	1,000	1,000	1,000	1,000	5,000	27,778
EQUIPMENT AND INVESTMENTS						898,700	
UZ lab. equipment	650,000					650,000	3,611,111
UZ computers + printer	21,500	18,000				39,500	219,444
IWSD library furniture	9,000					9,000	50,000
IWSD leak detection	16,000					16,000	88,889
IWSD computers + printer	9,500			6,000		15,500	86,111
IWSD binder + copier	20,400					20,400	113,333
UZ mini bus	50,000					50,000	277,778
IWSD land cruiser	55,000					55,000	305,556
UZ shipment/insurance	36,000	1,000				37,000	205,556
IWSD shipment/insurance	6,000			300		6,300	35,000
OPERATIONAL COSTS						872,150	
UZ mini bus	5,500	5,500	5,500	5,500	5,500	27,500	152,778
IWSD land cruiser	5,500	5,500	5,500	5,500	5,500	27,500	152,778
UZ machinery	1,800	1,800	3,600	3,600	3,600	14,400	80,000
IWSD machinery	6,000	12,000	12,000	12,000	12,000	54,000	300,000
UZ office expenses	8,000	8,000	8,000	8,000	8,000	40,000	222,222
IWSD office expenses	6,000	6,000	6,000	6,000	6,000	30,000	166,667
UZ communication	1,500	1,500	1,500	1,500	1,500	7,500	41,667
IWSD communication	1,500	1,500	1,500	1,500	1,500	7,500	41,667
UZ books/publications	6,000	6,000	6,000	6,000	6,000	30,000	166,667
IWSD books/publications	14,550	14,550	14,550	14,550	14,550	72,750	404,167
UZ consumer (non)durables	1,800	3,600	7,200	7,200	7,200	27,000	150,000
IWSD cons. (non)durables	1,800	1,800	1,800	1,800	1,800	9,000	50,000
UZ fellowships new MSc			89,000	89,000	89,000	267,000	1,483,333
IWSD fellowships short courses	40,000	40,000	40,000	40,000	40,000	200,000	1,111,111
UZ teaching materials	7,100	7,100	7,100	7,100	7,100	35,500	197,222
IWSD teaching materials	4,500	4,500	4,500	4,500	4,500	22,500	125,000
STAFF DEVELOPMENT						991,200	
UZ technicians & adm.	8,200	8,200	8,200	8,200	8,200	41,000	227,778
IWSD technicians & adm.	4,100		4,100			8,200	45,556
Diploma course at IHE	120,000	120,000				240,000	1,333,333
MSC course at IHE		60,000	60,000			120,000	666,667
sandwich PhD IHE/UZ	120,000	120,000	120,000	120,000		480,000	2,666,667
PhD at UZ			34,000	34,000	34,000	102,000	566,667
SUB-TOTAL	1,526,949	884,452	968,775	744,681	4,177,944	4,556,129	25,311,828
Contingencies 3%	45,808	26,534	29,063	22,340	125,338	136,684	759,355
TOTAL	1,572,757	910,986	997,838	767,021	4,303,282	4,692,813	26,071,183



DOCUMENTATION AVAILABLE AND USED

Poverty and the Environment, Stephen Mink, Finance & Development, Page 8-9, The International Monetary Fund/The World Bank, Washington D.C., December 1993.

Concept Nota Waterbeheer en Ontwikkelingssamenwerking, DGIS/DST, The Hague, 4/12/1993. X

Is water as emotive as land ?, Article published in The Financial Gazette by Brian Latham, Harare, December 16, 1993

(Draft) Guidelines for the Development of a Water Resources Management Strategy for Zimbabwe, Volume 1 and 2, Ministry of Lands, Agriculture and Water Development of Zimbabwe/Sir William Halcrow & Partners, Harare, November 1993. X

Prospectus for Environmental Assessment Policy in Zimbabwe, Public Background and Discussion Paper, Ministry of Environment & Tourism, Harare, September 1993

Regional Education and Research Centre for Sustainable Development in Southern Africa, Dr H. Savenije, September 1993.

Proposal for the establishment of an Institute for Environmental Studies at the University of Zimbabwe, 1993.

Water and Environment, Key to Africa's Development, The Delft Agenda Building Capacity in Sub-Saharan Africa, IHE, Delft, The Netherlands, 1993 X

The Economist Intelligence Unit Country Reports Zimbabwe, Tanzania, Malawi, Botswana, Lesotho, Swaziland, Zambia, London, 4th quarter 1993.

Water for Africa: The Human Dimension, Margaret S. Petersen, University of Arizona, Proceedings (pages 1-37) of the IAHR Symposium on Water The Lifeblood of Africa, Victoria Falls, Zimbabwe, 13-15 July 1993. X

World Development Report 1993, The World Bank, 1993.

Human Development Report 1993, UNDP, New York, 1993.

Water Resources Management Policy Paper, Memorandum for the President, The World Bank, Washington D.C., February 1993

Development Cooperation and Education in the 1990s, Sector Policy Document, Directorate General for International Cooperation (DGIS), Ministry of International Cooperation (DGIS), The Hague, The Netherlands, April 1992.

Declaration of Rio, AGENDA 21, UNCED, Rio de Janeiro, June 1992. X

Human Development Report 1992, UNDP, New York, 1992.

Poverty Alleviation through Human Resources Development: Some Issues, Dr. Motilal Sharma, Senior Education Specialist, Asian Development Bank, Manila, 1992.

Policy Document for the period 1992 - 1995, Southern African Region, Directorate General for International Cooperation (DGIS), Ministry of International Cooperation (DGIS), The Hague, The Netherlands, February 1992. X

DOCUMENTATION AVAILABLE AND USED

Cont'd

World Development Report 1992, Development and the Environment, The World Bank, Washington D.C., 1992.

A Strategy for Water Sector Capacity Building, IHE Report series 24, Delft, 1991.

WMO/UNESCO Report on Water Resources Assessment, Progress in the Implementation of the Mar Del Plata Action Plan and A Strategy for the 1990s, Geneva, 1991.

Caring for the Earth, A strategy for sustainable living, IUCN, UNEP, WWF, Gland, Switzerland, October 1991.

An International Action Programme on WATER and Sustainable Agricultural Development, A Strategy for the Implementation of the Mar Del Plata Action Plan for the 1990s, FAO, Rome, 1990.

Global Consultation on Safe Water and Sanitation for the 1990s, The Delhi Statement, UNDP, New York, 1990.

Water Supply and Sanitation in Africa: Laying the Foundation for the 1990s, Proceedings of the All Africa Rural Water Supply and Sanitation Workshop and Water Supply and Sanitation Sector Conference, Volume 1 and 2, Abidjan, Côte d'Ivoire, May 1990.

Sub Saharan Africa, From Crisis to Sustainable Development, A Long Term Perspective Study, The World Bank, Washington D.C., 1989.

ANNEXES

MEMORANDUM OF AGREEMENT

ANNEX I

MEMORANDUM OF AGREEMENT

between

The International Institute for
Infrastructural, Hydraulic and Environmental Engineering
Delft, The Netherlands

hereinafter IHE

The University of Zimbabwe, hereinafter UZ

and

The Institute for Water and Sanitation Development, hereinafter IWSD
Harare, Zimbabwe

on

Programme for Capacity Building in the Water Sector of Zimbabwe and Southern Africa
hereinafter the "Project"

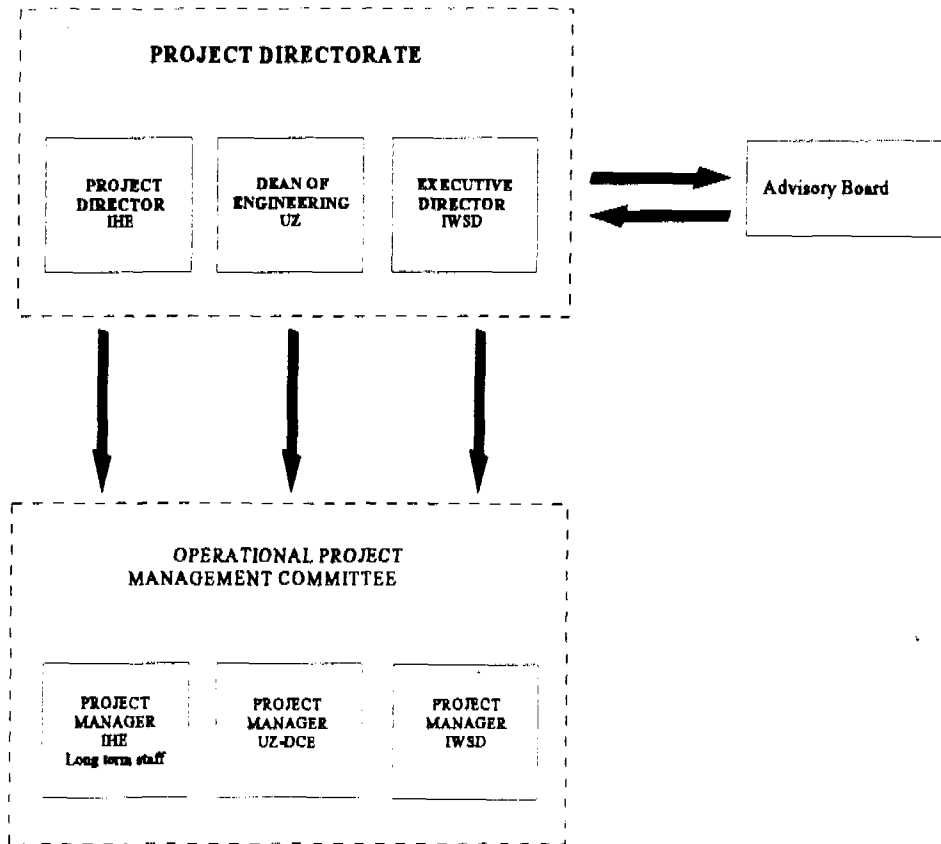
- Whereas within the framework of the Netherlands Government Programme for International Cooperation in Education (IOP) IHE will be concluding a Contract in 1996 with the Netherlands Ministry of Foreign Affairs/DGIS-DPO ("DGIS") for the Project in accordance with modality three of the DGIS procedures for international cooperation

and
- whereas part of the work, contracted for under the DGIS-Contract, will be carried out by UZ and IWSD, the following is hereby agreed between IHE, UZ and IWSD:

Article 1. Authority of Member in Charge in the Project Organization

- 1.1. The IHE, UZ and IWSD will each authorize persons for positions in the management of the cooperation project - as indicated in the chart below - to act on their behalf in exercising all the partners' rights and obligations towards DGIS under this Memorandum of Agreement and the documents mentioned in it. The names of the persons authorized will be communicated officially between the contracting parties. The following management chart has been agreed upon (see next page).

1.2. The Project Directorate shall meet half yearly to review financial reports, progress reports and work plans for the Project.



Article 2. The Scope of Agreement

The UZ, IHE and IWSD shall perform and complete their respective share of the work under this Agreement in accordance with the respective Requirements of the Work Programme of the Project. The objective of this Agreement is for all Partners to contribute to the achievement of the requirements of the DGIS/IOP Contract in accordance with the terms and conditions as stated in this Agreement. The Partners believe that the project purpose will be achieved through a mutual respect and partnership between all three agencies.

Article 3. The main inputs and responsibilities of all Partners

3.1. The main inputs of all Partners as listed on pages 9-13 of the Project Document will have primary responsibility as indicated in the following table:

ACTIVITY	RESPONSIBILITY	NOTES
2.5.i	UZ/IHE/IWSD	Prime responsibility is with UZ for the selection of applicants and determination of field of study with IHE setting academic entrance requirements and managing the fellowships
2.5.ii	UZ/IHE/IWSD	Prime responsibility is with UZ for selection of applicants with IHE setting academic entrance requirements and managing the fellowships. The research programme is agreed collaboratively.
2.5.iii	UZ/IWSD	
2.5.iv	UZ/IWSD	
2.5.v	UZ/IWSD	
2.5.vi	UZ/IWSD/IHE	
2.5.vii	UZ	UZ will review its BSc programme in Civil Engineering according to standard procedures. Especially water courses will be adapted to the demands of the MSc programme.
2.5.viii	UZ/IWSD	Flexibility will be retained to ensure equipment meets research and academic requirements
2.5.ix	UZ/IHE	Regulations will be developed by UZ but early agreement will be sought with all partners and client groups on the scope and content of the proposed M.Sc.
2.5.x	IWSD/IHE	With external inputs from client groups
2.5.xi	IHE/UZ/IWSD	Research priorities will be set in a collaborative process but will meet the academic requirements of IHE and UZ for postgraduate students.
2.5.xii	IWSD/IHE	With external inputs from client groups
2.5.xiii	IHE/IWSD	IHE will manage the IRC inputs on behalf of IWSD

- 3.2. UZ and IWSD shall ensure the provision of adequate access to transport, computers, photocopiers and communications to visiting staff of IHE.
- 3.3. Equipment to be purchased remains flexible and will be made at the discretion of the Operational Project Management Committee to fulfill the needs of the research and teaching programme.

Article 4. Terms and Conditions

- 4.1. Unless otherwise agreed, the Partners shall be bound mutatis mutandis by the terms and conditions of the DGIS/IOP-Contract, the Project Document and the Annual Working Plans, including the budget allocations.

- 4.2. The Project Directorate will agree on the personnel assigned to the project by IHE on the basis of the Terms of Reference for the mission and the curriculum vitae of the IHE staff member. The Terms of Reference will be prepared, as part of the Annual Working Plan, by the Operational Project Management Committee.

Article 5. Financial Arrangements

- 5.1. In the budget, all foreign consultancies and foreign fellowships are to be managed by IHE with the remaining being managed by UZ or IWSD.
- 5.2. The budget will be expressed in Netherlands Guilders (NLG), and it will be managed on the basis of the Netherlands Guilder.
- 5.3. UZ and IWSD will receive through IHE an advance payment to cover a period of six months, and which will be based on the planned and expected expenditures described in the Annual Working Plans of the Project.
- 5.4. UZ and IWSD will submit a financial statement to IHE within one month after a 3-months period. After approval by IHE the amounts of money concerned will be transferred to UZ and IWSD. At the end of the project the total expenditure will be settled on the basis of the 3-monthly financial statements and the advanced payment mentioned under item 5.3. of this Agreement.

Article 6. Taxes and Duties

- 6.1. The UZ and IWSD shall make every effort to assist the IHE in obtaining duty-free permits for importation of educational supplies and equipment into Zimbabwe.
- 6.2. The UZ and IWSD shall make every effort to assist IHE's personnel so that they will be exempt from any local taxes, duties, fees, levies and other impositions. They will provide support to IHE in obtaining residence permits.

Article 7. Reporting and Evaluation Obligations

All three Partners shall contribute to (bi-)annual progress reports and financial statements conform the requirements of the DGIS/IOP. These reports will be submitted by the Project Directorate, via the Netherlands Embassy in Harare, to the Ministry of Foreign Affairs/DGIS in The Netherlands. At the end of the Project a Final Report in the English language shall be prepared by the IHE, for which UZ and IWSD will provide the reports, documents and receipts of their own inputs.

Article 8. Liability

- 8.1. Any loss, damage or injury suffered by the Partners in connection with the performance of this Agreement shall be borne exclusively by each respective Partner.
- 8.2. The Partners shall be exclusively liable for any loss, damage or injury caused to third parties, including their own respective personnel arising out of the performance of this Agreement; they shall be directly responsible for making compensation therefore and shall indemnify each other and the IHE staff seconded.

Article 9. External Contacts and Publications

- 9.1. This Project will establish and maintain mutually beneficial contacts and co-operation with other organisations and experts in Zimbabwe and the region and elsewhere which are active in the same or related subjects.
- 9.2. The Partners to this Agreement will take steps to ensure that relevant data and research findings are published, provided that the rights of authors, of institutions, and copyright are respected. All publications within the framework of this Project must mention the names and logo's of the Partners in the Project.

Article 10. Amendments, Variations or Additions

The provision of this Agreement may be amended or supplemented only by means of a written agreement duly signed by the Rector of IHE, the Vice Chancellor of the UZ and the Director of IWSD.

Article 11. Applicable Law and Language

This Agreement shall be governed by the law of The Netherlands. This Agreement has been executed in the English language, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Agreement.

Article 12. Headings

The headings shall not limit, alter or affect the meaning of this Agreement.

Article 13. Settlement of disputes

- 13.1. **Amicable Settlement:** The Partners shall use their best efforts to settle amicably all disputes arising out of or in connection with this Agreement or the interpretation thereof.

13.2. **Arbitration:** Any other dispute which can not be settled in consultation between both Partners shall be referred to the Netherlands Government.

Article 14. Duration and entry into force of the Agreement

The Agreement will come into force on the date of signing by IHE, UZ and IWSD and will be valid for at least 5 years. This agreement is drawn up in five (5) copies, each being equally valid.

**Prof. Ir. W.A. Segeren,
Rector**

on behalf of the IHE,
Delft,

Date:

**Prof. F.W.G. Hill
Vice Chancellor**

on behalf of the UZ,
Harare,

Date:

**Dr. P. Taylor
Director**

on behalf of IWSD,
Harare,

Date:

SOME BASIC DEVELOPMENT INDICATORS FOR SOUTHERN AFRICA

	ANGOLA	BOTSWANA	LESOTHO	MALAWI	MOZAMBIQUE	NAMIBIA	SWAZILAND	TANZANIA	ZAMBIA	ZIMBABWE	SOUTH AFRICA
Area (x 1000 Km ²)	1247	582	30	118	802	824	17	945	753	391	1221
Population (x10 ⁶)	10.0/13.3	1.3/1.8	1.8/2.4	8.8/12.5	15.7/20.5	1.8/2.4	0.8/1.1	27.3/39.6	8.5/12.3	9.7/13.1	35.3/43.7
Population growth per year (%)	2.9	3.4	2.9	3.6	2.7	3.2	3.6	3.8	3.8	3.1	2.2
Total Urban Population (%)	28/36	28/42	20/28	12/16	27/41	28/34	33/45	33/47	50/59	28/35	60/66
GNP per capita (US\$)	610	1600	470	180	80	1030	900	130	390	650	2470
Human Development Index (HDI)	0.169	0.534	0.423	0.166	0.153	0.295	0.458	0.268	0.315	0.397	0.674
Life Expectancy at Birth (years)	45.5	59.8	57.3	48.1	47.5	57.5	56.8	54.0	54.4	59.6	61.7
Population with access to safe water (%)	35	53	48	56	24	-	53	56	59	36	-
Population with access to sanitation (%)	21	41	21	-	24	-	50	77	55	42	-
Internal Renewable Water Resources per capita (1000 m ³ per year)	15.8	0.8	2.3	1.1	3.7	-	8.8	2.8	11.4	2.4	1.4
Area of Irrigated Land (x 1000 Km ²)	-	0.02	-	0.180	1.05	0.04	0.62	1470	0.30	2.08	11.28
Scientists and Technicians (per 1000 people)	-	1.2	-	-	-	-	-	-	4.4	-	-
Science Graduates (as % of total graduates)	-	3	2	23	21	-	43	33	33	8	-

1990/2000

From 1990 - 2000

SOURCE: NDR 1992/1993, ENVIRONMENTAL DATA REPORT 1991/92 AND THE WORLD DEVELOPMENT REPORT 1993

WATER RESOURCES MANAGEMENT STRATEGY -THE STAKEHOLDERS

1. CONSUMERS AND POLLUTERS

Forestry
Small scale irrigation
Rural water supply
Rainfed agriculture and livestock management
Commercial irrigation
Hydropower generation
Mines
Urban water supply
- domestic
- industrial

2. SUPPLIERS

DWD
DDF
RWA
Private Sector
- River Boards
- Farmers
- Domestic
- Municipal
- Mines
- Industrial

3. COORDINATORS AND PLANNERS

DWD
NAC
NEPC
Min of Finance

4. REGULATORS

Regional Water Authorities (RWA)
International Authorities (ZRA)
Water Abstraction Regulator (DWD)
Water Quality Inspectorate (DWD)
Land Use Planners (DPP)
River Boards
Environmental Monitoring Agency (Min of
Environment & Tourism)
Ministry of Health

5. ADVISERS AND TRAINERS

Universities and Training Centres
NGO's
Health Workers
Soil and Conservation Advisers
Agricultural Extension Workers

BRIEF OUTLINE OF MAJOR ITEMS OF THE M.Sc. COURSE

The following keywords represent the main focus of the postgraduate course in Water Resources Management, and will be detailed during the initial stage of the Project.

Water Resources Management:

- Concepts and Tools of WRM (Integrated Water Resources Management, Sustainable Development, Demand Management, Human Interferences in the Water Resources System)
- Management Arrangements (distribution of government tasks and responsibilities, the management cycle, people's participation, privatisation, management instruments)
- Decision Making and Communication (quality of decisions, negotiation techniques, presentation techniques),
- Framework for Analysis (strategy development and analysis, analysis techniques, planning tools, formulation of strategies),
- Planning Economics (needs-demand-supply, macro-economic analysis, project appraisal),
- Operation of Water Resources Systems (institutional arrangement, demand management, auditing), Role Play in Water Resource Management (conflict management, allocation, maintenance, financial management),
- Water Using Activities (the characteristics of water using activity with regard to their demands and impacts on the water resources system, including irrigation, urban water use, industrial water use, hydropower and rural use)
- Water Law and Institutions (legal framework, water resources policy, water resources administration, international water law, legal issues of sustainable development)
- Reservoir operation (water balances, rule curves, simulation, optimization)
- Roleplay Water Resources Management (a simulation game dealing with management aspects of a real-life water resources system, including institutional options, environmental issues, operational problems and conflicts on the sharing of scarce resources)

Supporting Sciences and Technologies:

- Principles of Hydrology (hydrological processes, rainfall, runoff, infiltration, groundwater, evaporation, floods and droughts, data analysis)
- Groundwater Systems (occurrence, geology, groundwater recovery, groundwater flow)
- Database Management (meteorological and hydrological data types, models and management systems),
- Remote Sensing (scanning and analysis of images),
- Applications of GIS to WRM and Hydrology

Environmental Aspects:

- Environmental quality (wise use of environmental resources to maintain environmental quality in atmospheric, land, freshwater and marine systems),
- Environmental Impact Assessment (relation between quality and purposes for which water can be used),
- Environmental Policy Aspects (climate-vegetation-soil-relationships and major policy issues).
- Water Quality Management

Modelling:

- Mathematical Modelling (basics, flood routing models, software),
- Groundwater Flow and/or Surface Water Modelling (schematization, calibration and validation of models),
- Hydrological Models (model selection, model performance).
- Water Quality Modelling

Skills Development:

Skills are developed through inter-human communications, group processes and team work, technical reporting, presentations and negotiating techniques.

The curriculum will be characterized by many workshops, laboratory work and design exercises in addition to lectures. Participants will have to elaborate a Thesis project in an integral way, giving due attention to operation, maintenance and management aspects.

PRELIMINARY LIST OF EQUIPMENT

Please note that the printed list of equipment is indicative and may be subject to changes. Part of the equipment to be purchased depends on the specific topics of the MSc and PhD research programmes.

Water Quality laboratory		
UNIT	NO.	COST (Z\$)
A.A. Spectrophotometer	1	470,000
G.L. Chromatograph	1	420,000
UV - Visible Spectrophotometer	1	180,000
Paquable System	1	100,000
Analytical Balance (0.001g)	2	40,000
Centrifuge & Tubes	2	30,000
Portable pH / Temperature meter	2	20,000
Portable Conductivity / Temp. Meter	2	25,000
Dissolved Oxygen Meter - Field	2	25,000
Turbidimeter - Field	2	20,000
Electrophoresis Cell and Zeta Potential Meter	1	20,000
Automatic Samplers	2	150,000
PFT Meter	1	60,000
Deeioniser-Lab.	1	4,000
Lab. Distillation App. - Water	1	15,000
Stirrer / Hotplate	3	10,000
Vacuum Pump - Lab.	2	16,000
Electric Autoclave - Large for Lab.	1	180,000
Portable Autoclaves - Gas	1	10,000
Kjeldahl Nitrogen Automatic Still	1	90,000
Oven - Lab	1	20,000
Jar Test Equipment	2	50,000
Refrigerator	2	15,000
COD Reactor (Micromethod)	1	30,000
TOTAL		Z\$ 2,030,000 Dfl. 365,000

Hydraulics and Hydrology		
UNIT	NO.	COST (Z\$)
Hydraulics Bench	2	150,000
Large Current Meter ($v = 0.03$ to 7.0 m/s)	1	25,000
Miniature Current Meter ($v = 0.03$ to 5.0 m/s)	1	20,000
Drain Discharge Recorder	1	20,000
Cutthroat Flumes & depth gauge	2	25,000
Parshall Flume & depth gauge	2	30,000
WSC Flume & depth gauges	2	25,000
Lab. channel & set of weirs	1	20,000
Orifice meter for Hydraulics Bench above	3	30,000
Venturi meter for Hydraulics Bench above	3	30,000
Centrifugal pumps (for series/parallel etc tests)	2	200,000
Main Lab. channel pipe flowrate measurement device	1	50,000
Geophysical Test Equipment		
- seismic	1	150,000
- magnetic	1	100,000
- resistivity	1	210,000
- well logging	1	402,000
Rain Gauges, Water Level Recorders, etc.	1	121,310
TOTAL		Z\$ 1,608,310 = Dfl 285,000

DETAILED COST ESTIMATE

ANNEX VII

to be completed by contractor		to be completed by DGIS			
name of project	Capacity building in the Water Sector	date/ref. letter of assignment			
country of assignment	Zimbabwe	DGIS commitment no.			
length of the contract	5 years	calculated advance for work			
starting date	01-08-1996				
contractor	ITIE	routing	department	name	initials/date
contractor's contact		Tender :			
desired advance for work		1. DGIS/TO			
contractor's bank/giro account		2. Budget officer			
DGIS section responsible		3. CTR/BF/GM			
Total budget (including contingencies)	NLG 4692813	Waiver :			
Signature		1. DGIS/TO			
Date		2. CTR/BF/GM			
Name		No general agreement			
		1. DGIS/TO			

Summary statement project budget

DGIS code/description	year 1 amount in NLG	year 2 amount in NLG	year 3 amount in NLG	year 4 amount in NLG	year 5 amount in NLG	TOTAL amount in NLG
300 contract staff costs	289699	437902	528725	362431	175322	1794079
400 purchases: investments	873400	19000		6300		898700
500 operational costs	59950	67750	73150	73150	73150	347150
600 training and courses	303900	359800	366900	302800	182800	1516200
700 transferred funds						
Subtotal	1526949	884452	968775	744681	431272	4556129
800 contingencies percentage (max. 5%)	45808	26534	29063	22340	12938	136684
TOTAL	1572757	910986	997838	767021	444210	4692813

Contractor's (expert) staff 1

contractor		expert's name	Long term expert 1 (14)	basic salary/month	9700	family *	m / f
name of project		employer	IHE	RAI :\$		number of children	1
DCGIS section		position in project	Project Manager	NL/Europe	1225	Living **	
DCGIS no		length of mission	24 months	Course days		column 1	800
exchange rate		country: city	Zimbabwe:Harare	Cal rate SM	936	column 2	
				Cal rate LM	696	column 3	120
	inflation correction in % (rate)						
		other costs					

DCGIS code	description	no	unit	price per unit	year 1		year 2		year 3		year 4		year 5		TOTAL	
					amounts in NLG	no	amounts in NLG	no	amounts in NLG	no	amounts in NLG	no	amounts in NLG	no	amounts in NLG	
301 /302	time spent															
301 1	time spent in NL/Europe/other countries		workingday	1225		30	36750								30	36750
301 2	time spent on course (LM)		workingday													
302 1	time spent on short mission		calendarday	936												
302 2	time spent on long mission		calendarday	696		160	111360	320	222720	160	111360				640	445440
	sub-total code 301 1/2 en 302 1/2						148110		222720		111360					482190
303	supplementary costs/NL/Europe/other															
303 1 1	int travel short mission		per passage	3500												
303 1 2	int travel outward/homeward (LM)		per passage	2000		3	6000			3	6000				6	12000
303 1 3	int duty travel (LM)		per passage	1500				2	3000	2	3000				4	6000
303 1 4	int holiday travel		per passage	3500				3	10500						3	10500
303 1 5	int travel for family visits		per passage													
303 1 6	excess luggage		per kilo	40		30	1200			30	1200				60	2400
303 2 1	cost of living short mission		calendarday	200				12	2400	12	2400				24	4800
303 2 2	cost of living duty travel		calendarday													
303 3 1	travel costs in the Netherlands		per week													
303 3 2	travel costs abroad		per week	25		26	650	52	1300	26	650				104	2600
303 4 1	costs of language course		per course													
303 4 2	other costs language course		per course													
303 5	transport costs private car		per car													
303 6 1	lodging		once-only	21250		1	21250								1	21250
303 6 2	installation costs		per house													
303 6 3	house rent		per month	2775		5	13875	12	33300	6	16650				23	63825
303 6 4	hotel costs (house temp. unavailable)		calendarday	240		30	7200								30	7200
303 7	cost of living		per month	2168		160	11409	320	22818	160	11409				640	45636
303 8 1	school fees (in dev. country)		per school/yr	8000		1	8000	1	8000						2	16000
303 8 2	school fees (in NL)		per school/yr													
	sub-total code 303						69584		81318		41309					192211
																192211

* - delete where applicable

TOTAL of this page

674401

Contractor's (expert) staff 2

contractor name of project		expert's name	Short term expert 1 (14)	basic salary/month	9700	family *	m / f
DGIS section		employer	IIIK	RATES		number of children	
DGIS no		position in project	MISc implementor	NL/Europe	1225		Living **
exchange rate		length of mission	1x14 / 5x21 days	Course days		column 1	
		country/city	Zimbabwe/Harare	Cal rate SM	936	column 2	
				Cal rate LM		column 3	
	inflation correction in % (rate)						
		other costs					

DGIS code	description			price per unit	year 1		year 2		year 3		year 4		year 5		TOTAL	
		no.	unit		amounts in NLG	no.	amounts in NLG	no.	amounts in NLG	no.	amounts in NLG	no.	amounts in NLG	no.	amounts in NLG	
301 /302	time spent															
301 1	time spent in NL/Europe other countries	14	workingday	1225	17150	15	18375								29	35525
301 2	time spent on course (LM)		workingday													
302 1	time spent on short mission	56	calendar day	936	52416	63	58968								119	111384
302 2	time spent on long mission		calendar day													
	sub-total code 301 1/2 en 302 1/2				69566		77343									146909
303	supplementary costs/NL/Europe/other															146909
303 1.1	int travel short mission	3	per passage	3500	10500	3	10500								6	21000
303 1.2	int travel outward/homeward (LM)		per passage													
303 1.3	int duty travel (LM)		per passage													
303 1.4	int holiday travel		per passage													
303 1.5	int travel for family visits		per passage													
303 1.6	excess luggage		per kilo	40												
303 2.1	cost of living short mission	56	calendar day	135	7560	63	8505								119	16065
303 2.2	cost of living duty travel		calendar day													
303 3.1	travel costs in the Netherlands		per week													
303 3.2	travel costs abroad	8	per week	60	480	9	540								17	1020
303 4.1	costs of language course		per course													
303 4.2	other costs language course		per course													
303 5	transport costs private car		per car													
303 6.1	lodging		once-only													
303 6.2	installation costs		per house													
303 6.3	house rent		per month													
303 6.4	hotel costs (house temp unavailable)		calendar day													
303 7	cost of living		per month	1248												
303 8.1	school fees (in dev country)		per school/yr													
303 8.2	school fees (in NL)		per school/yr													
	sub-total code 303				18540		19545									38085

* - delete where applicable

TOTAL of this page

38085
184994

Contractor's (expert) staff 3

contractor name of project		expert's name	Short term expert 2 (14)	basic salary/month	9700	family *	m / f
DGHS section		employer	IHE	RATES		number of children	
DGHS no		position in project	research devlp (WSD)	NL/Europe	1225	Living **	
exchange rate		length of mission	2 x 14 days	Course days		column 1	
		country/city	Zimbabwe/Harare	Cal. rate SM	936	column 2	
				Cal. rate LM		column 3	
	inflation correction in % (rate)						
		other costs					

DGHS code	description	no	unit	price per unit	year 1 amounts in NLG	no	year 2 amounts in NLG	no	year 3 amounts in NLG	no	year 4 amounts in NLG	no	year 5 amounts in NLG	no	TOTAL amounts in NLG
301 /302	time spent														
301 1	time spent in NL, Europe, other countries	8	workingday	1225	9800									8	9800
301 2	time spent on course (LM)		workingday												
302 1	time spent on short mission	28	calendar day	936	26208									28	26208
302 2	time spent on long mission		calendar day												
	sub-total code 301 1/2 en 302 1/2				36008										36008
															36008
303	supplementary costs: NL, Europe, other														
303 1 1	int. travel short mission	2	per passage	3500	7000									2	7000
303 1 2	int. travel outward homeward (LM)		per passage												
303 1 3	int. duty travel (LM)		per passage												
303 1 4	int. holiday travel		per passage												
303 1 5	int. travel for family visits		per passage												
303 1 6	excess luggage		per kilo												
303 2 1	cost of living short mission	28	calendar day	135	3780									28	3780
303 2 2	cost of living duty travel		calendar day												
303 3 1	travel costs in the Netherlands		per week												
303 3 2	travel costs abroad	4	per week	60	240									4	240
303 4 1	costs of language course		per course												
303 4 2	other costs language course		per course												
303 5	transport costs private car		per car												
303 6 1	lodging		once-only												
303 6 2	installation costs		per house												
303 6 3	house rent		per month												
303 6 4	hotel costs (house temp. unavailable)		calendar day												
303 7	cost of living		per month	1248											
303 8 1	school fees (in dev. country)		per school/yr												
303 8 2	school fees (in NL)		per school/yr												
	sub-total code 303				11020										11020

TOTAL of this page **47028**

* delete where applicable

Contractor's (expert) staff 4

contractor name of project		expert's name	Short term expert 3 (13)	basic salary/month	8818	family *	m / f
DXHS section		employer	IIIE	RATES		number of children	
DXHS no		position in project	lecturers + PhD supervisors	NL/Europe	1110		Living **
exchange rate		length of mission	9 x 21 days	Course days		column 1	
		country/city	Zimbabwe:Harare	Cal. rate SM	849	column 2	
				Cal. rate LM		column 3	
	inflation correction in % (rate)						
		other costs					

DXHS code	description	no	unit	price per unit	year 1		year 2		year 3		year 4		year 5		TOTAL
					amounts in NLG	no	amounts in NLG	no	amounts in NLG	no	amounts in NLG	no	amounts in NLG	no	amounts in NLG
301 /302	time spent														
301.1	time spent in NL, Europe other countries		workingday	1110		15	16650	15	16650	15	16650	15	16650	45	49950
301.2	time spent on course (LM)		workingday												
302.1	time spent on short mission		calendar day	849		63	53487	63	53487	63	53487	63	53487	189	160461
302.2	time spent on long mission		calendar day												
	sub-total code 301.1/2 en 302.1-2						70137		70137		70137		70137		210411
															210411
303	supplementary costs NL/Europe other														
303.1.1	int. travel short mission		per passage	3500		3	10500	3	10500	3	10500	3	10500	9	31500
303.1.2	int. travel outward/homeward (LM)		per passage												
303.1.3	int. duty travel (LM)		per passage												
303.1.4	int. holiday travel		per passage												
303.1.5	int. travel for family visits		per passage												
303.1.6	excess luggage		per kilo												
303.2.1	cost of living short mission		calendar day	135		63	8505	63	8505	63	8505	63	8505	189	25515
303.2.2	cost of living duty travel		calendar day												
303.3.1	travel costs in the Netherlands		per week												
303.3.2	travel costs abroad		per week	60		9	540	9	540	9	540	9	540	27	1620
303.4.1	costs of language course		per course												
303.4.2	other costs language course		per course												
303.5	transport costs private car		per car												
303.6.1	lodging		once-only												
303.6.2	installation costs		per house												
303.6.3	house rent		per month												
303.6.4	hotel costs (house temp. unavailable)		calendar day												
303.7	cost of living		per month	1248											
303.8.1	school fees (in dev. country)		per school/yr												
303.8.2	school fees (in NL)		per school/yr												
	sub-total code 303						19545		19545		19545		19545		58635
															58635

* - delete where applicable

TOTAL of this page

58635
58635
269046

Contractor's (expert) staff 5

contractor	expert's name	Short term expert 4 (14)
name of project	employer	JRC
DOCIS section	position in project	info analyst
DOCIS no	length of mission	2 x 30 days
exchange rate	country city	Zimbabwe Harare
inflation correction in % (rate)	other costs	

basic salary/month	9700	family *	m/f
RATFS		number of children	
NL/Europe	1225	Living **	
Course days		column 1	
Cal rate SM	936	column 2	
Cal rate LM		column 3	

DOCIS code	description	no	unit	price per unit	year 1		year 2		year 3		year 4		year 5		TOTAL	
					amounts in NLG	no	amounts in NLG	no	amounts in NLG	no	amounts in NLG	no	amounts in NLG	no	amounts in NLG	no
301-302	time spent															
301.1	time spent in NL Europe other countries	7	workingday	1225	8575			7	8575						14	17150
301.2	time spent on course (LM)		workingday													
302.1	time spent on short mission	30	calendar day	936	28080			30	28080						60	56160
302.2	time spent on long mission		calendar day													
	sub-total code 301.1-2 en 302.1-2				36655				36655							73310
303	supplementary costs NL Europe other															73310
303.1.1	int travel short mission	1	per passage	3500	3500			1	3500						2	7000
303.1.2	int travel outward homeward (LM)		per passage													
303.1.3	int duty travel (LM)		per passage													
303.1.4	int holiday travel		per passage													
303.1.5	int travel for family visits		per passage													
303.1.6	excess luggage		per kilo													
303.2.1	cost of living short mission	30	calendar day	135	4050			30	4050						60	8100
303.2.2	cost of living duty travel		calendar day													
303.3.1	travel costs in the Netherlands		per week													
303.3.2	travel costs abroad	4	per week	60	240			4	240						8	480
303.4.1	costs of language course		per course													
303.4.2	other costs language course		per course													
303.5	transport costs private car		per car													
303.6.1	lodging		once-only													
303.6.2	installation costs		per house													
303.6.3	house rent		per month													
303.6.4	hotel costs (house temp unavailable)		calendar day													
303.7	cost of living		per month	1248												
303.8.1	school fees (in dev country)		per school/yr													
303.8.2	school fees (in NL)		per school/yr													
	sub-total code 303				7790				7790							15580

* delete where applicable

TOTAL of this page

15580
15580
88890

Local experts/consultants I

contractor		expert's name	African long term expert 1	basic salary/month	3300	amounts in NLG
name of project		employer	UZ - DCE	RATES		
DGIS section		position in project	expert	workingday rate	123	amounts in NLG
DGIS no.		length of mission	48 months *	calendar day rate	123	amounts in NLG
exchange rate		country/city	Zimbabwe/Harare	worki-gweek	5 / 6 / 7 days *	
inflation correction in % (rate):						

* NOTE: in year 5, half of the salary costs will be beared by UZ .

DGIS code	description	no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
302.3/302.4	time spent consultant expert														
302.3.1	time spent in home office	320	workingday	123	39360	320	39360								
302.3.2	fieldwork (- 6 months) consultant		workingday	123						320	39360	160	19680	1120	137760
302.3.3	fieldwork (- 6 months) consultant		calendar day	123											
302.4.1	time spent local expert		workingday	123											
302.4.2	time spent local expert		calendar day	123											
	sub-total 302.3 en 302.4				39360		39360				39360		19680		137760

304 supplementary costs consultant expert

DGIS code	description	no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
304.1	supplementary costs local consultant														
304.1.1	duty travel costs		per passage												
304.1.2	international costs duty travel		per passage	1500											
304.1.3	travel costs in home country		per trip												
304.1.4	house rent in home country		per month												
304.1.5	hotel costs in home country		calendar day	100											
304.1.6	international travel costs		per passage												
304.1.7	house rent abroad		per month												
304.1.8	hotel costs abroad		calendar day												
304.1.9	other costs														

304.2 supplementary costs local expert

DGIS code	description	no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
304.2.1	duty travel costs		per passage												
304.2.2	international costs duty travel		per passage												
304.2.3	travel costs in home country		per trip												
304.2.4	house rent in home country		per month												
304.2.5	hotel costs in home country		calendar day												
304.2.6	international travel costs		per passage												
304.2.7	house rent abroad		per month												
304.2.8	hotel costs abroad		calendar day												
304.2.9	other costs														
	sub-total code 304.1 en 304.2														

* delete where applicable

TOTAL of this page

137760

Local experts/consultants 2

contractor		expert's name	African long term expert 2	basic salary/month	3300	amounts in NLG
name of project		employer	IWSD	RATES		
DGIS section		position in project	expert	workingday rate	123	amounts in NLG
DGIS no.		length of mission	60 months *	calendar day rate	123	amounts in NLG
exchange rate		country city	Zimbabwe:Harare	workingweek	5 / 6 / 7 days *	
inflation correction in % (rate):						

* NOTE: in year 4 and 5 IWSD will respectively bear 33% and 66% of the salary costs.

DGIS code	description	no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
302.3/302.4	time spent consultant/expert														
302.3.1	time spent in home office	320	workingday	123	39360	320	39360	320	39360	240	29520	120	14760	1320	162360
302.3.2	fieldwork (< 6 months) consultant		workingday	123											
302.3.3	fieldwork (> 6 months) consultant		calendar day	123											
302.4.1	time spent local expert		workingday	123											
302.4.2	time spent local expert		calendar day	123											
	sub.total 302.3 en 302.4				39360		39360		39360		29520		14760		162360
															162360

304 supplementary costs consultant/expert

304.1	supplementary costs local consultant	no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
304.1.1	duty travel costs		per passage												
304.1.2	international costs duty travel		per passage												
304.1.3	travel costs in home country		per trip	135											
304.1.4	house rent in home country		per month												
304.1.5	hotel costs in home country		calendar day	50											
304.1.6	international travel costs		per passage												
304.1.7	house rent abroad		per month												
304.1.8	hotel costs abroad		calendar day												
304.1.9	other costs														

304.2 supplementary costs local expert

304.2.1	duty travel costs		per passage												
304.2.2	international costs duty travel		per passage												
304.2.3	travel costs in home country		per trip												
304.2.4	house rent in home country		per month												
304.2.5	hotel costs in home country		calendar day												
304.2.6	international travel costs		per passage												
304.2.7	house rent abroad		per month												
304.2.8	hotel costs abroad		calendar day												
304.2.9	other costs														
	sub-total code 304.1 en 304.2														

* delete where applicable

TOTAL of this page

162360

Local experts/consultants 3

contractor name of project		expert's name	African part time expert 1	basic salary-month	6600 amounts in NLG
DGIS section		employer	UZ / DCE	RATES	
DGIS no.		position in project	MSc course devp / lecturer	workingday rate	300 amounts in NLG
exchange rate		length of mission		calendar day rate	300 amounts in NLG
		country city	Zimbabwe / Harare	workingweek	5 / 6 / 7 days *
	inflation correction in % (rate):				

DGIS code	description	no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
302.3-302.4	time spent consultant:expert														
302.3.1	time spent in home office	44	workingday	300	13200	88	26400	110	33000	110	33000	110	33000	462	138600
302.3.2	fieldwork (< 6 months) consultant		workingday	300											
302.3.3	fieldwork (> 6 months) consultant		calendar day	300											
302.4.1	time spent local expert		workingday	300											
302.4.2	time spent local expert		calendar day	300											
	sub-total 302.3 en 302.4				13200		26400		33000		33000		33000		138600
															138600

304 supplementary costs consultant:expert

DGIS code	description	no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
304.1	supplementary costs local consultant														
304.1.1	duty travel costs		per passage												
304.1.2	international costs duty travel		per passage												
304.1.3	travel costs in home country	1	per year	2000	2000	1	2000	1	2000	1	2000	1	2000	5	10000
304.1.4	house rent in home country		per month												
304.1.5	hotel costs in home country		calendar day												
304.1.6	international travel costs		per passage												
304.1.7	house rent abroad		per month												
304.1.8	hotel costs abroad		calendar day												
304.1.9	other costs														

304.2 supplementary costs local expert

DGIS code	description	no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
304.2.1	duty travel costs		per passage												
304.2.2	international costs duty travel		per passage												
304.2.3	travel costs in home country		per trip												
304.2.4	house rent in home country		per month												
304.2.5	hotel costs in home country		calendar day												
304.2.6	international travel costs		per passage												
304.2.7	house rent abroad		per month												
304.2.8	hotel costs abroad		calendar day												
304.2.9	other costs														
	sub-total code 304.1 en 304.2				2000		2000		2000		2000		2000		10000
															10000

*= delete where applicable

TOTAL of this page **148600**

Local experts/consultants 4

contractor name of project		expert's name	African part time expert 2	basic salary/month	6600 amounts in NLG
DGIS section		employer	IWSI	RATES	
DGIS no.		position in project	short course lecturer	workingday rate	300 amounts in NLG
exchange rate		length of mission		calendar day rate	300 amounts in NLG
		country/city	Zimbabwe / Harare	workingweek	5 5 / 6 / 7 days *
inflation correction in % (rate):					

DGIS code	description		no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
302.3/302.4	time spent consultant/expert															
302.3.1	time spent in home office		44	workingday	300	13200	44	13200	44	13200	44	13200	44	13200	220	66000
302.3.2	fieldwork (< 6 months) consultant			workingday	300											
302.3.3	fieldwork (> 6 months) consultant			calendar day	300											
302.4.1	time spent local expert			workingday	300											
302.4.2	time spent local expert			calendar day	300											
	sub-total 302.3 en 302.4					13200		13200		13200		13200		13200		66000
																66000

304 supplementary costs consultant expert

DGIS code	description		no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
304.1	supplementary costs local consultant															
304.1.1	duty travel costs			per passage												
304.1.2	international costs duty travel			per passage												
304.1.3	travel costs in home country		1	per year	2000	2000	1	2000	1	2000	1	2000	1	2000	5	10000
304.1.4	house rent in home country			per month												
304.1.5	hotel costs in home country			calendar day												
304.1.6	international travel costs			per passage												
304.1.7	house rent abroad			per month												
304.1.8	hotel costs abroad			calendar day												
304.1.9	other costs															

304.2 supplementary costs local expert

DGIS code	description		no.	unit	price per unit	year 1 amount in NLG	no.	year 2 amount in NLG	no.	year 3 amount in NLG	no.	year 4 amount in NLG	no.	year 5 amount in NLG	no.	TOTAL amount in NLG
304.2.1	duty travel costs			per passage												
304.2.2	international costs duty travel			per passage												
304.2.3	travel costs in home country			per trip												
304.2.4	house rent in home country			per month												
304.2.5	hotel costs in home country			calendar day												
304.2.6	international travel costs			per passage												
304.2.7	house rent abroad			per month												
304.2.8	hotel costs abroad			calendar day												
304.2.9	other costs															
	sub-total code 304.1 en 304.2					2000		2000		2000		2000		2000		10000
																10000

* - delete where applicable

TOTAL of this page

76000

Summary statement of staff costs code 300

Contractor: DGIS code	Name of project: description	year 1		year 2		year 3		year 4		year 5		TOTAL	
		no.	amount	no.	amount	no.	amount	no.	amount	no.	amount	no.	amount
301/302	Time spending												
301.1	time NI/Europe/other countries	29	35525	45	55125	22	25225	15	16650	15	16650	126	149175
301.2	time spent on short course (I.M)												
302.1	time spent on short mission	114	106704	63	58968	93	81567	63	53487	63	53487	396	354213
302.2	time spent on long mission			160	111360	320	222720	160	111360			640	445440
302.3	time local consultants	448	105120		118320		85560		115080		80640		504720
302.4	time local experts (on contract basis)												
	Subtotal codes 301/302		247349		343773		415072		296577		150777		1453548
303/304	Supplementary costs												
303	expert NI/Europe/other countries		37350		89129		108653		60854		19545		315531
304.1	local consultants		4000		4000		4000		4000		4000		20000
304.2	local experts												
	Subtotal codes 303/304		41350		93129		112653		64854		23545		335531
305	Time other local staff												
	Subtotal code 305												
306	Report costs (subtotal code 306)		1000		1000		1000		1000		1000		5000
307													
308													
309	miscellaneous **												
	Subtotal codes 307/308/309												
Total code 300 *			289699		437902		528725		362431		175322		1794079

* = to be carried forward to first page
 ** = to be specified

Summary statement of time spent in the Netherlands/Europe/other countries

Contractor: DGHS code	Name of project:	Section:														
		year 1		year 2		year 3		year 4		year 5		TOTAL				
		no.	amount	no.	amount	no.	amount	no.	amount	no.	amount	no.	amount			
301.1	NL-Europe oth.country	Name	Employer	Position in project												
		Long term expert 1 (1)	III-E	Project Manager		30	36750						30	36750		
		Short term expert 1 (1)	III-E	MSc implementor		15	18375						29	35525		
		Short term expert 2 (1)	III-E	research devlp. IWSD		8	9800						8	9800		
		Short term expert 3 (1)	III-E	lecturers / PhD supervisors				15	16650	15	16650	15	16650	45	49950	
		Short term expert 4 (1)	IRC	info analyst			7	8575				7	8575	14	17150	
	Sub.tot. 301.1 *				29	35525	45	55125	22	25225	15	16650	15	16650	126	149175
301.2	Language course	Long term expert 1 (1)	III-E	Project Manager												
		Short term expert 1 (1)	III-E	MSc implementor												
		Short term expert 2 (1)	III-E	research devlp. IWSD												
		Short term expert 3 (1)	III-E	lecturers / PhD supervisors												
		Short term expert 4 (1)	IRC	info analyst												
	Sub.tot. 301.2 *															
302.1	Short mission	Long term expert 1 (1)	III-E	Project Manager												
		Short term expert 1 (1)	III-E	MSc implementor		56	52416	63	58968					119	111384	
		Short term expert 2 (1)	III-E	research devlp. IWSD		28	26208							28	26208	
		Short term expert 3 (1)	III-E	lecturers / PhD supervisors				63	53487	63	53487	63	53487	189	160461	
		Short term expert 4 (1)	IRC	info analyst		30	28080		30	28080				60	56160	
	Sub.tot. 302.1 *				114	106704	63	58968	93	81567	63	53487	63	53487	396	354213
302.2	Long mission	Long term expert 1 (1)	III-E	Project Manager												
		Short term expert 1 (1)	III-E	MSc implementor			160	111360	320	222720	160	111360		640	445440	
		Short term expert 2 (1)	III-E	research devlp. IWSD												
		Short term expert 3 (1)	III-E	lecturers / PhD supervisors												
		Short term expert 4 (1)	IRC	info analyst												
	Sub.tot. 302.2 *					160	111360	320	222720	160	111360			640	445440	

Summary statement of supplementary costs

Contractor:		Name of project:			Section:		No.:		year 4		year 5		TOTAL
DCGS code	303	NL-Europe other	Name	Employer	Position in project	year 1 amount	year 2 amount	year 3 amount	amount	amount	amount	amount	
			Long term expert 1 (1)	IEE	Project Manager		69584	81318		41309			192211
			Short term expert 1 (1)	IEE	MSc implementor	18540	19545						38085
			Short term expert 2 (1)	IEE	research devlp. IWSD	11020							11020
			Short term expert 3 (1)	IEE	lecturers - PhD supervisors			19545		19545		19545	58635
			Short term expert 4 (1)	IRC	info analist	7790		7790					15580
			Total 303 *			37350	89129	108653		60854		19545	315531
304.1		Local consultants	African long term exp	UZ - DCE	expert								
			African long term exp	IWSD	expert								
			African part time exp	UZ - DCE	MSc course devlp lecturer	2000	2000	2000		2000		2000	10000
			African part time exp	IWSD	short course lecturer	2000	2000	2000		2000		2000	10000
			Total 304.1 *			4000	4000	4000		4000		4000	20000
304.2		local experts	African long term exp	UZ - DCE	expert								
			African long term exp	IWSD	expert								
			African part time exp	UZ - DCE	MSc course devlp lecturer								
			African part time exp	IWSD	short course lecturer								
			Total 304.2 *										

* - carry forward to summary statement of contract staff costs

Summary statement of time spent in the Netherlands/Europe/other countries (continued)

Code	Category	Name	Employer	Position in project	Caldays		Caldays		Caldays		Caldays		Caldays			
					amount	amount	amount	amount	amount	amount	amount	amount				
302.3	Local consultants	African long term exp	UZ - DCE	expert		39360		39360								
		African long term exp	IWSD	expert	448	39360		39360			39360		19680		137760	
		African part time exp	UZ - DCE	MSc course devlp - lecturer		13200		26400		33000		33000		33000		162360
		African part time exp	IWSD	short course lecturer		13200		13200		13200		13200		13200		138600
																66000
	Subtot. 302.3 *				448	105120		118320		85560		115080		80640		504720
302.4	Local expert	African long term exp	UZ - DCE	expert												
		African long term exp	IWSD	expert												
		African part time exp	UZ - DCE	MSc course devlp - lecturer												
		African part time exp	IWSD	short course lecturer												
	Subtot. 302.4 *															
	Total code 301/302					247349		343773		415072		296577		150777		1453548

* to be carried to summary statement staff costs

Summary statement of time spent by other local staff (by contract)

Contractor:		Name of project:		
DGIS code 305	Name	Employer	Rate (NLG) per month	Position in project
Total 305 *				

* = carry forward to summary statement of contract staff costs

Section:		Inflation %		No.:							
year 1	year 2	year 3	year 4	year 5	TOTAL						
no.	no.	no.	no.	no.	no.	no.	amount	amount	amount	amount	amount

Reporting costs

Contractor:		Name of project:		
DGIS code	Description	price per unit (NLG)	name of unit	
306	Reporting			
306.1	printing		500 progress report	
306.2	binding			
306.3	translation			
306.4	typing wordprocessing			
306.5	further costs			
Total 306 *				
307				
308	miscellaneous			
309				
Total 307/308/309 *				

* = carry forward to summary statement of contract staff costs

Section:		Inflation %		No.:							
year 1	year 2	year 3	year 4	year 5	TOTAL						
no.	no.	no.	no.	no.	no.	no.	amount	amount	amount	amount	amount
2	2	2	2	2	10		1000	1000	1000	1000	5000
							1000	1000	1000	1000	5000

Specification code 400

Purchases/investments

Contractor:		Name of project:		Section:		No.:											
DRIS code	Description	price per unit (NLG)	name unit	Inflation %		year 1		year 2		year 3		year 4		year 5		TOTAL	
				no	amount	no.	amount	no.	amount	no.	amount	no.	amount	no.	amount		
410	buildings sites																
420	machinery & inventory	650000	lab equipment	UZ	DCE	1	650000									1	650000
		6000	computers	UZ	DCE	3	18000	3	18000							6	36000
		3500	printer	UZ	DCE	1	3500									1	3500
		9000	library furniture	IWSD		1	9000									1	9000
		16000	leak detection	IWSD		1	16000									1	16000
		6000	computers	IWSD		1	6000				1	6000				2	12000
		3500	printer	IWSD		1	3500									1	3500
		5400	binder	IWSD		1	5400									1	5400
		15000	photocopier	IWSD		1	15000									1	15000
430	means of transport																
		50000	mini bus	UZ	DCE	1	50000									1	50000
		55000	land cruiser	IWSD		1	55000									1	55000
440	infrastructure																
445	communication equipm.																
450	raw materials																
460	food																
470	livestock																
480	transport insurance	100	5 %	UZ/DCE		360	36000	10	1000							370	37000
		100	5 %	IWSD		60	6000					3	300			63	6300
490	miscellaneous*																
Total 400 **								873400		19000				6300			898700

* to be specified

** carry forward to first page

Specification code 500

Operational costs

Contractor:			Name of project:		Section:		No.:								
DGIS code	Description	price per unit (NLG)	name of unit	Inflation %											
				year 1 no.	year 2 no.	year 3 no.	year 4 no.	year 5 no.	TOTAL						
				amount	amount	amount	amount	amount	amount	amount	no.	amount			
510	accommodation offices buildings														
520	operation/maintenance machinery, fixtures & fittings	1800	machinery UZ DCE	1	1800	1	1800	2	3600	2	3600	2	3600	8	14400
		6000	machinery IWSD	1	6000	2	12000	2	12000	2	12000	2	12000	9	54000
530	operation maintenance means of transport	5500	car UZ DCE	1	5500	1	5500	1	5500	1	5500	1	5500	5	27500
		5500	car IWSD	1	5500	1	5500	1	5500	1	5500	1	5500	5	27500
540	office expenses	8000	office UZ DCE	1	8000	1	8000	1	8000	1	8000	1	8000	5	40000
		6000	office IWSD	1	6000	1	6000	1	6000	1	6000	1	6000	5	30000
545	operation maintenance communication equipm	1500	communications UZ DCE	1	1500	1	1500	1	1500	1	1500	1	1500	5	7500
		1500	communications IWSD	1	1500	1	1500	1	1500	1	1500	1	1500	5	7500
550	materials	6000	books instruction mat. publications UZ DCE	1	6000	1	6000	1	6000	1	6000	1	6000	5	30000
		14550	books instruction mat. publications IWSD	1	14550	1	14550	1	14550	1	14550	1	14550	5	72750
560	consumer durables, non-durables	1800	consumer durables non durables UZ DCE	1	1800	2	3600	4	7200	4	7200	4	7200	15	27000
		1800	consumer durables non durables IWSD	1	1800	1	1800	1	1800	1	1800	1	1800	5	9000
Total code 500 **					59950		67750		73150		73150		73150		347150

* = to be specified

** = carry forward to first page

Specification code 700

Transferred funds

Contractor:			Name of project:		Section:		No.:							
DGIS code	Description	price per unit	name of unit	Inflation %										
				year 1 no.	year 2 no.	year 3 no.	year 4 no.	year 5 no.	TOTAL					
				amount	amount	amount	amount	amount	amount	amount	no.	amount		
710	revolving fund													
720	rev. fund by 3rd party													
730	rev. fund under proj. man													
740	cost-free transfer													
Total code 700 *														

* = carry forward to first page

Specification code 600

Training and courses

Contractor:	Name of project:	Section: Inflation %	No.:													
			year 1		year 2		year 3		year 4		year 5		TOTAL			
			no.	amount	no.	amount	no.	amount	no.	amount	no.	amount	no.	amount		
610	Training in the Netherlands															
610.1	training of technicians administrative staff															
610.2	training of trainers															
610.3	retraining of senior staff															
610.4	diploma course III:	40000		3	120000	3	120000							6	240000	
610.5	MSc	20000				3	60000	3	60000					6	120000	
610.6	PhD	40000		3	120000	3	120000	3	120000	3	120000			12	480000	
610.7																
610.8																
610.9																
620	Training in developing country															
620.1		17800	fellowships MSc UZ DCE					5	89000	5	89000	5	89000	15	267000	
620.2		2000	fellowship short crs 1 IWSD	10	20000	10	20000	10	20000	10	20000	10	20000	50	100000	
620.3		2000	fellowship short crs 2 IWSD	10	20000	10	20000	10	20000	10	20000	10	20000	50	100000	
620.4		17000	fellowship PhD at UZ					2	34000	2	34000	2	34000	6	102000	
630	Training elsewhere															
631	initial costs															
632	international travel and excess luggage															
633	other travel costs															
634	installation costs															
635	subsistence allowance	4100	training techn + adm DCE	2	8200	2	8200	2	8200	2	8200	2	8200	10	41000	
636	book allowance	4100	training techn + adm IWSD	1	4100			1	4100					2	8200	
637	course fees															
638	insurances															
639	further costs*															
640	course/seminar/workshop in developing country															
641	teachers' fees															
642	teaching materials															
643	further costs															
650	development of curricula, teaching mat. and proposed research projects															
651	development costs	7100	devlp + prod UZ + DCE	1	7100	1	7100	1	7100	1	7100	1	7100	5	35500	
652	production costs	4500	devlp + prod IWSD	1	4500	1	4500	1	4500	1	4500	1	4500	5	22500	
653	distribution costs															
654	further costs															
690	miscellaneous*															
Total code 600 **					303900		359800		366900		302800		182800		1516200	

* to be specified

** carry forward to first page