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DRAFT PROJECT PROPOSAL

TRAINING NETWORK CENTRES

FOR WATER AND WASTE MANAGEMENT

IN NIGERIA

NOVEMBER 1991

Prepared and/or funded by:

**Federal Ministry of Water Resources
The Overseas Development Administration
National Water Resources Institute at Kaduna
Faculty of Engineering, University of Nigeria at Nsukka
Water, Engineering and Development Centre
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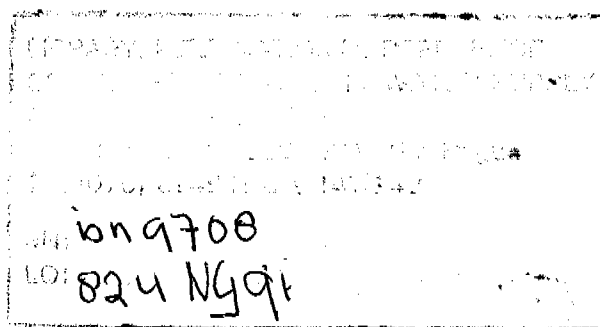
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GLOSSARY

ADP	Agricultural Development Project
BWI	British Water International UK
CHO	Community Health Officer
EEC	European Economic Community
EHO	Environmental Health Officer
FEPA	Federal Environmental Protection Agency
ESA	External Support Agency
FAO	Food and Agriculture Organization
FDL	Fondation De L'Eau France
FEPA	Federal Environmental Protection Agency
FMFED	Federal Ministry of Finance and Economic Development
FMOH	Federal Ministry of Health
FMWR	Federal Ministry of Water Resources
HND	Higher National Diploma
HRD	Human Resource Development
ITN	International Training Network
LGA	Local Government Agency
NWRI	National Water Resources Institute, Kaduna (Part of FMWR)
O & M	Operation and maintenance
OND	Ordinary National Diploma
RBDA	River Basin Development Authority
RWSG	Regional Water and Sanitation Group
RWSS	Rural Water Supply and Sanitation
SWA	State Water Agencies
TNC	Training Network Centre
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organisation
UNN	University of Nigeria at Nsukka
WSS	Water Supply and Sanitation



SUMMARY

In December 1990, a training needs assessment was carried out with a view to the establishment of a Centre of the International Training Network for Water and Wastes Management in Nigeria. As a result of this assessment, it was concluded that there was a need for two Training Network Centres in the Country. The National Water Resources Institute at Kaduna and the University of Nigeria at Nsukka were identified as the most suitable host institutions for the Network Centres.

The ITN seeks to build capacity and develop skills within the water and sanitation sector through training, information dissemination, participation in projects and applied research activities for key sector personnel. The overall objective is to improve service coverage to the urban and rural poor. Major sector needs in Nigeria include development and improvement of rural water supply and sanitation services and the development of appropriate urban sanitation services. The TNCs would focus on these two areas through assisting training of trainers, sector personnel and students; sensitizing decision makers at all levels; assisting project preparation and implementation; undertaking applied research; and preparing and distributing information and materials.

This document describes a five year project to establish and operate the two Training Network Centres in Nigeria within the framework of the International Training Network for Water and Wastes Management. It includes a detailed budget, objectives, activities, description of responsibilities, work plan, and other background and operational guides. The external financing required for the two Centres over the five years is US\$2.5 million, and the local contribution is equivalent to US\$1.25 million, US\$250,000 in cash from FMWR, NWRI and UNN and US\$500,000 in Centre income from courses and consultancy work. The operational arrangements are organized such that the Centres can operate as a business with the aim of attaining financial independence from external sources. It is estimated that in their fifth year, each Centre will have a annual income equivalent to US\$150,000; this should be sufficient to insure their continued operation, particularly if the host institutions continue to pay the base salaries of staff.

The Government of Nigeria has expressed great interest in the establishment of the Centres and has participated in and provided every assistance with the preparation of this document. Staff of the two proposed host institutions have at the request of the heads of the institutions worked with consultants (from WEDC) and the UNDP/WB/Program in preparing the project document. The input of the consultants has been financed by ODA.

A. INTRODUCTION

A1. Water Supply and Sanitation Sector in Nigeria¹

Rural Water Supply and Sanitation

1. More than 75% of those living in rural communities in Nigeria or roughly 45 million people do not have access to safe water supplies. About 40% of the handpumps and most of the small piped systems in the country are out of service at any one time. Factors which cause this include poorly constructed boreholes and piped systems, inappropriate pumps, insufficient revenue to cover costs of central maintenance, and lack of vehicles and spare parts. An even greater percentage of rural communities do not have access to adequate sanitation.

2. To help resolve these problems and to provide a framework for increasing sector investment, the FMWR has formulated a RWSS Sector Strategy Plan. In line with the Government's desire to have communities take the lead in determining their development activities and its stress on building a maintenance culture to ensure that the infrastructure will be maintained, the National RWSS Programme will pursue a strategy based on community management with government promoting improved service and the private sector supplying goods and services. Under this strategy (i) individual communities will make all decisions about their water supply and sanitation facilities (including the types of system, their layout and management) and assume responsibility for operating and maintaining it; (ii) local government personnel will assist the communities to plan for and manage their facilities; (iii) State level personnel will assist local governments to establish RWSS Units and provide training and technical support to them; and (iv) the private sector will provide most construction operation and maintenance services. Specifically, the National RWSS Programme will assist those rural communities that are prepared to pay 10% of the construction cost of improved water supply facilities and to assume full responsibility for managing them, including operation, maintenance and collection of revenues to cover recurrent and normal replacement costs.

Urban Sanitation

3. About half the population of Nigeria live in areas designated as urban. Their numbers are increasing rapidly due to increased migration as well as natural growth. The need to provide improved waste management services such as solid waste collection and disposal, excreta and sillage disposal and treatment and storm water drainage becomes more pressing each year. Improved planning and organization is needed to better manage sanitation services with technologies tailored to the needs of the different neighbourhoods in urban areas.

4. As a result of the increasing awareness of the need for better protection of the environment, the Federal Government recently established the Federal Environmental Protection Agency which has sanitation in urban areas as one of its concerns. In each State, environmental protection agencies and urban planning departments, local governments, private enterprise and Ministries of Health all currently have some involvement with management and provision of sanitation services. Their inputs are however not well coordinated and they often duplicate each other's efforts. Furthermore, new approaches and technologies which could be applicable to conditions in Nigeria are not known to staff.

¹ In general, communities are classified as being rural, semi-urban or urban depending on their size and level of infrastructure. For the purposes of this document rural communities are those with populations up to 5,000 living in contiguous settlements without basic infrastructure; semi-urban communities have populations between 5,000 and 20,000; and urban communities have populations with more than 20,000 persons with tarred roads, piped water and electricity.

A2. Training

5. The major training institutions together with the types of training offered for personnel in the water supply and sanitation sector are given in Table 1. In general the training institutes are fully aware that their students are not receiving the type of practical training that are required to meet the needs of the sector. Funding within the education sector is currently low and insufficient remuneration has led to a large exit of technical and science teachers. Staff cannot undertake research and text books are almost none existent and very expensive. In addition curricula are not tailored to the current needs of the sector.

TABLE 1

GOVERNMENT TRAINING INSTITUTIONS IN THE WATER AND SANITATION SECTOR

INSTITUTION TYPE	TRAINING GIVEN
Universities	Under Graduate, Post Graduate, Short Courses, Research, CHO
Polytechnics	OND, HND, Short Courses.
NWRI	OND, HND, Short Courses, Research.
Technical Colleges	National Technical Certificates Advanced National Technical Certificates
Girls Technical Colleges	National Business Certificates Advanced National Business Certificates
Schools of Health Education	Certificate Courses in Environmental and Community Health & Community Development
CHO Training Institutes	Certificate in Community Health
Tutor Training Colleges	Certificate training for Trainers/Lecturers
National Directorate of Employment	On the job training of artisans
Vocational Training Centres	Certificate training of Artisans

A3. The International Training Network for Water and Waste Management (ITN)

6. The ITN is one of five components of the UNDP/WB Program which is funded by UNDP and bilateral/multilateral agencies and executed by the World Bank. The Program comprises Regional Water and Sanitation Groups (of which there are two in Africa), in-country staff and a Washington based headquarters group and aims at assisting participating countries to expand and extend service coverage for low-income rural and peri-urban communities that are presently under-served working in collaboration with government and other external support agencies. The areas of support to government are (a) work aimed at development of sound sector policies which will lead to improved implementation; (b) demonstration of water supply and sanitation activities through development and refining of implementation strategies leading to large scale investment and replication; (c) institutional strengthening and capacity building through training; (d) selective applied research focussing on institutional, technical and financial issues and; (e) industrial support activities. In order to increase the impact of the support provided, the Program provides support in all of the above in a limited number of "countries of concentration" whilst being available to provide general support on individual subject areas to others. In West Africa, Nigeria is one of the Program's countries of concentration. i) The ITN was established in 1985 as the second phase of a project which began in 1982. The first phase comprised the preparation

and distribution of a package of information and training materials. A third phase of this project began in 1990 with the establishment of "global networking". The ITN currently comprises nine operational Network Centres (with several under preparation) of which there are four in Africa. Training Network Centres (TNC) are hosted by existing institutions, and funded and executed by a range of different external and training agencies. Each one has a unique work plan and operational arrangements. As part of the capacity building approach, emphasis is put on ensuring that the TNC staff are nationals from within the country (or within the region for regional Centres). Some are managed (or executed) by the Program and others by institutions designated by the funding agencies.

7. The TNCs act as focal points for information dissemination, training of trainers and sector personnel, promotion of appropriate implementation strategies for water supply and sanitation projects, and applied research to improve them. Each TNC has its own target audiences, and areas in which it focuses its efforts. Emphasis is put on training of trainers in order to have a multiplier effect and on project related training in order to build practical experience on issues related implementation and management of activities and projects. Prior to the establishment of a TNC, a needs assessment is conducted as a result of which appropriate host institutions are identified and Government commitment is established. Subsequently the staff requirements, target audiences, work plan and other elements of each TNC are developed based on the actual needs within the country. Technical and networking assistance, monitoring, and other support is provided by the Program to TNCs once they are established, primarily through the RWSGs. The ITN Coordinator, based in Washington is responsible for global networking and other coordination activities. In addition, through funded twinning-like arrangements, TNCs have access to technical support in training and applied research from Associated Institutions with expertise in the sector.

B. JUSTIFICATION FOR TRAINING NETWORK CENTRES IN NIGERIA

B1. HRD Needs in the Water and Sanitation Sector

8. Officials in sector related agencies and training institutions have identified sector professionals, decision makers, trainers, and students as important groups that require specialized training if the water and sanitation services are to be substantially improved. They have also indicated that applied research to improve implementation strategies and technologies is important to sector development. The following is a summary of the HRD needs.²

(a) Sector Professionals

- Most engineers and technicians currently working in the water and sanitation sector have been trained in civil engineering, however, they received minimal training in the technologies and implementation strategies that have been developed during the last ten years and that are proving effective in the region. These sector professionals need to be trained in and kept abreast of the changes in technology, implementation strategies, and operation and maintenance techniques. They also need to be aware of the role that communities and especially women in community management.
- LGA personnel (technicians, community development and health workers) need practical training in rural water supply and sanitation technologies and implementation strategies.

² This information was obtained through the needs assessment that was conducted in November/December 1990, the purpose of which was to identify the HRD needs in the water and sanitation sector; to determine if training network centers specializing in water supply and waste management were appropriate; and, if so, to recommend suitable host institutions. Financing for this was provided by ODA and the UNDP/WB Water and Sanitation Program.

- City and state personnel need practical training in urban sanitation, including technical, financial, institutional, planning, management and implementation aspects.
 - The number of well trained artisans and small contractors working in both urban and rural areas needs to be increased substantially. Training in technical as well as business/promotional aspects is required.
 - Terms of employment, particularly at the local government level, need to be improved so that more qualified staff can be attracted to government service.
- (b) Decision Makers
- Decision makers at the community, local, state and federal levels need to be informed about sector policy on water supply and sanitation and involved in planning water and sanitation services in their areas. They also need to understand the roles of government, communities and the private sector in the provision of water and sanitation services.
- (c) Trainers and Students at Training Institutions
- Modified syllabuses for colleges, polytechnics and universities which reflect the Government's strategies in implementing RWSS and urban sanitation programs and include technical, institutional and financial aspects of project implementation are needed, and should be available to students at a reasonable cost.
 - Trainers in institutions should receive ongoing training in appropriate water supply and sanitation implementation strategies and technologies so that they can effectively train their students.
 - The terms of employment of staff in training institutions needs to be improved, so that the number of highly qualified staff will be increased.
 - Teaching facilities in institutions, particularly reference libraries and laboratories, need to be improved.
- (d) Applied Research
- Improved technologies and implementation strategies are needed for urban sanitation including excreta disposal, drainage and solid waste management.
 - Improved technologies and implementation strategies are needed for rural water supply and sanitation.
 - The willingness and ability of persons to pay for water supply and sanitation services needs to be documented and cost recovery strategies need to be refined.

B2. Justification for ITN Centres in Nigeria

9. Implementation of the proposed National RWSS Programme necessitates that communities; RWSS personnel at the local, state and federal levels; trainers; private contractors; and mechanics need to be trained; and decision makers at all levels be informed and involved. For example, RWSS personnel must

become conversant in new communications skills that encourage dialogue and participation; learn effective work planning skills including monitoring, evaluation, and problem resolution; gain a thorough knowledge of the policies and the technical details of the programme; and obtain practical experience. Staff and students working within the sector therefore require training in the approaches proposed in the National Programme. Such training will need to be cover management, design, implementation, construction and operation and maintenance skills.

10. Similarly, waste management services in Nigeria's primary and secondary cities will require development of appropriate implementation strategies and technologies; city personnel who are trained to plan and manage these services; and private sector professionals who can provide the required goods and services. Urban planners, health workers, engineers and technicians need to be trained in planning, institutional, financial, cultural, health and technology issues, and on strategies for improved service delivery. Trainers and students who will work in this field need to be conversant with and kept abreast of new approaches, for example, management of primary collection of solid waste by communities, or design of simplified sewerage. In addition, applied research needs to be conducted to improve technology design, implementation strategies and to reduce costs.

11. The proposed Training Network Centres specializing in water supply and waste management for low-income groups would play an essential role in this HRD effort by preparing and refining the training materials and methods needed to implement national RWSS and urban sanitation programs, and training key sector personnel and trainers in other institutions.

B2. Rationale for Selection of the Network Centres

12. As a result of a detailed needs assessment conducted at the end of 1990, six institutions were identified as possible hosts, for a Network Center based on their past involvement in research and/or training in the fields of Water Resources and/or Public Health Engineering. These were:

- Department of Water Resources and Environmental Engineering, Ahamadu Bello University, Zaria
- Department of Civil Engineering, University of Ibadan
- Department of Civil Engineering, University of Lagos
- Department of Civil Engineering, University of Maiduguri
- Faculty of Engineering, University of Nigeria at Nsukka (UNN)
- National Water Resources Training Institute, Kaduna (NWRI)

13. The preliminary needs assessment concluded that the human resources effort needed to support both the National RWSS Programme and future demands for improved urban sanitation services, necessitate the formation of two National Centres of Water and Waste Management. The host institutions that were recommended to and accepted by the FMWR were the National Water Resources Institute in Kaduna and the Faculty of Engineering at University of Nigeria in Nsukka. This recommendation was based on a number of factors: (i) the need to establish centers of excellence in both rural water supply and urban sanitation; (ii) the need for a geographical spread in a country as large as Nigeria; (iii) the existing strengths and mandates of the two institutions, where NWRI is already responsible for training in the water sector and the Faculty of Engineering at UNN has a strong sanitary engineering staff; and (iv) the commitment that both institutions have shown to making the Centres successful.

14. Full details of the two Institutions are given in Appendix 6. Briefly, the National Water Resources Institute in Kaduna was established in 1979 to offer training and advice and to carry out research in all aspects of water resources. The Institute is part of the FMWR; it is composed of a number of centers including Education, Research, Library, Water Resources Data Bank, Works, and Administration/Finance. The Education Centre currently has an academic staff of 20 and offers courses, workshops and symposia,

ranging in length from a few days to two years, some of which contain elements of low-cost water supply and sanitation. The Institute has a reputation for being action oriented and has a number of links with international organizations. In fact, it independently requested the World Bank to consider establishment of a Training Centre at NWRI some years ago when the International Training Network was initiated.

15. The University of Nigeria at Nsukka is one of the oldest universities in Nigeria and has been teaching engineering since 1962. The Faculty of Engineering, headed by the Dean, has four Departments namely Mechanical, Electrical & Electronic, Agricultural, and Civil. Within the Department of Civil Engineering there are three members of staff specializing in Public Health Engineering. As well as the undergraduate programme the Faculty offers Diploma, MSc and PhD level tuition. Some of the undergraduate courses already include a component on low-cost water supply. In the past research has been undertaken on low-cost water supply and sanitation but presently little is being done due to funding difficulties. Faculty staff have shown a keen interest in the idea of Network Centres. The Dean in particular has gone to considerable lengths to lobby for the Centre, and senior officials have committed the University to a substantial financial expenditure to ensure that the Centre is staffed with well qualified, multi-disciplinary specialists.

C. TRAINING NETWORK CENTRE OPERATIONS

C1. Objectives of the TNCs

16. The overall objective of the TNCs in Nigeria would be to bring about significant improvements in both the effectiveness of rural water supply and sanitation and urban sanitation investments and the extension of the service coverage, particularly for low income population groups. Towards this end, its main tasks would be:

- To inform decision makers, and educate and train trainers, practicing and student engineers and other field staff, in syllabus modification, appropriate water supply and sanitation systems and implementation strategies;
- To promote the introduction of a multi-disciplinary approach at all levels, emphasizing socio-cultural, hygiene and environmental considerations and appropriate financing mechanisms in the planning, implementation, and maintenance of integrated water supply and sanitation systems;
- To act as a focal point for the collection, preparation, and active dissemination of information on appropriate technologies and their successful applications;
- To undertake research leading to further improvements in the cost effectiveness, large scale implementation and replication of basic water supply and sanitation programs;
- To actively participate in current projects with the objective of collecting data on current practices and technologies and developing appropriate monitoring and evaluation techniques.

17. During their first five years of their existence, the TNCs will work towards becoming fully operational, financially independent and nationally recognized in meeting this objective. Specifically they will:

- Objective 1. Establish Training Network Centres at NWRI and UN Nsukka.
- Objective 2. Establish networks of key associates, institutions and agencies.
- Objective 3. Develop replicable and sustainable water and sanitation strategies.
- Objective 4. Collect, produce and distribute information materials to decision makers, senior personnel and trainers.

C2. Expected End of Project Situation

18. At the end of the five year project period it is anticipated that:

- Both Centres will be fully staffed with trained personnel and have a functioning library and materials distribution system, including a quarterly bulletin, course announcements, and other promotional materials. Both Centres will also have a network of trained associates who can regularly provide specialist inputs into the Centres' courses and assist them in contract work.
- Sector trainers will have received and be using appropriate materials and training skills, and will have incorporated these into existing curricula (the changes to which will have been fully endorsed by the appropriate academic controlling bodies and sector governing institutions).
- State RWSS Plans would have been prepared in three states, personnel in state and selected LGA RWSS Units in those states would have been trained in implementation of the RWSS Programme, and training materials would have been prepared. This will be done in collaboration with regional, state and LGA RWSS staff responsible for Phase II of NIR/87/011. Similarly, urban waste management plans would have been prepared in three cities.
- Students will have a better understanding of the basic issues involved in the sector and will have improved skills;
- Research activities will be well underway to identify ways of making low cost water supply and sanitation more appropriate and improve the methods of implementation.
- Both Centres will be self financing with income covering salaries, operating costs and equipment depreciation; and sources of income including training courses offered by the center, consultancy work, and materials distribution. Financing, perhaps in the form of basic staff salaries, may also be provided by the Host Institutions for services rendered to it such as contributions to extended courses run by the Host Institutions.

C3. Target Beneficiaries

19. The target beneficiaries and the skills that will be enhanced are described in Table 2. To attain these goals the Centres will run short courses and workshops; acquire or produce, store and disseminate relevant information; carry out applied research; produce training materials; develop links with key institutions, agencies and personnel; provide expert advice; and monitor activities in the sector.

TABLE 2
TARGET BENEFICIARIES AND SKILL ENHANCEMENT AREAS

TARGET BENEFICIARIES	SKILL ENHANCEMENT AREAS
Trainers in academic institutions	Technologies and implementation methods for RWSS and urban sanitation. Improved teaching techniques.
Sector agencies and groups	Technologies and implementation methods for RWSS and urban sanitation. Appreciation of the roles of government, communities and the private sector.
State & LGA RWSS personnel	Technologies and implementation methods for RWSS. Participatory training methods. Planning, monitoring and evaluation. Hygiene education and latrine promotion. Private sector support and contracting procedures.
City and state waste management personnel	Implementation methods for urban sanitation (excreta, solid waste, and drainage) including technical, financial and institutional aspects. Planning, monitoring and evaluation. Participatory training methods. Financing and revenue collection. Private sector support and contracting procedures.
Centre Associates	Specialization related to the sector (see Table 4).
Decision makers and women's advocacy groups	Technologies and implementation methods for RWSS and urban sanitation. Importance of participatory techniques in project implementation. Importance of community financial participation. Importance of government as a "facilitator" and private sector as the "provider" of goods and services. Importance of community management of RWS facilities.

C5. Centre Operation

20. Division of Responsibilities: In order to make the best use of resources, each Centre will have its own area of focus. NWRI will focus on rural water supply and sanitation, while UNN will focus on urban sanitation. It is not however intended that activities in any particular area will be carried out exclusively by one Centre, rather that it will act as the lead institution. In particular, UNN needs to be fully informed and involved in the latest developments in RWSS so that it can prepare and update training materials that will be used in academic institutions. The Centres will provide each other with support in implementing their workplans and will meet together regularly to exchange information and learn from one another. It is important that each Centre is fully aware of the activities of the other so that they can give appropriate support to one another.

21. Work Plans: The Centres activities will be in accordance with the detailed work plans prepared at the beginning of each year.

22. **Financial Independence:** External support for the Centres will be of limited duration. To ensure that the Centres continue in existence it is essential that they become financially self sufficient. Accordingly, from the beginning, stress will be laid on operating the Centres in a business like manner stressing the importance of budgetary control and proper accounting. Prior to start-up of the Centres a business plan will be prepared to provide a guide to achieving financial independence. This together with the sector priorities will direct the Centres' main areas of operation. All activities, including those financed under this project and requested by the host institutions or the FMWR, will be costed, funds allocated before work starts, and expenditure records maintained to track actual costs. The goal is for all Centre financing to be chargeable to training courses and consultancy work with Centre income covering operational costs, equipment depreciation and salaries. Achievement of financial independence will be one of the measures of success of the TNC's as it will show if the Centres are providing a service that is valued and if they can be sustained.

23. **Training:** It is expected that many of the Centre staff will not have the full range of necessary skills upon appointment. Consequently, staff training will be given a high priority, with two training workshops per year provided for staff and much of the external consultant support geared to training staff while simultaneously providing an output related to state RWSS plans and urban sanitation plans. In addition, the Centres' activities are linked to involvement in actual projects so that staff can gain the experience they need to become sector specialists.

24. **Information Dissemination:** Materials acquired or produced by a Centre requiring mass distribution will be distributed by that institution except for the quarterly TNC Bulletin which will be jointly written, edited and produced by the two Centres but printed and distributed by FMWR. The Editor in Chief of the Bulletin will be the National Coordinator. The TNC Bulletin will be distributed as widely as possible to persons and institutions working in rural water supply and sanitation and urban sanitation, particularly field staff. The Bulletin will contain information about the activities of the Centres; the progress of sector projects around the country; information on new ideas, equipment and methods; evaluations of existing technologies and methods and possibly a readers enquiry section. It will initially be distributed free but attempts should be made to attract local sponsorship (possibly through advertising) and once it is established a charge may be added. The bulletin should become self financing by the end of the project period.

C6. Centre Staffing

25. **Core staff:** To provide the necessary services, each Centre will be staffed by a multi-disciplinary group of specialists in engineering, community development, health, and graphics art. Because both host institutions have strong technical orientations, special arrangements will be made to recruit a full complement of staff that cut across normal departmental boundaries. A list of the full staff at each Centre is given in Table 3 with a brief outline of their skill areas and roles. Full job descriptions are given in Appendix 4.

26. **Centre Associates:** The Centre staff will be assisted by key associates who are or could become experts in a particular field. The associates will be drawn from academic institutions and the private sector. It is likely that they will require additional training before they can function effectively as experts. They will be trained along with Centre staff both in workshops and on the job training. They will be paid fees for project related work but not for participation in training workshops, and travel expenses will be paid in both instances. In addition personnel such as artists and draftsmen and technicians will be recruited as Centre Associates. Typical areas of expertise for associates are listed in Table 4. Once trained the associates will be called upon to contribute to specific projects managed by the Centre staff and would be available to provide consultant services.

TABLE 3 ACTIVITIES OF CENTRE STAFF

Center Staff	Centre	Grade (maximum)	Activities
Director of the Centre Centre Manager	UNN NWRI	USS 15	Centre management, training, report writing, work planning, budgeting, coordination development of business.
Senior Sanitary Engineer	UNN	USS 13-14	Management, training, applied research, participation in projects.
Rural Water Supply and Sanitation Engineer	UNN	USS 11-12	Training, applied research, participation in projects.
Senior Water Supply Engineer	NWRI	USS 13-14	Training, applied research, participation in projects.
Sanitary Engineer	NWRI	USS 11-12	Training, applied research, participation in projects.
Community Development Specialist	Both	USS 11-12	Training in extension and communication techniques, applied research, participatory, monitoring, and evaluation of Centre activities, participation in projects.
Health and Hygiene Specialist	Both	USS 11-12	Training in environmental health in hygiene education and latrine promotion, applied research, participation in projects.
Training Materials Production Specialist	Both	USS 11-12	Production information and training materials, development of desk top publishing capacity, participate in information management activities.
Information Officer	Both	USS 11-12	Management of library and information centre, distribution of material maintenance of dissemination databases, participation in materials production activities.
Administration and Finance Officer	Both	USS 11-12	Office administration, business budget development and management, monthly accounting, managing of junior staff.
Secretary	Both	USS 6-7	Typing, management of files and correspondence databases, desk top publishing.
Office Assistant (2)	Both	USS 4-5	General office work, typing, assisting the information officer and training materials productions specialist.
Driver/Mechanic (2)	Both	USS 4-5	Driving, day to day vehicle maintenance, emergency vehicle repairs, deliveries.

TABLE 4 SPECIALIZATIONS OF CENTRE ASSOCIATES

Rural Water Supply and Sanitation	Urban Waste Management
<p><u>Community Development Specialist</u> Participatory training techniques. Work planning, monitoring and evaluation. Process of establishing community management.</p> <p><u>Hydrogeologist</u> RWS survey methods and grants program. Water resources and service coverage monitoring. Construction grants programme. Hand dug well contracting. Well siting and construction supervision.</p> <p><u>Mechanical Engineer</u> Equipment and spare parts distribution. Community based operation and maintenance. Revenue collection and willingness to pay.</p> <p><u>Water Supply Engineer</u> Design and specifications for RWS facilities (surface and groundwater, point sources and small piped systems).</p> <p><u>Sanitation Specialist</u> Latrine design and construction.</p> <p><u>Financial Specialist</u> Staffing and facilities planning at LGA and State levels. Investment and finance planning for State Programmes.</p> <p><u>Hygiene Education Specialist</u> Hygiene education and latrine promotion.</p> <p><u>Graphics Artist</u> Graphics art and drafting.</p>	<p><u>Sanitary Engineers</u> Design, construction, and O&M. On-site excreta disposal systems. Simplified sewerage. Solid waste collection and disposal systems. Drainage. Resource recovery. Planning, monitoring and evaluation. Environmental impact assessments.</p> <p><u>Community Development Specialist</u> Participatory training techniques.</p> <p><u>Hygiene Education Specialist</u> Hygiene education.</p> <p><u>Financial Specialist</u> Investment and finance planning. Revenue collection and willingness to pay.</p> <p><u>Marketing Specialist</u> Promotion and marketing of sanitation facilities.</p> <p><u>Graphics Artist</u> Graphics art and drafting.</p>

D. COORDINATION AND MANAGEMENT

27. The management of each TNC will be primarily the responsibility of that Centre together with the responsibility for coordination with its sister Centre. There are however other groups and individuals that have a role to play in these areas and they are listed below.

28. Since communication and coordination between the two Centres is given such a high priority it is recommended that both they and the National Coordinator be provided with a telex machine as other forms of long distance communication in Nigeria are so unreliable.

29. Federal Ministry of Water Resources: The FMWR will guide and oversee network activities through a National Coordinator. He/she will be responsible for the following:

- Report on progress of the center to FMWR and central Government.
- Assist the centers in fund raising/promotion activities.
- Report to the water supply and sanitation and manpower development and research sub-committees of the National Technical Committee on Water Resources.
- Participate meetings between centers.
- Convene the quarterly meeting of all TNC staff.
- Act as Editor in Chief for the Network Bulletin.

30. Advisory board: The advisory board at each Centre will have five to eight members comprising a multi-disciplinary team of selected staff and distinguished sector professionals identified by the host institution and a representative of the executing agency and/or donor. The role of the advisory board is to monitor progress in delivering the work plan and to keep host institution informed of the activities of the center. The advisory board will meet semi-annually to review progress, to advise on technical and administrative issues as they affect the relationship between the host institution. It will also be responsible for the interviewing and selection of staff for the center.

31. Associated Institution: The associated institution will be attached to each Centre to provide technical assistance in the implementation of the work plan. The type of support to be provided will include assistance with conducting training needs assessments, conducting workshops and preparing training materials. The assistance of the associated institution will be funded externally.

32. Executing Agency: The UNDP/World Bank Program in its role as executing agency for the TNCs in Nigeria and the International Training Network, will assist the Centres in the preparation of their work plans, ensure that the activities of the Centres are according to basic concepts of ITN facilitate global/regional collaboration among the ITN's Centers, assist with the training of Centre staff and with the identification of consultants to assist the centers. Day to day supervision and assistance will be provided by an RWSG Country Coordinator recruited locally and funded through this project.

E. OBJECTIVES, OUTPUTS AND ACTIVITIES

Objective 1	Establish Training Network Centres at NWRI and UN Nsukka.	
Output 1.1	National coordinator and advisory committees operational.	
Activity 1.1.1	National coordinator appointed by FMWR.	FMWR
1.1.2	Each institution sets up an advisory committee.	Both
Output 1.2	Centres fully staffed, equipped and operational.	
Activity 1.2.1	TNCs recruit multi-disciplinary, full-time staff (see job descriptions in Annex 4), and secure/refurbish facilities. Executing agency purchases equipment.	All
1.2.2	Develop internal monitoring and evaluation procedures.	Both
1.2.3	Establish mechanisms for collaboration between the TNCs.	Both
1.2.4	TNC staff from both centres meet three times per year to discuss activities and future developments, prepare annual workplans and participate in training workshops.	Both
1.2.5	Each TNC will hold regular meetings of its staff.	Both
Output 1.3	Annual detailed workplans for each TNC prepared and approved.	
Activity 1.3.1	Prepare annual work plan in workshop attended by staff of both Centres, executing agency and associated institution.	Both
Output 1.4	Business plan for financially independent operation.	
Activity 1.4.1	Annually review and refine business plan that was drafted during project preparation.	Both
1.4.2	Implement business plan using appropriate budgeting, accounting and time allocation procedures.	Both
Output 1.5	TNC staff and associates fully trained.	
Activity 1.5.1	TNC staff and associates trained through participation in projects; and work with RWSG, associated institution and international consultants; etc.	Both
1.5.2	Collaborate with other members of the International Training Network Centres through periodic managers meetings and staff exchanges.	Both

1.5.3	RWSG, associated institution and/or consultants to conduct two training workshops per year for TNC staff and associates. In first year workshops will be on participatory training and training materials design.	Both
Objective 2	Establish networks of key associates, institutions and agencies.	
Output 2.1	Linkages with relevant institutions established and maintained.	
Activity		
2.1.1	Identify and prepare a list of relevant training institutions (water, sanitation and health sector), including the contact person(s) want to actively collaborate with the TNCs.	Both
2.1.2	Identify the assistance institutions need to improve their curricula, training methods and course materials.	Both
2.1.3	Prepare appropriate training materials and activities required to address 2.1.2.	Both
2.1.4	Conduct at least one training of trainers workshop per year.	Both
2.1.5	Provide trainers packages to the workshop participants for subsequent use in their institutions.	Both
2.1.6	Contribute to extended courses run by host institutions.	Both
2.1.7	Maintain communications with institutions through the TNC Bulletin, seminars, distribution of reports, etc.	Both
Output 2.2	Linkages with relevant agencies and groups established and maintained.	
Activity		
2.2.1	Identify and prepare a list of relevant agencies, groups and individuals such as practicing engineers, health workers city planners.	Both
2.2.2	Identify needs and develop activities and training materials to be used in RWSS short courses.	Both
2.2.3	Conduct at least one workshop and one short course per year on RWSS for sector personnel.	NWRI
2.2.4	Conduct at least one workshop and one short course per year on urban sanitation for sector personnel.	UNN
2.2.5	Prepare and conduct one day promotional seminars on RWSS and urban sanitation as necessary.	Both

Output 2.3	Linkages with Centre Associates established and maintained.	
Activity		
2.3.1	Identify areas of specialization that are essential to develop the sector.	Both
2.3.2	Identify associates according to areas of specialization who want to actively participate in the development of the sector.	Both
2.3.3	TNC staff to prepare TORs for their inputs into 2.1, 2.2, 3.1, 3.2 and 3.3 and supervise their work.	Both
Objective 3	Develop replicable and sustainable water and sanitation strategies.	
Output 3.1	Assistance provided to FMWR for development and implementation of RWSS sector program in three states.	
Activity		
3.1.1	Assist RWSS Units in 3 States to prepare state RWSS plans and prepare a generic plan as a model for other states.	NWRI
3.1.2	Prepare training methods and materials to be used in State RWSS Programmes and field test/refine them in selected LGAs.	NWRI
3.1.3	Conduct applied research on development of appropriate strategies for implementation of WSS programmes including technical, financial, institutional and social aspects (link with 3.1.2).	NWRI
3.1.4	Collect, prepare and update standard designs and specifications for RWSS (link with 3.1.2).	NWRI
3.1.5	Prepare an introductory RWSS training course for LGA and State RWSS personnel to be given at TNCs and possibly state polytechnics.	NWRI
3.1.6	Conduct workshops for LGA and state RWSS personnel.	NWRI
Output 3.2	Assistance provided for the development and implementation of urban sanitation strategies in the three states.	
Activity		
3.2.1	Assist three cities to prepare urban waste management plans.	UNN
3.2.2	Develop training materials and guidelines for urban waste management planning for use in short courses for sector professionals.	UNN
3.2.3	Conduct applied research on development of appropriate strategies for provision of urban waste management services including technical, institutional, financial and social aspects.	UNN
3.2.4	Collect, prepare and update standard designs and specifications for urban sanitation.	UNN

3.2.5	Conduct workshops for sector professionals including city and state waste management personnel.	UNN
Output 3.3	Services on a contractual basis.	
Activity		
3.3.1	Provide consultant services on water supply and sanitation not included in this list.	Both
Objective 4	Collect, produce and distribute information materials to decision makers, senior personnel and trainers.	
Output 4.1	Operational water supply and sanitation reference libraries open to the public.	
Activity		
4.1.1	Equip the Library.	Both
4.1.2	Identify and acquire relevant documents.	Both
4.1.3	Catalogue and classify materials and set up reference database.	Both
Output 4.2	Acquire, prepare, print and distribute information.	
Activity		
4.2.1	Prepare articles for the quarterly bulletin.	Both
4.2.2	Print and distribute a quarterly bulletin to sector personnel.	FMWR
4.2.3	Prepare, produce and distribute announcements for workshops, short courses and seminars, and other promotional materials.	Both
4.2.4	Acquire and distribute "Waterlines", "Urban Edge" or similar journals to key agencies and institutions.	Both
4.2.5	Monitor current activities in the sector for inclusion in information materials.	Both
4.2.6	Prepare distribution lists.	Both
4.2.7	Purchase selected documents requiring foreign exchange and sell in local currency through a revolving fund.	Both
4.2.8	Acquire relevant documents and distribute on request (a charge should be made for handling costs).	Both

F. INPUTS AND BUDGET

33. FMWR: The FMWR will be the lead agency for the TNC assistance project, as such it will secure approval for the Centres from the FMFED and ensure that government contributions are provided in a timely manner. The FMWR will provide overall direction for the TNCs through a part time national coordinator for the Centres (responsibilities specified in para. 30). The FMWR will also provide (i) three vehicles, one for the TNC Coordinator and one for each Centre, (ii) refurbishment of the Centre facilities and office furniture at UNN and NWRI, and (iii) travel expenses of Centre staff for four workshops each year. Participation of sector staff in workshops conducted by the Centres will be funded by their agencies.

34. Host Institutions: Accommodation for the Centres will be provided within the Faculty of Engineering at the University of Nigeria at Nsukka and within the National Water Resources Institute at Kaduna. Each institution will provide 6-8 offices, 2 lecture rooms, a library with production/storage space, and laboratory/demonstration areas. All facilities will be furnished and lighted per the standards of the institution. Each institution will pay staff salaries and benefits, maintain facilities, pay utility charges, as well as provide management support and general accounting services. It is expected that the Centres will become self financing and that they will pay an increasing portion of their operating costs including equipment depreciation and salary supplements through consultant and training services.

35. External Support Agency: The ESA will finance the start-up of the TNCs including local and international consultant assistance; workshops, short courses and study tours for staff training; vehicles, computers/printers and audio-visual equipment including part of their O&M costs; a part of non-expendable and other miscellaneous costs; and staff travel costs, again on a decreasing basis. The ESA will also finance assistance to be provided by Centre Associates, an associated institution and country-based support staff of the UNDP/World Bank Water Supply and Sanitation Program including a country coordinator (5 years) and a training specialist (3 years).

36. Non-expendable equipment to be provided by the ESA includes the following.

NON-EXPENDABLE EQUIPMENT (US DOLLARS-000s)

Vehicles (2 standard and 2 4WD)	80.0
Computer equipment	
Computers - 386SX (6)	21.0
Computers - 386DX (2)	8.0
Dot Matrix Printers (6)	2.5
Laser Postscript Printers (2)	7.5
Scanners (2)	3.0
Software	5.0
Audio-Visual Equipment	
Slide Projectors (2)	0.5
Overhead Projectors (4)	0.5
35mm Cameras (2)	0.5
Flip charts and boards	1.0
Photocopiers, medium (2)	10.0
Telex Machines (3)	4.5
Demonstration Equipment	20.0
Total	164.0

37. **World Bank:** The World Bank will execute the project through the UNDP/World Bank Water and Sanitation Program. Program staff (headquarter, RWSSG-Abidjan and country based) will:

- Provide day to day support.
- Help prepare and update workplans.
- Monitor disbursements and progress.
- Provide training or arrange for others with requisite skills to conduct training workshops.
- Prepare detailed TOR for all external consultants and manage their contracts.
- Ensure that Centre activities are directed toward practical sector work.
- Provide ITN coordination.

38. The RWSSG country coordinator and community development specialists will spend about half their time directly on TNC activities; their other activities will include (i) supervision of the preparation and initial implementation of state RWSS plans, (ii) assistance to the FMWR efforts to implement the National RWSS Program, and (iii) development and implementation of urban sanitation demonstration projects.

39. **Associated Institution:** The role of the Associated Institution is to provide guidance and assistance to the Centre staff. The support will take the form of formal links as suggested in the table below together with informal links through personal correspondence between Centre and Associated Institution staff. The Associated Institution should be working in the same fields and operating in the same manner as that proposed for the Network Centres. The Associated Institution will:

- Participate in annual work planning.
- Conduct training workshops for Centre staff and associates on relevant technical, financial and/or institutional aspects of water and sanitation (1 per year).
- Assist the Centre staff with (i) curriculum development and preparation of training packages for other institutions, (ii) the design and delivery of short courses and (iii) the setting up and operation of materials distribution systems.
- Provide training in desk top publishing techniques and production of promotional materials.
- Advise on budgeting and achieving financial independence.

40. **Consultants:** About 60 weeks of international consultant time and 330 weeks of Centre associate time is budgeted for. About half the international consultant time will be spent on the preparation of RWSS plans for three states and urban sanitation plans for three cities; the other half of their time will be spent in training TNC staff and associates. In addition, 330 weeks of Centre associate time is budgeted, the majority of which is for assistance with the preparation of RWSS and urban sanitation plans.

41. **Budget:** The total external support budget is US\$2.5 million over a five year period, or US\$250,000 per Centre per year. Each Centre will receive about 1 million dollars for its operations and

the UNDP/World Bank Water and Sanitation Program will receive about a half million dollars to finance a country coordinator for five years (recruited locally) and a community development specialist for 3 years (recruited internationally).

42. The local contribution will be equivalent to about US\$750,000, with the FMWR, NWRI and UNN each contributing about US\$250,000. In addition, it is expected that the two Centres will have a total income of about US\$500,000. This brings the total local contribution to about 1.25 million dollars or about half that of the External Support Agency. In the fifth year the income of each Centre will be about US\$150,000 which should be sufficient for the Centres to be self sufficient, particularly if the host institutions continue to pay basic salaries and benefits.

43. A summary of these budget figures is provided in Tables 5 to 8, with more detailed information presented in Annex 2.

TABLE 5 SUMMARY OF EXTERNAL ASSISTANCE BY FUNDING AGENCY (US\$ 000s)

Funding Agency	Budget (US\$)
ODA	999
UNDP	1,155
Total	2,154

TABLE 6 SUMMARY OF EXTERNAL ASSISTANCE AGENCY BUDGET (US\$ 000s)

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
RWSG	30	32	34	36	38	169
NWRI	302	235	166	148	132	983
UNN	228	251	239	153	130	1,001
Total	560	518	439	337	300	2,154

TABLE 7 SUMMARY OF LOCAL FINANCING - CASH (NAIRA 000S)

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
FMWR	1108	284	312	343	378	2,425
NWRI	507	463	509	560	616	2,656
UNN	391	430	473	520	572	2,387
Total	2,006	1,177	1,295	1,424	1,567	7,468

TABLE 8 SUMMARY OF TNC INCOME (NAIRA 000S)

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
NWRI	0	0	653	1,061	1,472	3,186
UNN	0	0	744	1,161	1,582	3,486
Total	0	0	1,397	2,222	3,053	6,672

G. REPORTING MONITORING AND EVALUATION

44. TNCs will prepare semi-annual progress reports for use in ITN Coordination and for the executing agency, FMWR, advisory committee and ESA. Reports which include evaluations will be prepared at the end of each workshop conducted by the Centres (to help in improving performance). The executing agency will report to the donor annually on the Centres' operation as well as on financial management.

45. The UNDP/World Bank Program and FMWR will monitor and advise on Centres' activities. Centres will develop self-evaluation mechanisms to help with improving performance and with the developing the business aspects of the Centres. At the end of year 2 and prior to the release of funds for years 3 -5, an evaluation of the two Centres will be conducted.

H. RISKS

46. The following factors could affect the Centre's reaching their full potential:

- Inability to attract and retain suitable staff.
- Insufficient counterpart funding.
- Inadequate or insufficient facilities provided by the host institutions and the government of Nigeria.
- Insufficient travel allowances to enable the Centre staff to carry out their duties.

**APPENDIX 1
WORK PLAN**

	Year 1	Year 2	Years 3-5
ESTABLISH TNCs AT NWRI AND UNN			
1.1.1	•		
1.1.2	♦		
1.2.1	=====		
1.2.2	=====		
1.2.3	=====		
1.2.4	♦		
1.2.5	• ♦ •	• ♦ •	• ♦ •
1.2.6	=====	=====	=====
1.3.1		•	•
1.4.1	♦		
1.4.2			
1.5.1		=====	=====
1.5.2		=====	=====
1.5.3	♦ •		
1.5.4		• •	• •
ESTABLISH NETWORKS OF ASSOCIATES AND INSTITUTIONS			
2.1.1		=====	
2.1.2		=====	
2.1.3			=====
2.1.4			♦ ♦
2.1.5			♦ ♦
2.1.6			=====
2.1.7	=====	=====	=====
2.2.1		=====	
2.2.2		=====	
2.2.3			♦
2.2.4			♦
2.2.5			♦ ♦
2.3.1	♦		
2.3.2	=====		
2.3.3	=====		
DEVELOP WATER AND SANITATION STRATEGIES			
3.1.1	=====		
3.1.2		=====	=====
3.1.3			=====
3.1.4		=====	=====
3.1.5			=====
3.1.6			♦ ♦
3.2.1		=====	=====
3.2.2			=====
3.2.3			=====
3.2.4			=====
3.2.5			♦ ♦
3.3.1			=====
DISTRIBUTE INFORMATION			
4.1.1	=====		
4.1.2	=====	=====	=====
4.1.3			=====
4.2.1	♦	♦ ♦	♦ ♦
4.2.2	♦	♦ ♦	♦ ♦
4.2.3		=====	=====
4.2.4	=====	=====	=====
4.2.5		=====	=====
4.2.6	=====		
4.2.7		=====	=====
4.2.8		=====	=====

APPENDIX 2

EXTERNAL ASSISTANCE AGENCY BUDGET (US DOLLARS 000s)

	RWSG	NWRI					UNN					Total
	Yr 1-5	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
INTERNATIONAL PERSONNEL												
International Consultants (Fees)		9	10	10	11	11	9	48	51	11	11	180
International Consultants (Travel)		6	6	7	7	8	6	32	34	7	8	122
Associate Institution (Fees)		36	38	34	29	23	36	38	34	29	23	318
Associate Institution (Travel)		24	26	23	19	15	24	26	23	19	15	215
(subtotal)		75	80	73	66	57	75	144	141	66	57	835
NATIONAL PERSONNEL												
UNDP/WB Country Coordinator	169											169
Local Consultants (TNC Assoc. Fees)		33	36	3	0	0	0	13	10	7	0	101
Local Consultants (TNC Assoc. Travel)		21	23	2	0	0	0	9	6	5	0	66
Travel (TNC Personnel)		27	24	20	16	11	9	14	14	9	9	153
(subtotal)	169	81	83	25	16	11	9	35	30	21	9	320
TRAINING OF TNC STAFF & ASSOCIATES												
Workshops		3	3	3	4	4	3	3	3	4	4	34
ITN Mgt. Meetings & Staff Exchanges		6	6	7	7	8	6	6	7	7	8	68
Short Courses Overseas		16	17	18	19	20	16	17	18	19	20	180
Study Tours in Africa		8	8	9	10	10	8	8	9	10	10	90
(subtotal)		33	35	37	39	42	33	35	37	39	42	372
EQUIPMENT												
Expendable Equipment		6	5	4	3	2	6	5	4	3	2	40
Non-Expendable		73	4	3	2	1	71	4	3	2	1	164
(subtotal)		79	9	7	5	3	77	9	7	5	3	204
MISCELLANEOUS												
Library and Training Materials		10	3	3	3	3	10	3	3	3	3	44
Materials for Dissemination		6	8	5	5	5	6	8	5	5	5	58
Applied Research Materials		0	3	6	8	8		3	6	8	8	50
Operations and Maintenance		10	8	6	4	2	10	8	6	4	2	60
Sundry		8	6	4	2	1	8	6	4	2	1	42
(subtotal)		34	28	24	22	19	34	28	24	22	19	254
TOTAL	169	302	235	166	148	132	228	251	239	153	130	2,154

Annual inflation rate for government inputs 10%
 Annual inflation rate for ESA inputs 6%
 Cost of international consultants (US\$/wk) 5,000
 Cost of Centre Associates (US\$/wk) 800

Ave 2 wk mission (40% travel).
 Ave 2 wk mission, 1 week preparation (40% travel).

EXTERNAL ASSISTANCE BUDGET BY AGENT AND ACTIVITY (US\$ 000's)

	TNC ⁽¹⁾	Local Cons.	Int. Cons.	Assoc. Inst.	RWSG Staff	Total
TNC Core Activities	830	34	170	533	42	1,609
RWS/S Project Preparation	99	98	0		68	264
Urban Sanitation Planning	54	35	132		59	280
Total	982	167	302	533	169	2,154

(1) \$164,000 of TNC core activities (Total \$830,000) is for non-expendable equipment.

APPENDIX 2 (Continued)

LOCAL CONTRIBUTION - CASH (NAIRA)

	NWRI					UNN					FMWR					Total
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
TNC PERSONNEL																
Manager/Director	44	48	53	59	64	44	48	53	59	64						537
Engineer (San. Technologies)	33	36	40	44	48	39	43	47	52	57						440
Engineer (RWS Technologies)	39	43	47	52	57	33	36	40	44	48						440
Com. Dev./Training Specialist	33	36	40	44	48	33	36	40	44	48						403
Health/Hygiene Specialist	33	36	40	44	48	33	36	40	44	48						403
Training Materials Production Sp.	33	36	40	44	48	33	36	40	44	48						403
Information Officer	33	36	40	44	48	33	36	40	44	48						403
Administrative/Finance Officer	33	36	40	44	48	33	36	40	44	48						403
Secretary	24	26	29	32	35	24	26	29	32	35						293
Clerical Assistants (2)	28	31	34	37	41	28	31	34	37	41						342
Drivers (2)	28	31	34	37	41	28	31	34	37	41						342
(subtotal)	361	397	437	480	529	361	397	437	480	529	0	0	0	0	0	4,408
OFFICE REFURBISHING																
Offices (6)	15										30					45
Classrooms (2) & Conference Room	15										25					40
Library & Production/Storage Area	10										20					30
Lab/Demonstration Area	10										15					25
Office Furniture	20										90					110
Air Conditioners	16										70					86
(subtotal)	86	0	0	0	0	0	0	0	0	0	250	0	0	0	0	336
NATIONAL PERSONNEL																
Travel for training workshops											162	178	196	216	237	989
Travel for National Coordinator											36	40	44	48	53	220
(subtotal)	0	0	0	0	0	0	0	0	0	0	198	218	240	264	290	1,209
NON-EXPENDABLE EQUIPMENT																
Vehicles (3)											600					600
(subtotal)	0	0	0	0	0	0	0	0	0	0	600	0	0	0	0	600
MISCELLANEOUS																
Utilities	60	66	73	80	88	30	33	36	40	44						549
O&M for FMWR vehicle											60	66	73	80	88	366
(subtotal)	60	66	73	80	88	30	33	36	40	44	60	66	73	80	88	916
Total	507	463	509	560	616	391	430	473	520	572	1,108	284	312	343	378	6,882

APPENDIX 2 (Continued)

TNC INCOME (NAIRA 000s)

						UNN					Total
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
TNC INCOME											
RWSS Short Courses (Act. 2.2.3)	0	0	91	100	110	-	-	-	-	-	300
RWSS Workshops (Act. 2.2.3)	0	0	45	50	55	-	-	-	-	-	150
San. Short Courses (Act. 2.2.4)	-	-	-	-	-	0	0	91	100	110	300
San. Workshops (Act. 2.2.4)	-	-	-	-	-	0	0	45	50	55	150
Workshops for Inst. (Act. 2.1.4)	-	-	-	-	-	0	0	45	50	55	150
Consultancies (max. 12 wk/person/yr)	0	0	190	381	571	0	0	190	381	571	2,285
TOTAL LOCAL CONTRIBUTION	0	0	653	1,061	1,472	0	0	744	1,161	1,582	6,672

APPENDIX 3

EXTERNAL ASSISTANCE INPUTS (Weeks)

	NWRI					UNN					Total
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
INTERNATIONAL CONSULTANTS											
Training Workshops for TNC (2/yr, 2 wk)	3	3	3	3	3	3	3	3	3	3	30
Assistance with State RWSS Programmes	8	12	0	0	0						20
Assistance with Urban Sanitation Prog.						0	6	6	0	0	12
(subtotal)	11	15	3	3	3	3	9	9	3	3	62
CENTRE ASSOCIATES											
Assistance with State RWSS Programmes	40	40	20	0	0						100
Assistance with Urban Sanitation Prog.						0	30	30	20	0	80
Other Assistance to TNCs	8	10	5	0	0	0	6	8	3	0	40
Participation in TNC workshops	0	0	10	15	20	0	10	15	20	20	110
(subtotal)	48	50	35	15	20	0	46	53	43	20	330
UNDP/WORLD BANK PROGRAM											
Introductory Workshop	3	0	0	0	0	3	0	0	0	0	6
Coordination workshops	0	2	2	2	2	0	2	2	2	2	16
General Supervision and Assistance	2	2	2	2	2	2	2	2	2	2	20
Country Coordinator	15	15	15	15	15	15	15	15	15	15	150
Community Development Specialist	20	20	20	0	0	10	10	10	0	0	90
ITN Coordinator	1	1	1	1	1	1	1	1	1	1	10
(subtotal)	41	40	40	20	20	31	30	30	20	20	292
ASSOCIATED INSTITUTION											
Technical Assistance	12	12	10	8	6	12	12	10	8	6	96
(subtotal)	12	12	10	8	6	12	12	10	8	6	96
Total	106	111	83	42	46	40	91	97	70	46	732

APPENDIX 4

JOB DESCRIPTIONS

DIRECTOR OF THE CENTRE (UNN) and CENTRE MANAGER (NWRI)

Responsible to: The Dean of Engineering (UNN) or the Director (NWRI).

Maximum salary scale: USS 15.

Responsibilities

Develop, coordinate, conduct and supervise the activities of the Training Network Centre in accordance with the objectives specified in the project document. In particular the Director/Manager will:

- (a) Supervise and administer the financial management of the Centre and develop its activities in such a way that it could ultimately lead to the Centre's financial independence;
- (b) Prepare on an annual basis a detailed work plan of the Centre's activities in the following year with outlines for future years together with appropriate budgets;
- (c) Prepare detailed individual work plans and career development plans for all Centre staff (together with them) and encourage team work in implementing Centre work plans;
- (d) Prepare six monthly progress reports;
- (e) Supervise the activities of the other members of the team and support them in implementing the Center work plan;
- (f) Collaborate with relevant ministries and institutions to raise their awareness of the Centre and its activities and persuade them to employ the expertise of the Centre on a consultancy basis;
- (g) Coordinate the activities of the Centre with those of the rest of the host institution (through the management committee) and the sister Centre (directly and through the National Coordinator at the FMWR);
- (h) Coordinate with the rest of the ITN (directly and through the RWSG and ITN Coordinator of the UNDP/World Bank Program) and participate in the ITN's Centre Managers' meetings;
- (i) Develop increased knowledge of all institutional, financial, technical, social issues of relevance to the sector and develop skills in participatory communication;

Qualifications Senior sector specialist preferably with an advanced degree

Experience

10 years post qualification experience in the sector, particularly of projects including low cost technologies and community participation. Experience in sector training and in research. Experience with project management.

SENIOR PUBLIC HEALTH/SANITARY ENGINEER (UNN)

Responsible to: Director of the Centre

Maximum salary scale: USS 13-14

Responsibilities

Under the direction of the Director of the Centre (and as the deputy) to develop, conduct, coordinate and supervise the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the senior public health/sanitary engineer will:

- (a) Provide advice and inputs into all activities related to sanitary engineering;
- (b) Be responsible for the preparation and delivery of all training material related to sanitation.;
- (c) Prepare, manage and conduct workshops and short courses related to sanitation and assist training institutions with curriculum development and modification;
- (d) Participate in development and implementation of RWSS Programme and urban sanitation (primary focus) plans as well as other on-going projects;
- (e) Initiate and supervise applied research in the field of sanitation;
- (f) Assist with the management of the Centre particularly in the areas of report writing, budget preparation, work plan production and preparation of consultancy proposals.;
- (g) Promote the activities of the Centre through attendance at seminars, conferences and meetings with ministries and institutions;
- (h) Provide consultancy service on training and applied research;
- (i) Support and take part in the activities of the other members of the team as required;
- (j) Carry out other duties as requested by the Centre Director;
- (k) Develop increased understanding and knowledge of community development, hygiene education, participatory techniques, institutional, financial and other issues relevant to the sector.

Qualifications Public health/Sanitary engineer preferably with an advanced degree

Experience Five years post qualification experience in the design and implementation of projects including community participation and low cost sanitation technology. Experience in training sector personnel and with solid waste management/drainage projects. Some management experience.

RURAL WATER SUPPLY AND SANITATION ENGINEER (UNN)

Responsible to: Director of the Centre

Maximum salary scale: USS 11-12.

Responsibilities

Under the direction of the Director of the Centre to develop, coordinate and conduct the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the rural water supply and sanitation engineer will:

- (a) Provide advice and inputs into all activities related to RWSS engineering;
- (b) Be responsible for the preparation and delivery of all training material related to RWSS;
- (c) Prepare, manage and conduct workshops and short courses related to RWSS and assist training institutions to modify and develop curricula as appropriate;
- (d) Participate in development and implementation of RWSS Programme (primary focus) and urban sanitation plans as well as other on-going projects;
- (e) Initiate and supervise applied research in the field of RWSS;
- (f) Participate in report writing, budget preparation, work plan production and preparation of consultancy proposals;
- (g) Provide a consultancy service on training and applied research in the sector;
- (h) Promote the activities of the Centre through attendance at seminars, conferences and meetings with ministries and institutions;
- (i) Support and take part in the activities of the other members of the team as required;
- (j) Carry out other duties as requested by the Centre Director;
- (k) Develop increased understanding and knowledge of community development, hygiene education, participatory techniques, institutional, financial and other issues relevant to the sector.

Qualifications Rural Water Supply and sanitation engineer

Experience Five years post qualification experience in the design and implementation of RWSS related projects particularly those including components relating low cost technology and community participation. Training of sector personnel. Involvement in applied research in RWSS.

SENIOR WATER SUPPLY ENGINEER (NWRJ)

Responsible to: Centre Manager

Maximum salary scale: USS 13-14

Responsibilities

Under the direction of the Centre Manager (and as the deputy), to develop, coordinate, conduct and supervise the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the senior water supply engineer will:

- (a) Provide advice and inputs into all activities related to RWS;
- (b) Be responsible for the preparation and delivery of all training material related to RWS;
- (c) Prepare, manage and conduct workshops and short courses on RWSS and assist institutions with curriculum development and modification;
- (d) Initiate and supervise applied research in the field of RWSS;
- (e) Assist with the management of the Centre particularly in the areas of report writing, budget preparation, work plan production and preparation of consultancy proposals;
- (f) Promote the activities of the Centre through attendance at seminars, conferences and meetings with ministries and institutions;
- (g) Develop increased understanding and knowledge of community development, hygiene education, participatory techniques, institutional, financial and other issues relevant to the sector.
- (h) Participate in development and implementation of RWSS Programme (primary focus) and urban sanitation plans as well as other on-going projects;
- (i) Provide consultancy service on training and applied research;
- (j) Support and take part in the activities of the other members of the team as required;
- (k) Carry out other duties as requested by the Centre Manager;

Qualifications Rural water supply engineer preferably with an advanced degree.

Experience Five years post qualification experience in the design and implementation of RWS projects particularly those including community participation. Experience in training sector personnel RWS. Some knowledge of rural sanitation. Involvement in applied research in RWSS. Management experience in RWS.

SANITARY ENGINEER (NWRD)

Responsible to: Centre Manager

Maximum salary scale: USS 11-12.

Responsibilities

Under the direction of the Centre Manager to develop, coordinate and conduct the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the sanitary engineer will:

- (a) Provide advice and inputs into all activities related to sanitary engineering;
- (b) Be responsible for the preparation and delivery of all training material related to sanitation;
- (c) Prepare, manage and conduct workshops and short courses related to sanitation and assist institutions with curriculum development and modification;
- (d) Initiate and supervise applied research in the field of sanitation;
- (e) Participate in report writing, budget preparation, work plan production and preparation of consultancy proposals;
- (f) Promote the activities of the Centre through attendance at seminars, conferences and meetings with ministries and institutions;
- (g) Participate in development and implementation of RWSS Programme and urban sanitation plans as well as other on-going projects (focus on sanitation);
- (h) Provide consultancy service on training and applied research;
- (i) Support and take part in the activities of the other members of the team as required;
- (j) Carry out other duties as requested by the Centre Manager;
- (k) Develop increased understanding and knowledge of community development, hygiene education, participatory techniques, institutional, financial and other issues relevant to the sector.

Qualifications Sanitary engineer

Experience Five years post qualification experience in the design and implementation of sanitation projects particularly those including components relating low cost technology and community participation. Training of sector personnel in low cost sanitation. Involvement in applied research in low cost sanitation.

COMMUNITY DEVELOPMENT SPECIALIST (UNN and NWRI)

Responsible to: Director of the Centre (UNN) or Centre Manager (NWRI)

Maximum salary scale: USS 11-12

Responsibilities

Under the direction of the Director/Manager to develop, coordinate and conduct the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the Community development specialist will:

- (a) Provide advice and inputs into all activities related to community development;
- (b) Be responsible for the preparation and delivery of all training material related to Community development and participatory techniques;
- (c) Prepare, manage and conduct workshops and short courses related to community development and participatory techniques and assist with curriculum development and modification;
- (d) Initiate and supervise applied research in the field of community development and participatory techniques;
- (e) Participation in report writing, budget preparation, work plan production and preparation of consultancy proposals;
- (f) Promote training and information dissemination on the roles that women, NGOs and other special interest groups can play in sector development;
- (g) Participate in development and implementation of RWSS Programme and urban sanitation plans as well as other on-going projects;
- (h) Increase knowledge and understanding of relevant technical, financial, institutional, health/hygiene issues;
- (i) Provide a consultancy service on training and applied research;
- (j) Promote the activities of the Centre through attendance at seminars, conferences and meetings with ministries and institutions;
- (k) Support and take part in the activities of the other members of the team as required and carry out such other duties as are requested by the Director/Manager of the Centre;

Qualifications Specialist in community extension techniques and communication skills.

Experience Five years post qualification experience of community participation/management in water supply and sanitation projects in urban and rural areas. Knowledge of participatory training methods. Experience in training of sector personnel at all levels.

HEALTH AND HYGIENE SPECIALIST (UNN and NWRI)

Responsible to: Director of the Centre (UNN) or Centre Manager (NWRI)

Maximum salary scale: USS 11-12

Responsibilities

Under the direction of the Director/Manager of the Centre to develop, coordinate and conduct the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the health and hygiene specialist will:

- (a) Provide advice and inputs into all activities related to
- (b) Be responsible for the preparation and delivery of all training material related to health and hygiene education and the promotion of household for both water and health sector personnel;
- (c) Prepare, manage and conduct workshops and short courses related to health and hygiene education and the promotion of household latrines and assist with curriculum development and modification;
- (d) Initiate and supervise applied research in the field of health and hygiene education and the promotion of household latrines;
- (e) Participate in report writing, budget preparation, work plan production and preparation of consultancy proposals;
- (f) Participate in development and implementation of RWSS Programme and urban sanitation plans as well as other on-going projects;
- (g) Increase knowledge and understanding of institutional, technical, financial issues as well as participatory techniques and marketing strategies for sanitation;
- (h) Provide a consultancy service on training and applied research;
- (i) Promote the activities of the Centre through attendance at seminars, conferences and meetings with ministries and institutions;
- (j) Support and take part in the activities of the other members of the team as required;
- (k) Carry out such other duties as are requested by the Director/Manager of the Centre;

Qualifications Specialist in health and hygiene education

Experience Five years post qualification experience of promoting primary health care and hygiene education in both urban and rural communities. Involvement in training and research and experience in training of sector personnel. Basic knowledge of the water and sanitation technologies.

TRAINING MATERIALS PRODUCTION SPECIALIST (UNN and NWRI)

Responsible to: Director of the Centre (UNN) or Centre Manager (NWRI)

Maximum salary scale: USS 11-12

Responsibilities

Under the direction of the Director/Manager, to develop, coordinate and conduct the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the training materials production specialist will:

- (a) Provide advice and inputs into all activities related to the production of training and promotional materials appropriate to their target audience;
- (b) Develop the presentation of training and promotional materials so that they are correctly understood by their target audiences;
- (c) Develop the desk top publishing capabilities of the Centre;
- (d) Produce training and information materials prepared by colleagues in Centre;
- (e) Supervise artists in the preparation of the Centre publications;
- (f) Participate in report writing, budget preparation work plan production and preparation of consultancy proposals;
- (g) Promote the activities of the Centre through attendance at seminars, conferences and meetings with ministries and institutions;
- (h) Support and take part in the activities of the other members of the team as required working closely with the information officer;
- (i) Carry out such other duties as are requested by the Director/Manager of the Centre;

Qualifications Graphics designer or publisher.

Experience Five years post qualification experience in graphics design and publishing. Involvement in the preparation of teaching materials. Experience with editing.

INFORMATION OFFICER (UNN and NWRI)

Responsible to: Director of the Centre (UNN) or Centre Manager (NWRI)

Maximum salary scale: USS 11-12

Responsibilities

Under the direction of the Director/Manager, to develop, coordinate and conduct the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the information officer will:

- (a) Provide advice and inputs into all activities related to the acquisition, storage and dissemination of printed information relevant to the activities of the Centre;
- (b) Be responsible for the establishment, maintenance and day to day running of the Centre's library including the acquisition of relevant material, the upkeep of the Centres databases of information and addresses, assistance to library users, packaging and distribution of materials, sale of selected materials;
- (c) Participate in report writing, budget preparation, work plan production and preparation of consultancy proposals;
- (d) Promote the activities of the Centre through attendance at seminars, conferences and meetings with ministries and institutions;
- (e) Exchange information materials with other TNCs in the ITN;
- (f) Establish a database of Centre Associates and key sector personnel assist with development of other databases develop Centre's filing system;
- (g) Support and take part in the activities of the other members of the team as required working closely with the training materials production officer;
- (h) Carry out such other duties as are requested by the Director/Manager of the Centre;

Qualifications Fully qualified librarian

Qualifications Five years post qualification experience working in a library with an understanding of all aspects of the job including their management.

ADMINISTRATION AND FINANCE OFFICER (UNN and NWRI)

Responsible to: Director of the Centre (UNN) or Centre Manager (NWRI)

Maximum salary scale: USS 11-12

Responsibilities

Under the direction of the Director/Manager to develop, coordinate and conduct the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the administration and finance officer will:

- (a) Supervise the activities of the secretary, drivers and office assistants;
- (b) Disburse and manage the Centre's petty cash;
- (c) Prepare and keep up to date detailed financial accounts of all the Centre's activities, track the budget and produce monthly expenditure reports for submittal to the executing agency;
- (d) Carry out other duties as requested by the Director/Manager of the Centre.

Qualifications Business administrator/accountant (minimum HND or equivalent)

Experience Five years post qualification experience administering the activities of a small organisation including keeping accounts.

SECRETARY (UNN and NWRI)

Responsible to: Director of the Centre (UNN) or Centre Manager (NWRI) through the Administration/Finance Officer

Maximum salary scale: USS 6-7

Responsibilities

Under the direction of the Director/Manager of the Centre and the Administration and Finance Officer to develop the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the secretary will:

- (a) Assist with the finalization of documents/reports and general correspondence prepared by Centre staff, (Centre staff will develop basic typing skills);
- (b) Manage the Centre's filing system and address/telephone databases for day to day operations;
- (c) Manage office consumables and maintenance of office equipment;
- (d) Assist the Administration and Finance officer (back-up)
- (e) Carry out such other duties as are requested by the Director/Manager of the Centre or the Administration and Finance Officer.

Qualifications Fully trained secretary (minimum OND or equivalent)

Experience Five years post qualification experience working as a secretary in a small organisation.

DRIVER-MECHANIC
(Two per Centre)

Responsible to: Director of the Centre (UNN) or Centre Manager (NWRJ) through the Administration/Finance Officer

Maximum salary scale: USS 4-5

Responsibilities

Under the direction of the Director/Manager of the Centre and the Administration Finance Officer to develop the activities of the Training Network Centre in accordance with the objectives specified in this document. In particular the driver-mechanics will:

- (a) Protect, clean and drive the Centre's fleet of vehicles;
- (b) Carry out the day to day maintenance of the Centre's vehicles;
- (c) Carry out emergency repairs to the vehicles;
- (d) Deliver/collect correspondence/materials for Centre;
- (e) Carry out such other duties as are requested by the Director/Manager of the Centre or the Administration and Finance Officer.

Qualifications Qualified driver (Fed. Min Works Certificate) with experience and training in vehicle maintenance.

Experience Five years post qualification experience driving and maintaining vehicles.

OFFICE ASSISTANT
(Two per Centre)

Responsible to: Director of the Centre (UNN) or Centre Manager (NWRI) through the Administration/Finance Officer

Maximum salary scale: USS 4-5

Responsibilities

Under the direction of the Director/Manager of the Centre and the Administration and Finance Officer to develop the activities of the Training Network Centre in accordance with the objectives specified in this document.

In particular the office assistants will:

- (a) Assist with information preparation production and distribution;
- (b) Assist with typing in the office;
- (c) Carry out other duties as requested by the Director/Manager of the Centre or the Administration and Finance Officer;

Qualifications Secondary school leaving certificate or equivalent.

Experience Assistance in the day to day running of a small office

APPENDIX 5

AREAS OF APPLIED RESEARCH

1. Applied research is an important aspect of Network Centres' work plan. UN Nsukka will take the lead role in this area, partly because of its reputation as a centre for research but mainly because the main areas requiring this type of applied research relate to urban sanitation which is the foci of that Centre. NWRI will also undertake applied research activities since it too has a research section. They will investigate unresolved areas related to rural water supply and sanitation. Such projects will not commence however until the Centre staff have obtained a good grounding in all aspects of the Centres activities.

2. A list of suggested projects for research are listed below but the final choice will be made during the preparation of the detailed work plan so that the activities to be conducted relate to the work proposed. For budgeting purposes an approximate lump sum has been included to cover this activity.

- Affordable excreta and sullage disposal in urban areas.
- Maintenance of drainage systems in urban areas.
- Marketing of on-site sanitation systems.
- Promotional methods for RWSS
- Village level management structures and finance mechanisms for RWS maintenance.
- Local materials for reducing construction costs of on-site sanitation systems.
- Appropriate designs, operation and maintenance and cost reduction for small piped systems.
- Improved designs for spring captation, rain water catchment systems and simplified, cost effective treatment of surface waters.
- Training methods for community level extension workers.
- Development of communication tools for communities.
- Management of solid waste collection in poor urban areas.
- Improved domestic water collection and storage methods.

APPENDIX 6

DESCRIPTION OF THE HOST INSTITUTIONS

NATIONAL WATER RESOURCES INSTITUTE, KADUNA

History and Development

3. The NWRI was established by Decree No 3 of 2nd March, 1985 having previously existed from 1979 as a UNDP project under the FMWR. Its first students entered in 1979 and graduated in 1982. The purpose and functions of the Institute are to

- Promote and develop training courses in water resources engineering.
- Advise the Minister on national water resources needs and priorities.
Perform engineering research functions related to such major resource projects as may be required for flood control, river regulation, reclamation, drainage, irrigation, domestic and industrial water supply, sewerage and sewage treatment.
- Perform such ancillary services on planning of water resources management and river basin development and produce necessary codes of practice in water resources engineering relating to and suitable for Nigerian conditions.
- Promote the establishment of a uniform national data collection system relating to surface and subsurface water resources.
- Provide for the training of engineers and technicians on short courses and formulate programmes of work in the field of water resources.
- Establish and maintain a water resources library, documentation and conference centre.
- Promote co-operation in water resources development management with similar bodies in other countries and with international bodies connected with water resources management and operations.

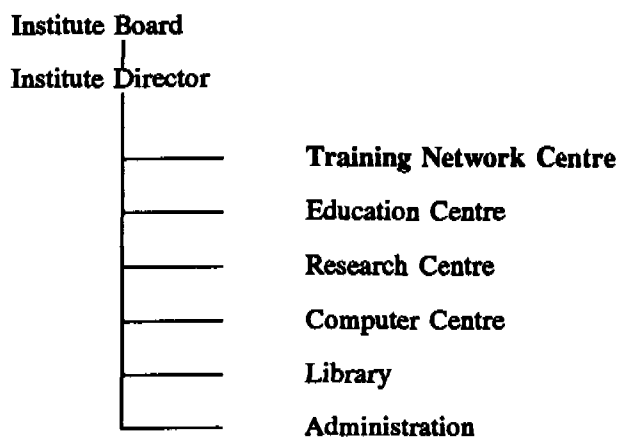
Organisation and Management

4. The Governing Board, the highest body, comprises a Chairperson and seven others duly appointed by the Head of the Federal Military Government. The duty of the Governing Board is to outline the policy and decide, in broad terms, on the programme of work of the Institute and to prepare detailed budgets. The staff are employees of the FMWR and are paid on governmental scales appropriate to their level of appointment. Apart from the appointment of the Director, which is made by the Ministry, the Institute has a degree of autonomy in staff matters. The Institute is organized into centres as follows:

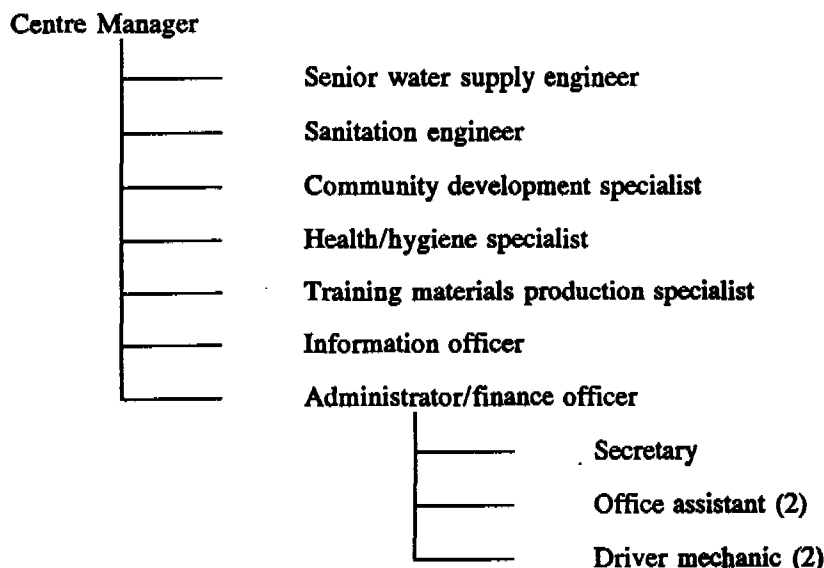
- Education headed by The Principal
3 departments (Appropriate technology; Engineering; Science and Liberal Studies).
- Research headed by the Head of Research Centre
3 departments (Surface Water, Ground Water and Environmental Studies).
- Water Resources Data Bank headed by Head of Data Bank
2 departments (Data processing, Operations).
- Library and documentation headed by the Institute Librarian
2 departments (Acquisition, documentation and publication, External users).
- Works headed by Head of Works
1 department (Works).
- Administration and Finance headed by The Secretary
4 departments (Medical, Student affairs, Accounts and Administration).
- Consultancy services under the office of The Director.

5. The location of the TNC within NWRI and its internal organization are shown in the following diagrams.

TNC WITHIN THE NATIONAL WATER RESOURCES INSTITUTE



ORGANIZATION OF TNC



Education and Training Activities

6. The Education centre has, under the Principal, 4 senior lecturers, 10 lecturers, 5 assistant lecturers and 7 technical officers/laboratory staff. For some of the short courses outside lectures are brought into the Institute with their fees paid from course fees.

7. The Institute offers a 1 year certificate course in Water Resources Engineering, a Pre-ND, OND in Civil Engineering, HND in Water Resources, short courses for professionals, symposia, conferences and workshops.

8. There is limited input to courses of theoretical and practical aspects of technologies appropriate to rural and peri-urban settlements and almost no consideration of the social aspects of development. The Institute support its teaching with real case studies and with visits to field sites when possible.

9. There is a functional solar powered pump attached to a borehole, working handpumps (one of which is supplied by a local manufacturer who replaces it with the latest model as developed) and a drilling rig. These aspects of training at the Institute would benefit from expansion and strengthening.

Research

Groundwater

- Aquifer characteristics of 3 catchment basins
- Data base for GW modelling in Sokoto

Surface water

- Hydraulic parameters of the Kaduna river

Miscellaneous

- Design and implement of WS scheme, Kurfi
- Rehabilitation of college distribution system, Bakeri

Information Dissemination

10. In addition to courses, seminars, symposia and workshops, the Institute also collects and disseminates data on the water sector via a water bulletin.

11. The Institute library is partially computerized.

Infrastructure and Equipment

12. The following facilities are available for teaching, research and development:

- General facilities for running short courses in Water Engineering, Technology and Science; these include sufficient classrooms, laboratories, audio -visual and information technology equipment;
- A dedicated library for Water Resources, Science, Engineering and Technology;
- Computer aided rating carriage and tank for the calibration of water current meters;
- Hydraulics and Hydrology, Soil Mechanics, Photogrammetry and Water Quality Laboratories;
- Computerized resources data bank;
- Remote Sensing Unit for studies of water bodies;
- Limited accommodation facilities in a 80-bedroom hostel and access to rented accommodation in an adjacent community.

Linkages/Twinning Arrangements

13. The NWRI has links with the following International Organizations and Agencies: UNDP, UNESCO, FAO, EEC, FDL, CEFIGRE, BWI, FEPA: FMOH, RBDA, and SWBs. In addition NWRI has links to other Nigerian training institutions such as UNN and the Federal University of Technology at Owerri.

APPENDIX 6

DESCRIPTION OF THE HOST INSTITUTIONS

FACULTY OF ENGINEERING, UNIVERSITY OF NIGERIA, NSUKKA CAMPUS

History and Development

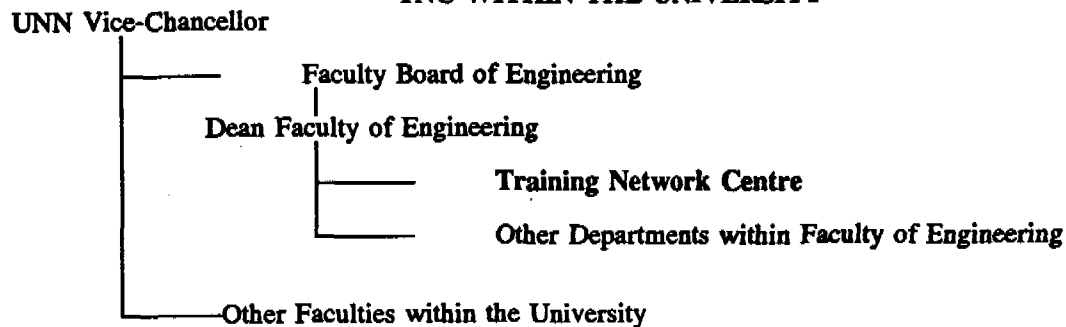
14. The University of Nigeria at Nsukka is one of the oldest universities in Nigeria and the first to introduce production orientated education. The College of Engineering was founded in 1962 at the opening of the University and became a faculty in 1964. The Faculty is housed in a 45,000 square meter complex and admits about 250 students per year.

Organisation and Management

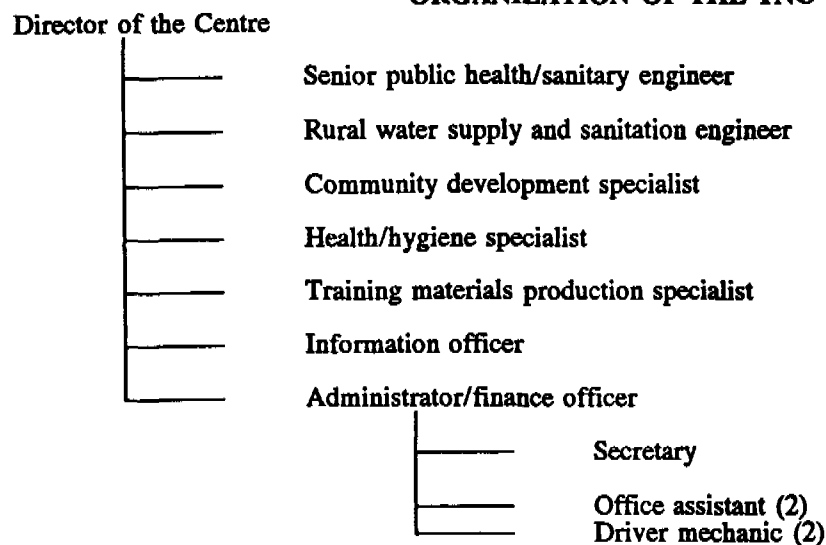
15. The University is headed by the Chancellor and Vice Chancellor with policy matters being decided by the Senate. The Faculty of Engineering is headed by the Dean and contains four Departments namely: Mechanical, Electrical and Electronic, Agricultural and Civil Engineering. Each Department has a Head who is responsible for the staff in the department. Within the Department of Civil Engineering there are three members of staff who specialize in Public Health Engineering.

16. The location of the TNC within UNN and the organization are shown below.

TNC WITHIN THE UNIVERSITY



ORGANIZATION OF THE TNC



Education and Training Activities

17. The Faculty runs a number of five year undergraduate programmes with the first two years common to all the courses. The Civil Engineering Department offers an option in the fifth year in Water Resources which includes Public Health Engineering, whilst the Agricultural Engineering Department offers an option in Soil and Water Management which includes low cost water supplies. Each year about 10-15 student take the Water Resources option and a similar number take the Soil and Water Management option.
18. Postgraduate courses at Diploma, MSc and PhD level are offered by the Faculty and all can include Water Resources or Public Health Engineering.

Research and Information Dissemination

19. In the past staff and students have undertaken research in low cost water supply and sanitation. Of particular note was their involvement in the development of the VIP latrine for use in Nigeria.
20. Presently research activities are limited because of low staffing levels and lack of funds.

Infrastructure and Equipment

21. The laboratories within the Faculty are staffed by well trained personnel who fully understand the operation and use of the equipment. Unfortunately they could not provide the service they would like because of the theft of some equipment and the lack of spare parts for others.
22. Classroom space is adequate but audio-visual facilities and computing equipment very limited.
23. Accommodation on site is very difficult. There is short course accommodation but its availability is not known. Hotel accommodation is available within the town.

Twinning Arrangements

24. Details of cooperation with other Institutions was not fully discussed however the previous head of WEDC, at Loughborough University UK, Professor Pickford was for some time External Examiner for the BSc course in Civil Engineering.
25. Within the Campus there is close cooperation with the Centre for Rural Development and Cooperatives. The Centre grew out of the Department of Agricultural Engineering and promotes rural development through the setting up of cooperatives and the support of existing community skills. Its philosophy is that community development will only be achieved through self reliance. The Centre has close ties with the Engineering Faculty who still provide some of its lecturers. It is worth noting that this is done almost on a voluntary basis because lecturers are in sympathy with the Centre's aims.
26. Currently the Centre is training about 1,500 people per year on a range of short courses. Most of the operating and capital costs of the Centre have been raised by the Centre staff privately.