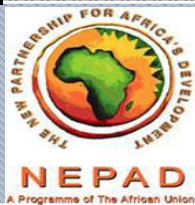


NEPAD WEST AFRICAN WATER CENTRES OF EXCELLENCE

National Strategy and Implementation on Skills Gap Assessment Framework for Human Resource Capacity Development in Nigeria Water Sector



REPORT

National Water Resources Institute (NWRI)
Centre of Excellence,
Mando Road, P.M.B. 2309,
Kaduna, Nigeria

June, 2018



**NEPAD :
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List of Acronyms

CSO	Civil Society Organization
CoEs	Centre of Excellence
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
ESA	External Support Agency
EU	European Union
EU JRC	European Union Joint Research Commission
FCT	Federal Capital Territory
FMWR	Federal Ministry of Water Resources
GIS	Geographic Information System
IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency
LGA	Local Government Authority
MDG	Millennium Development Goals
NEPAD	New Partnership for African Development
NIHSA	Nigerian Hydrological Services Agency
NIWRMC	Nigerian Integrated Water Resources Management Commission
NGO	Non-Governmental Organization
NWRI	National Water Resources Institute
PME	Planning Monitoring and Evaluation
PPP	Public Private Partnership
RBDA	River Basin Development Authority
RWSS	Rural Water Supply and Sanitation
RWSSA	Rural Water Supply and Sanitation Agency
RWSSC	Rural Water Supply and Sanitation Centre
SDG	Sustainable Development Goals
SUWASA	Sustainable Water and Sanitation for Africa
SWB	State Water Board
SWAp	Sector Wide Approach

UNICEF United Nations Children's Fund
WASH Water Sanitation and Hygiene
WSSSRP Water Supply and Sanitation Sector Reform Programme

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EXECUTIVE SUMMARY

In response to the need to articulate the current skill gap required to accelerate human resources capacity development within the water sector in Nigeria, a national assessment survey and study was carried out to determine the capacity development needs of the sector in 2017. Preliminarily, a series of existing capacity assessment reports detailing previous assessment efforts within the sector were used to gather baseline information for the study.

In the same vein, a typified structured questionnaire developed by NEPAD was modified and administered to the targeted stakeholders in the water sector in Nigeria to capture both qualitative and quantitative data on human capacity skill gaps, training needs, and research.

The survey results show that the category of skills with lowest availability level within the water sector in Nigeria include the Plant/Maintenance & Operation, Engineering (Mechanical, Water Resources and Hydraulic). Whereas skills such as Environmental Health/Sanitation, Environment Management, Groundwater and related Drilling Technology are among categories of skills with the highest level of availability in Nigeria Water sector.

The national response to skill development shows that there are three (3) major types of training service providers in Nigeria; accredited service provider (29.25%), further education training (28.57%) and higher education training (27.89%). It further shows that low patronage from trainings provided by foreign training Institutions (2.72%), national training consultants (2.04%) and non-governmental organizations (0.68%). The reports assessed also gave a summary of managerial and financial, technical, institutional (organizational setup, levels of reform and decentralization), partnership and resource capacities of sampled stakeholders within the water sector in Nigeria.

Furthermore, this study has identified and presented a spectrum of training needs for a wide range of sub-sector within the water sector ranging from rural and urban water supply and sanitation as well as irrigation sub-sectors at Federal, State and LGA levels. It has also provided a medium term Strategic and Implementation Plan on Skill Gap Assessment Framework for the water sector in Nigeria. The plan opined the key activities and institutions responsible to implement the following:

- (i) Advocacy for Funding Human Resource Development including Organisation or Conducting Preparatory Stakeholders Meetings with Relevant Groups.
- (ii) Develop Human Succession Plan for the Sector Staff
- (iii) Development and Implementation of National Manpower Training Strategy
- (iv) Up Scaling Skill Gap Assessment
- (v) Coordinating Human Resources Development Initiative
- (vi) Develop Career Progression Plan/ Program for the Water Sector
- (vii) Establish Monitoring and Evaluation Framework for Human Resources Activities in the Sector

Conclusively, the findings as presented in this report are a reflection of the requirements in the Nigerian water sector and have been used as a guide to develop the strategic and implementation plan for the human resources development and improvement of the current skill capacity gaps in the sector.

1.1 Background

The shortage of human resource in the water sector has undermined the progress of many countries to increase access to effective utilization of the water resources over the last two decades. This has impeded socio-economic development of those countries that remain off-track in meeting both MDG and SDG targets in terms of integrated water resources management. This development has no doubt positioned water in the 21st century as the primary factor for sustainable development, eradication of poverty and reversal of ecosystem degradation.

However, water resources in Africa and West Africa in particular are strongly challenged by series of issues such as climate variability and other climatic amplification processes, water scarcity and degradation of ecosystems. Complex challenges such as these dictate a critical need to properly manage and conserve water resources in the continent.

It is in this perspective that the New Partnership for African Development (NEPAD) has taken the initiative to promote the creation of Centers of Excellence in African sub-regions for the development and management of water resources in the continent. Thus, for effective functionality of these Centers, it has become most essential to examine the capacity development needs of water resources sector in the sub-regions so that interventions can be implemented based on emerging areas of need. This has necessitated for a Sector Wide Approach (SWAp) for capacity assessment in the region. These are issues identified by professionals in the water sector, which has also raised questions on how NEPAD West African Water Centre of Excellence can overcome the challenges in the Phase II.

This report is the outcome of the validation workshop organised in October 2017 by the NWRI Centre of Excellence and updated feedback extended to April/May, 2018. Members of the validation team were drawn from the Ministries of Water Resources, Water Agencies, Water Corporations, Academia, RUWASSA, etc. (Appendix IV).

1.2. NEPAD Centre of Excellence Concept - NWRI

1.2.1. Recap on Phase I

The initial study (Phase I) was carried out in addressing Skills and Training Needs Assessment in the Nigerian water sector. The phase focused on the following objectives:

- a. **JLP 1.1:** Carry out Survey on requirements in higher education and within training for practitioners in the water sector.
- b. **JLP 1.2:** Carry out a study on how the Centres of Excellence could better address sector expertise consultancy and advocacy needed for sector development in the region.

1.2.2. Phase II

Phase II is focused on establishing Human Capacity Development Programme in the water sector in Africa, through the NEPAD African Network of Centres of Excellence (CoEs) in Water Sciences and Technology with adapted and modified methodologies. The findings of the study would produce recommendations that will inform governments, industries and educational institutions on how to address human resource gaps in the sector.

This arises from the fact that many developing economies are lacking significant numbers of water professionals, and the necessary knowledge, experience and specialist skills to meet the rising demand for water and sanitation services. This phase II is put in place for capacity development in collaboration with the NEPAD partnering countries through the Centres of Excellence to carry out dedicated research in order to establish a baseline for the dimensions of the crisis facing human resource in the water sector.

In order to address water resources challenges in Africa, NEPAD has established Centres of Excellence in Water Sciences and Technology in African sub-regions for the development and management of water resources in the continent. However for the Centres to carry out their functions effectively, it is necessary to examine the capacity development needs of water resources sector in the sub-regions so that interventions can be implemented based on identified and emerging areas of need. This has necessitated for a Sector Wide Approach (SWAp) for capacity assessment in the West African sub-region.

1.2.3. National Water Resources Institute, (NWRI)

NWRI, one of the NEPAD Centres of Excellence in West Africa was assigned to carry out a study that is aimed at identifying skills and training needs in the Nigerian water sector. NWRI with experience in human resource capacity and skills development and assessment in Nigeria was deployed to bear in the conduct of this study. The relevance of this study in repositioning the Nigerian water sector towards delivery on the Sustainable Development Goals cannot be over emphasized.

Capacity assessment by its nature is a process through which stakeholders confirm their goals, map their existing capacities and identify the gaps between their available capacities and those needed to meet their goals. The aim is to establish capacity targets

which will enable the water sector and the actors therein to function effectively. Assessing institutional capacity is of utmost importance to determine performance, capacity constraints and opportunities for change (UNDP, 1997).

NWRI has carried out a number of studies aimed at identifying capacity development needs in the Nigerian water sector. The organization leadership structure of the National Water Resources Institute is presented in Appendix V

These studies included Institutional assessments, training needs assessments and skill gaps analysis, in some cases, in collaboration with External Support Agencies (ESAs) like the United Nations Children’s Fund (UNICEF), WEDC/WELL, EU/NWRI and NWRI/JICA. Some of these reports listed in Table 1.1 were used as baseline information for this study.

Table 1.1 List of Capacity Assessment Reports used as Baseline Information for this Study

S/N	Type of Report
1.	Report of Training Needs Analysis for Stakeholders in the Water Sector by NWRI, February 2012.
2.	Report of the Committee on Training Needs Analysis for Relevant Stakeholders in the Water Sector by NWRI, February 2011.
3.	Report of Training Needs Assessment in Jigawa, Kebbi, Gombe, Taraba, Niger, Ondo and Ekiti States by RWSSC/NWRI, June 2011.
4.	Report of Participatory Institutional Assessment for Capacity Development of the Chad Basin Development Authority, Maiduguri, Borno State by NWRI, November 2011.
5.	Reports of Participatory Institutional Assessments for capacity development of WASH Institutions in four (4) States and eleven (11) LGAs in Nigeria by WELL/NWRI in 2004.
6	AMCOW Country Status Overviews of water supply and sanitation 2010.
7	Report on the Avoidable Crisis WASH Human Resource Capacity Gaps in 15 Developing Economies by International Water Association 2014. Supported by the Department for International Development United Kingdom, the United States Agency for International Development (USAID) and the Australian Agency for International Development (AusAID).

On the 26th March 2009, the European Commission launched a pilot project aimed at supporting the New Partnership for African Development (NEPAD) Centers of Excellence and to support the development of the South-South Cooperation among the sector-wide water training institutions. This initiative by the EU made the JRC to mandate the West Africa Centres of Excellence to carry out skills gap analysis in the sub-region, NWRI-Centre of Excellence in particular, being experienced in human capacity and skills assessments to carry out this study in Nigeria.

This Draft Report for Phase II of the program provides overarching recommendations for the development of national capacity development strategies that have high-level political buy-in with involvement from multiple actors to ensure sustained, adequate professional and technical capacity. The report also recommend concerted actions at the national, regional, state and local levels to collect relevant human resource data, as were documented in phase I and perform further research to strengthen the evidence based on which inception action plans and strategies can be built upon in phase II.

This Draft Report presents the analysis of the questionnaires administered to the target respondents of the proposed National Strategy and implementation on skills gap assessment framework for human resource capacity development in Nigeria water sector.

1.3 National Workshop for Report Validation

In order to have a valid report on the skill requirements in the Nigerian water sector and to develop the strategic and implementation plan for the human resources development and improvement in the sector, a National Workshop was organised by the NWRI Centre of Excellence and invited Experts to be members of a Validation Team (Appendix IV) from the Ministries of Water Resources, Water Agencies, Water Corporations, Academia, RUWASSA, etc. The Team met for five (5) days scrutinizing the report, making corrections and amendments to ensure all necessities of the water sector were not omitted. At the end of the workshop, a draft final report was concluded, with all inputs and suggestions properly documented in this report.

2.0.

OBJECTIVES OF THE STUDY

The objective is to produce a report based on the following objectives as lay down by the EU-JRC for the phase II:

- 1) To clarify human resource gaps in the water sector in terms of:
 - i). Management and Planning, which requires high-level technical and managerial professionals, and
 - ii). Services, Operations and Maintenance, which requires technical and artisanal skills.

- 2) To identify gaps in existing learning and capacity building institutions.

The main actions in the consideration of human capacity gap are to carry out the Phase II exercises as follows:

- i. Review the Gap Analyses which were performed in West and Southern Africa Networks of CoEs during Phase I, and identify which studies and surveys have been done during that phase, what was the scale and scope of these activities, and the methodologies employed.
- ii. Identify which information and data gathering exercises address either Professional Skills and Capacity needs or Technical Skill needs. Assess whether there is a need to augment these initial studies, surveys or questionnaires either in quality or in scaling out in order to achieve national representative data.
- iii. Perform a supporting desk and literature study to add onto the information of the Phase I studies.
- iv. Provision of documented Excel worksheet, which includes a list of all publications evaluated in (3) above, and the focus of the publications which shall be relevant in this phase II.
- v. Include in the desk study a review of regional and national training programs and institutions which may be capable of addressing these human capacity gaps in the water sector.

3.0.

METHODOLOGY AND APPROACH

The approach adopted for the evaluation focused on sourcing information from key stakeholders in the water sector through the use of a structured questionnaire. It involved developing and administering of a structured questionnaire to personnel at national, regional and local levels that would afterward attend a consultative workshop in order to elicit information on the National Strategy and Implementation Skills Gap Assessment Framework for Human Resource Capacity Development in Nigeria Water Sector. Only quantitative evaluation method was employed in this study.

3.1 Development of Structured Questionnaire

This step focused on developing a structured questionnaire for administration to those who intended to partake in a national stakeholders' workshop. The questionnaire (Appendix I) consists of structured questions aimed at gauging stakeholders' knowledge on skills gap that will be validated in the workshop, utilization and sharing of knowledge gained as well as impact of the outcome and its relevance. A complete set of questionnaire was designed and developed to capture information on the major areas of human resource capacity gap and was administered to the targeted stakeholders in the water sector (Appendix II).

3.2 Targeted Institutions for the Project

Pertinent information was gathered using the structured questionnaire, which was earlier administered to the targeted stakeholders in the water sector. The targeted stakeholders included the following organizations of which the details are as in Appendix III:

- i. Federal Ministry of Water Resources
 - a) Department of Water Quality and Sanitation
 - b) Department of Dams and Reservoir
 - c) Department of Water Supply and PPP.
 - d) Department of River Basin Operations and Inspectorate
 - e) Department of Irrigation and Drainage
- ii. Nigerian Hydrological Services Agency
- iii. Federal Ministry of Agriculture and Rural Development
- iv. States Rural Water Supply And Sanitation Agency
- v. River Basin Development Authority
- vi. Kaduna State Water Corporation
- vii. Department of Agricultural Engineering (Nigeria College of Forestry)
- viii. Department of Public Health (Kaduna State University)
- ix. Community Based Organization
- x. Federal Capital Territory

- xi. Nigerian Integrated Water Resources Management Commission
- xii. Nigerian Defense Academy; and
- xiii. Other Relevant Stakeholders

The questionnaires were afterward retrieved and collated. The responses were categorized according to the questions and similarity of information. The data generated were analyzed and prepared for representations and discussions.

A major challenge encountered was the distance of most of the respondents at the time of collection of the questionnaires. This was attributed to the fact that no budgetary provision for the receipt of hard copies, and this led to less than 100% retrieval of the completed questionnaires from the respondents.

3.3 Preparatory Meetings

As part of the preparation for the survey, meetings were held with all the project team members to agree on strategies and modalities for the conduct of the survey. These included agreement on dates and methods of conduct of the survey, sending information to target institutions and practitioners in the sector, and making logistics arrangements.

3.4. Overview of Background Documentation

For better understanding of the existing skill gaps within the Water Sector in Nigeria and also to provide baseline data for the study, a review of existing reports listed in Table 1 and other background documentations gathered from archives that provided secondary information was carried out.

Other relevant documents reviewed include:

- i. Manpower and Training Committee report for the World Bank assisted National Water Rehabilitation Project (1992);
- ii. Training Needs Assessment Reports for River Basin Development Authorities (RBDAs) conducted by NWRI (1998);
- iii. Participatory Institutional Assessment Reports for six EU focal states in Nigeria by European Union Water Supply and Sanitation Sector Reform Programme (WSSSRP) (2009).

3.5. Administration of Questionnaire

This step focused on administering the structured questionnaire to targeted institutions. A sample of the questionnaire provided for this study was modified and employed to capture both qualitative and quantitative data on human capacity skill gaps, training needs, and research. Where possible, administration of the questionnaire was supplemented with oral interview with the heads and key position holders of the institutions. The interview focused on the following aspects of the institutions:

- i. Managerial and financial capacity i.e. management of people, degree of leadership support, responsiveness, day-to-day operations;
- ii. Technical capacity i.e. improved skills to perform day-to-day tasks and to design and implement new projects, how skills were engaged within the institutions and how well the positions and responsibilities are matched with skills;
- iii. Institutional capacity i.e. the organizational setup, levels of reform and decentralization; and
- iv. Partnership and resource capacity i.e. partnership development with NGOs and other stakeholders, resource allocation and use

The questionnaires were administered as follows:

- i. Direct contact with individuals from different institutions;
- ii. Electronically through the internet to sector practitioners and stakeholders whose names are registered in the NWRI database;
- iii. To participants attending workshops, conferences and meetings organized by NWRI, the Federal Ministry of Water Resources and its Agencies, and UNICEF where the questionnaires were administered by the project team members who also provided guidance where necessary. These fora included:
 1. The 6th National Water Conference organized by NWRI in Makurdi, Benue State (2016)
 2. Sensitization workshop on Code of Practice for Water Well construction in Nigeria organized by NWRI at various geo-political zones of the Country in 2012. These include:
 - i. North-Western Zone in Kaduna
 - ii. North-Eastern Zone in Bauchi
 - iii. South-Eastern Zone in Enugu
 - iv. South-Western Zone in Oshogbo
 - v. South-Southern Zone in Uyo
 3. National Council on Water Resources organized by the FMWR in Akure, Ondo State in 2017.
 4. Workshop on Climate change adaptation in the WASH programme, organized by NWRI/UNICEF in 2015

3.6 Survey of Water Related Vacancies

The survey of water related vacancies in the water sector was carried out through the search in National dailies and several online searches for advertized vacancies by institutions responsible for training sector practitioners, water resources development agencies, and water related NGOs and CBOs (**Table 3.1**).

Table 3.1 List of Organizations with Positions Advertised

S/N	NAME OF AGENCY	POSITIONS ADVERTISED	NUMBER OF VACANCIES
1	Federal University of Technology, Oye	Lecturers, Engineers, Technicians, Artisans, Administrative officers, Librarians	103
2	University of Ilorin, Ilorin	Lecturers, Technologists, Technicians, Engineers, Administrative officers, Accountants, Secretarial Staff, Librarians	135
3	National Water Resources Institute, Kaduna.	Lecturers, Research Officers, Technicians, Technologists, Artisans, Engineers, Administrative officers, Accountants, Auditors	102
4	Federal Ministry of Water Resource, Abuja.	Hydrologist. Civil/Water Engineers, Water Treatment Plant Maintenance Engineers, Administrative officers, Accountants water Quality Personals.	29

4.1 Respondents

A total of 125 respondents from different organizations of the Nigerian water sector participated in the evaluation exercise for the national strategy and implementation on skills gap assessment framework for human resource capacity development. Majority of the respondents were from key public water resources institutions with a few from the private sector. Details of the respondents are presented in Appendix III. The questionnaire assisted in guiding the discussions and interviews between the project team members and respondents as well as making observations where necessary.

4.2 Quantitative Analysis of the Sector Existing Skills

The existing skills in the water sector as indicated by the respondents are categorized into three as follows:

i. The most available skills -> 90% and above are:

Drilling Technology, Ecosystems and their Management, Environmental Health/Sanitation, Environmental Management/ Hygiene, Geography, Groundwater, Policy, Planning, Monitoring and Evaluation and Water Treatment.

ii. Available skills from 70% to 89% are:

Climatology, Conflict Resolution/Mediation, Construction Project Managers, Data Management, Environmental law, Geology/Geophysics, Human Resources, Hydrology, Industrial Ecology, Institutional Management, Marketing and communications, Mechanics, Occupational health and safety skills, Rainwater Harvesting technologies, Project Management, Research and Development, Sanitation, Waste Disposal, Waste Handling, Chemical engineering, Civil Engineering, Geographic Information Systems / Geoinformatics, Information Management Systems, Sector Governance and Water Conservation.

iii. Averagely Available Skills ->rated from 50% to 69% are:

Coastal engineering, Communications, Community Mobilization, Community Development, Cultural and Social science, Freshwater Systems, Geochemistry, Hydrochemistry, Technologist, Water Supply, Plumber and Camera Man. However those with scores below 50% (Administrative Officers, Agriculture/Agricultural Engineering, Animal

Science/ Livestock, Artisans and technicians, Agronomy, Commercials, Electrical Engineering, Estate Management, Financial Management, Forestry, Laboratory Sciences, Librarian, mechanical Engineering, Microbiology, Mining Engineering, Plant/maintenance and operation, Water Resources Engineering, Store Officers, Water Analyst, Computer/System Analyst, Field Assistant/Drivers, Office Assistant/Clerical and Hydraulic Engineers) are considered some specialized skills within the sector that are rarely found and utilized.

Some skills were highly rated in terms of availability within the sector by the respondents' ranking however; some gaps may still exist in many of the specialized fields rated high in the sector workforce. This is particularly true as employment of additional skills into the sector has been minimal over the years.

4.2.1 Ranking of the Sector Existing Skills by Category.

The following table (Table 4.1) presents the percentage shortage of the skills gap and the ranking in descending order:

Table 4.1 Sector Skills Gap and Affected Areas of Specialization

Skills	Percentage Shortage
Plant maintenance & operation	89.28
Field Assistant / Drivers	88.43
Mechanical Engineering	87.67
Animal Science / Livestock	83.33
Water Resources Engineering	82.81
Microbiology	78.95
Agronomy	77.14
Computer / System Analyst	75.00
Hydraulic Engineers	75.00
Office Assistant / Clerical	74.19
Artisans and technicians e.g. boiler makers, welders, plumbers, drillers	72.58
Water Analyst	66.67
Administrative Officers	66.14
Mining Engineering	62.50
Agriculture/Agricultural Engineering	53.61
Communications	44.44
Technologist	44.23
Freshwater systems	40.74
Community Mobilization /Development	38.46

Skills	Percentage Shortage
Hydrochemistry	38.46
Plumber	36.00
Water Supply	35.71
Camera Man	33.33
Geochemistry	31.82
Chemical Engineering	29.63
Civil Engineering	28.80
Geographic Information Systems / Geoinformatics	25.00
Water conservation	22.73
Sector Governance	21.43
Information Management Systems	20.83
Climatology	17.65
Data Management	16.67
Industrial Ecology	16.67
Human Resources	15.63
Conflict Resolution/Mediation	15.38
Occupational health and safety skills	14.29
Environmental law	13.33
Institutional Management	12.50
Construction Project Management	12.20
Geology / Geophysics	12.03
Sanitation	11.86
Waste disposal	11.76
Research and Development	11.43
Hydrology	10.91
Rainwater Harvesting technologies	10.71
Project Management	10.64
Drilling Technology	10.00
Ecosystems and their management	10.00
Groundwater	6.41
Water treatment	6.35
Planning, Monitoring & Evaluation	5.71
Environmental Management /Hygiene	5.00
Geography	4.76
Policy	4.76
Environmental Health / Sanitation	2.33

The skills as categorized in section 4.2 are presented in the following tables, with the available percentage in the sector and ranked in descending order.

Table 4.2. The most available Skills (90% and above).

Skills	Percentage Available
Environmental Health / Sanitation	97.67
Geography	95.24
Policy	95.24
Environmental Management /Hygiene	95.00
Planning, Monitoring & Evaluation	94.29
Water Treatment	93.65
Groundwater	93.59
Drilling Technology	90.00
Ecosystems and their management	90.00

Table 4.3 Available skills (between 70% and 89%)

Skills	Percentage Available
Project Management	89.36
Rainwater Harvesting technologies	89.29
Hydrology	89.09
Waste Disposal	88.24
Geology / Geophysics	87.97
Construction Project Managers	87.80
Institutional Management	87.50
Environmental law	86.67
Marketing and Communications	85.71
Occupational health and safety skills	85.71
Conflict Resolution/Mediation	84.62
Human Resources	84.38
Data Management	83.33
Industrial Ecology	83.33
Waste Handling (including hazardous)	83.33
Climatology	82.35
Mechanics	80.00
Information Management Systems	79.17
Sector Governance	78.57
Water Conservation	77.27
Geographic Information Systems / Geoinformatics	75.00
Civil Engineering	71.20
Chemical Engineering	70.37

Table 4.4 Averagely Available Skills (rated from 50% to 69%)

Skills	Percentage Available
Geochemistry	68.18
Camera Man	66.67
Cultural and Social Science	64.29
Water Supply	64.29
Plumber	64.00
Community Mobilization /Development	61.54
Hydrochemistry	61.54
Freshwater Systems	59.26
Technologist	55.77
Communications	55.56

Table 4.5 Available Skills (rated less than 50%)

Skills	Percentage Available
Forestry	48.28
Agriculture/Agricultural Engineering	46.39
Mining Engineering	37.50
Librarian	34.48
Administrative Officers	33.86
Water Analyst	33.33
Commercials	28.57
Office Assistant / Clerical	25.81
Computer / System Analyst	25.00
Hydraulic Engineers	25.00
Agronomy	22.86
Electrical Engineering	21.43
Microbiology	21.05
Store Officers	18.75
Animal Science / Livestock	16.67
mechanical Engineering	12.33
Field Assistant / Drivers	11.57
Plant / Maintenance &Operation	10.72
Laboratory Sciences	7.14

The very low percentage for the Laboratory Sciences resulted from few numbers of the respondents that commented on the skill. It's also as a result of the fact that very few water supply agencies had a good laboratory set-up for water treatment, which resulted to the lack of personnel engaged in that area.

4.3 Quantitative Analysis of Sector Skill Gaps

In order to determine what skills gap exist in the water sector, a number of approaches were adopted, which include:

- a. Analysis of the questionnaires;
- b. Review of a variety of reports related to the subject matter; and
- c. Online and national dailies search of water-related vacancies.

Although capacity and skill gaps assessments are dynamic activities, however many of the respondents and reports reviewed indicate a dearth of human capacity and skills required to enhance service delivery within the Water Sector. Furthermore, due to competing demands from other sectors of the Nigerian economy, employment of additional manpower and funding for human capacity development has been dwindling. Thus, from the early nineties to date, recruitment and replacement of retiring officers in the water sector has stagnated leading to ageing workforce, which are now concentrated at management positions. The above mentioned phenomenon has resulted in creating a huge gap within the active workforce (the middle level manpower). Consequently, the sector is characterized by a lot of skills gap and inadequate human resource capacity that are highly necessary for effective quality service delivery.

Skills considered limited and most needed in the sector were invariably ranked high (70% and above) while those with scores from 50% to 69% were considered averagely available but also required to improve service delivery. Skills with scores less than 50% were considered the least needed in the sector. Incidentally, those specializations that were ranked high under skills gap and most needed in the sector fall into the category considered as “limited skills” in the ranking of the existing skills with scores less than 50%.

4.4 Quantitative Analysis of Skills Development and Training

The skill development and trainings in the water sector were analyzed. 27% of the respondents indicated that skills improvement in the water sector was mainly through in-service training while 19.52% suggested capacity building strategy and financing. Further education training and higher education training were rated 14.38% and 10.27% respectively. Mentorship, short courses, Internship and bursary support as approaches to skills development in the water sector scored 9.25%, 9.57%, 4.45% and 4.11% respectively based on the analysis of the respondents’ opinion. Skills development approach classified as others by the respondents was on-the-job training with 3% score (Figure 4.1).

The results revealed that skills development in the water sector was mainly through in-service training with few utilizing further and higher education trainings. This could be attributed to the fact that most staff in the sector are rarely given the opportunity to go for long-term trainings that would take them away from their working environments for quite some time except for those working in the Universities, Polytechnics and research institutes.

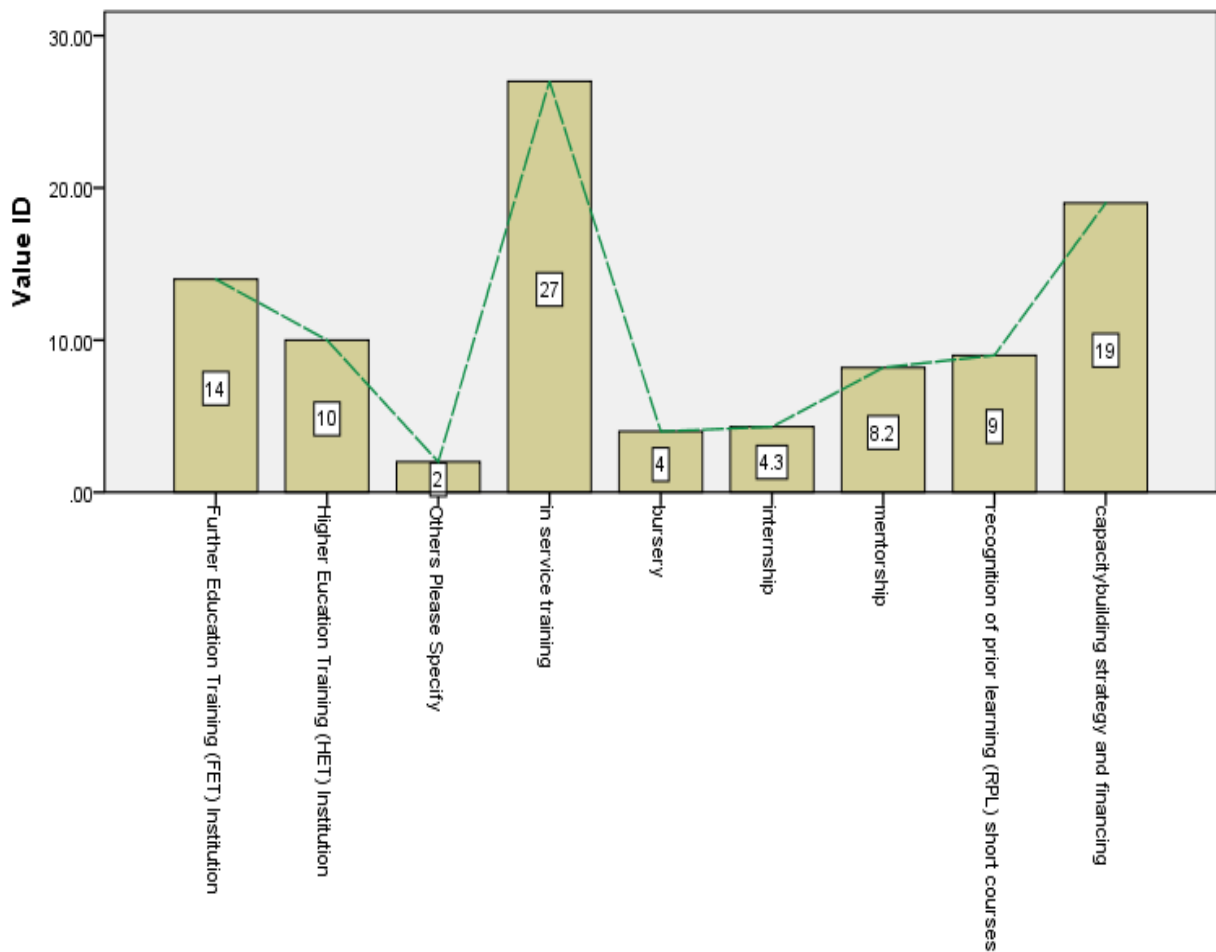


Figure 4.1 Approaches to skills development

The ranking of the different types of training shows that there are three (3) major types of training service providers in Nigeria; accredited service provider (29.25%), further education training (28.57%) and higher education training (27.89%) (Figure 4.2). This however gives a direct indication of the available types of trainings offered in Nigeria. The classification named as others include trainings provided by foreign training Institutions (2.72%), national training consultants (2.04%) and non-governmental organizations (0.68%).

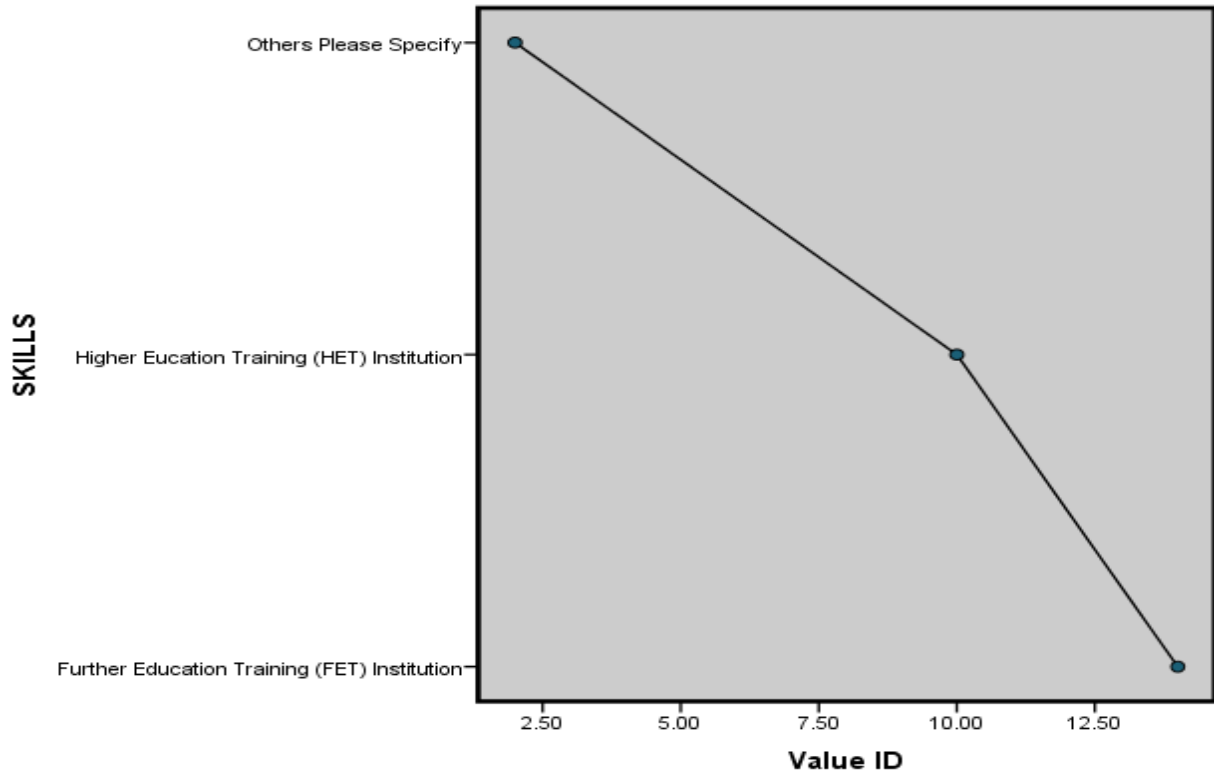


Figure 4.2: Different types of training Service Providers.

4.5 Training Needs Analysis of the Water Sector in Nigeria

The National Water Resources Institute (NWRI) mandate as enshrined in its legal charter is to, among others, “advise the Honorable Minister of Water Resources on national water resources training needs and priorities, and provide for the training of various stakeholders on short courses and formulate programmes of work in the field of water resources in Nigeria”. In order to exercise these mandates, the Institute has conducted training needs and institutional assessments to identify areas of training needs so that courses and programs can be developed based on emerging areas of need in the water sector. Some of the information derived from such studies was collated to form part of the results presented in this section.

Based on analysis of the questionnaires, the following areas of trainings were identified as being needed in the sector:

- i. Borehole Maintenance and Rehabilitation
- ii. Geophysical Investigation Techniques
- iii. Drilling Technology
- iv. Drilling Equipment Maintenance
- v. Operation and Maintenance of Solar and Electric Powered Motorized Water Supply Schemes

- vi. Water Treatment Techniques
- vii. Selection and Installations of Water Treatment Facilities
- viii. Design of Water Treatment Schemes
- ix. Plumbing
- x. Dam Design, Construction and Management
- xi. Remote Sensing and Geographic Information System
- xii. Integrated Water Resources Management (IWRM)
- xiii. Sewerage and Solid Waste Management
- xiv. Sanitation and Hygiene
- xv. Community Led Total Sanitation (CLTS)
- xvi. Latrine Construction
- xvii. Community Management of Water Supply and Sanitation Facilities
- xviii. Inclusion of Water and Sanitation in Schools Curriculum
- xix. Post Flood Rehabilitation and Construction
- xx. Project Management
- xxi. Project Monitoring and Evaluation
- xxii. Environmental Impact Assessment (EIA)
- xxiii. Advance Welding Techniques

4.5.1 Higher Education Design

Higher Education modules as will be required in the water sector for the pursuant of the earlier identified areas of training will include the followings:

- Civil Engineering;
- Water Resources Engineering;
- Agricultural Engineering;
- Integrated Water Resources Management;
- Remote Sensing & GIS Applications to Water Resources;
- Geology etc

These trainings will allow most staff in the sector to have the opportunity to go for long-term trainings, which will further enhance their performance in their respective working areas.

Other lower cadre trainings required for the enhancement of the water sector in the day-to-day running of the sector will include:

- Reservoir Planning, Operation, Monitoring and Management;
- Operational Hydrology;
- Drinking Water Treatment Processes and Quality Evaluation;
- Household Managers training course;
- Groundwater Exploration, Development and Management;
- Borehole drilling, Design and Completion;

- Climate Change Adaptation to WASH;
- Water Resources infrastructure maintenance;
- Water Quality Monitoring and Laboratory Management;
- Hydrological Practices and Data Management;

It was also discovered that these trainings can be offered in some of the training Institutions with existing MoU's with the NWRI, which included the following:

- National Water Resources Institute, Kaduna;
- University of Ilorin, Ilorin;
- Ahmadu Bello University, Zaria, Kaduna State;
- Federal University of Agriculture, Abeokuta, Ogun state;
- University of Calabar, River State.

Most of the Universities in Nigeria also offer most of these trainings.

4.5.2 Review of Existing Reports

In order to identify further areas of training needs in the Nigerian Water Sector, the following reports listed below were reviewed:

- i. Manpower and Training Committee report for the World Bank assisted National Water Rehabilitation Project (1992);
- ii. Training Needs Assessment Reports for River Basin Development Authorities (RBDAs) conducted by NWRI (1998);
- iii. Reports of Participatory Institutional Assessments for capacity development of WASH Institutions in four (4) States and eleven (11) LGAs in Nigeria by WELL/NWRI in 2004.
- iv. Reports of Participatory Institutional Assessments for Capacity Development of Water Supply, Sanitation and Hygiene (WASH) Institutions in Nigeria, 2010. The reports are for twelve (12) selected Local Government Areas (LGAs) and six (6) State Agencies. The states and LGAs are Adamawa (Hong and Mayo-Belwa), Cross River (Ikom and Odukpani), Imo (Mbaitoli and Oru West), Kaduna (Giwa and Kaura), Nasarawa (Keffi and Toto) and Osun (Ede North and Ifelodun);
- v. Report of the Committee on Training Needs Analysis for Relevant Stakeholders in the Water Sector by NWRI, February 2011;
- vi. Participatory Institutional Assessment Report of Chad Basin Development Authority, Maiduguri by NWRI (2011);
- vii. Report of Training Needs Analysis for Stakeholders in the Water Sector by NWRI, February 2012.

Analysis of the reports revealed a general lack of skills, knowledge and experience relating to the areas and sub-sectors indicated in Tables 5 and 6.

Table 4.6: Summary of identified training needs for rural and semi-urban water supply and sanitation sub-sectors.

S/No	Area of Training	Stakeholders Involved		
		State Level	LGA Level	Community Level
1.	Borehole Geophysical Logging	Water Supply Officers		
2.	Borehole Drilling, Installation and Rehabilitation	Drillers and their supervisor,	Water Supply Officers	
3.	Pump Installation and Maintenance (Hand pump and Mechanized)	Water Supply Officers Hand Pump Mechanics	Water Supply Officers and Mechanics	
4.	Motorized Pump and Motor Maintenance	Pump Mechanics	Pump Mechanics	Community Water Point Caretakers
5.	Hand Pump Repairs			Community Water Point Caretakers
6.	Hand pump Platform Construction	Masons	Masons	
7.	Development of Alternative Water Supply Sources (Hand dug well, Spring development and Rain		Water Supply Officers, Well Sinkers and Masons	Community Members
8.	Water Quality Analysis and Monitoring	Laboratory Scientists /Technicians	Water Supply Officers	
9.	Hygiene and Sanitation Promotion	Hygiene and Sanitation Officers	Hygiene and Sanitation Officers	
10.	Community Led Total Sanitation (CLTS)	Hygiene and Sanitation Officers	Hygiene and Sanitation Officers	
11.	Basic Hygiene Education			Community Members
12.	Waste Management		Sanitation Officers	Community Members
13.	ArcView / Geographic Information System (GIS) Water Information Management System (WIMS) and Sanitation	PME and Water Supply Officers		
14.	Information Management System (SIMS)	PME Officers	PME Officers	
15.	Data Analysis and Storage	PME Officers		
16.	Project Monitoring and Supervision	Heads of Departments and PME Officers	Heads of WASH and PME Officers	
17.	Management Practice and Effective leadership	Executive Officers	Heads of WASH	
18.	Computer and Internet Operations	Senior and Middle Cadre Officers	Heads of WASH and Units	

S/No	Area of Training	Stakeholders Involved		
		State Level	LGA Level	Community Level
19.	Financial Management	Finance/Accounting Officers		
20.	Stores Operational Procedures	Store Officers		
21.	Procurement and Contract Management	Heads of Departments and Units	Heads of WASH and Units	
22.	Auditing and Internal Control	Auditors		
23.	Office Management Techniques	Secretaries/Typists and Clerks	Secretaries/Typists	
24.	Proposal, Action Plan Development and Report Writing		Heads of WASH and Units	
25.	Community Self-Selection Procedures		Heads of WASH and Units	
26.	Formation and Administration of WASHCOM			Community Members
27.	Community Association Leadership and Management			WASHCOM Executive Officers
28.	Degree/Higher National Diploma/ National Diploma	Staff job related specialization	Staff job related specialization	

Table 4.7 Summary of identified training needs for urban water supply sub-sector

S/No	Area of Training	Stakeholders Involved
1.	Water Treatment Plant Operations	Plants Operators, Technicians Mechanical/ Electrical
2.	Laboratory Skills for Plant Operators	Laboratory Attendants
3.	Chemistry in Water Treatment	Laboratory Technologists, Water Works Attendants
4.	Water Treatment	Water Works Operators
5.	Water Distribution Systems	Supervisors, Technicians/Plumbers
6.	Surface Water Treatment and Quality Control	Water Chemist/Microbiologist Superintendents
7.	Ground Water Treatment and Quality Control	Water Chemists
8.	Water Quality and Control	Water Chemists and Water Plant Operators
9.	Mathematics for Water Operations	Water Chemists
10.	Water Supply Operation	Water Plant Operators, Water Chemists
11.	Health and Safety Procedures	Plant Operators, Water Plant Operators
12.	Preventive Maintenance	Technicians/Plant Operators
13.	Operation and Maintenance of Pumps	Supervisors, Technicians, Operators and Craftsmen
13.	Pump Design and Selection	Supervisors and Technicians

S/No	Area of Training	Stakeholders Involved
14.	Operation and Maintenance of Electric Motors	Technicians, Operators and Craftsmen
15.	Basic Operation and Maintenance of Pipe Network and Appurtenances	Supervisors and Technicians/Plumbers
16.	Plumbing Works and Service Connection	Technicians/Plumbers
17.	Operation and Maintenance of Water Meters	Technicians, Meter Readers
18.	Meter Reading Supervision and Analysis	Supervisors and Meter Readers
19.	Advanced Water Operations/Treatment	Technicians/ Senior Water Chemist and Engineers
20.	Instruction in Process Control	Instrumentation Technicians/Electrical
21.	Operation and Maintenance of Water Distribution Systems	Technicians/Engineers
22.	Leakage Detection and Repairs	Leakage Detection Officers, Supervisors and Technicians/Plumbers
23.	Engineering in Water Resources and Management System	Supervisors, Technicians
24.	Borehole Maintenance and Rehabilitation	Supervisors, Technicians
25.	Dams and Intake Structures Monitoring	Area Managers
26.	Maintenance of Electro-Mechanical Equipment	Technicians
27.	Maintenance of Generators	Technicians
28.	Performance Management	Managers, Supervisors, Technicians
29.	Managing and Supervising Water Works System	Supervisors/Technicians
30.	Water Demand Management	Managers, Supervisors, Technicians
31.	Billing and Collection	Billing Clerks
32.	Communication and Human Resources	Typist/Clerical Officers
33.	Human Resources Development Planning and Strategies	Training Manager, Human Resources Development (HRD) Officers
34.	Human Resources Goals and Strategies	SWA Chief Executives
35.	Water Systems Management Principles	Supervisors and Technicians
36.	Technical/Operational Maintenance Practice	Supervisors and Technicians
37.	Office Management	Secretaries and Office Staff
38.	Degree/Higher National Diploma/National Diploma	Individual Staff job related specialization

5.0 STRATEGIC AND IMPLEMENTATION PLAN ON SKILL GAP ASSESSMENT FRAMEWORK

Considering the skills gap and training needs identified as a result of this assessment, it was clear that low level of productivity in the Sector was inevitable. The success of institutions and their services depend heavily on the resources, skills and technical expertise of the workforce. Thus, human resource development needs to be seen as an investment that should be prioritized by all institutions. Therefore, the capacity of institutions within the sector needs to be enhanced by means of human resource development and training. Table 5.1 therefore presents the Strategic and Implementation Plan on Skill Gap Assessment Framework for the water sector in Nigeria.

Table 5.1 Strategic and Implementation Plan on Skill Gap Assessment Framework

S/N.	Implementation Plan	Activities	Expected Output /KPI	Assumptions	Time Frame	Responsible and Cost implication
1	Organize or Conduct Preparatory Stakeholders Meetings with Relevant Groups.	(i). Organize regular state, national and regional level stakeholders review summit, workshop, or forum in human resource for the water sector.	(i) Stakeholders report that meeting has been held	(i) Stakeholders are willing to participate and partner with NEPAD.	December, 2018	NWRI
		ii). Sensitize and buy-in to Human resource strategy.	(i). At least the six geopolitical zones have Memorandum of Understanding signed	(i) Budgetary funding allocation are released appropriately	June, 2018	NWRI
2	Advocacy for Funding Human Resource Development	(i) Embedding human resource development funding along with project cost; (ii) Seek for a sustainable means of increasing revenue base.	(i) State budgeting allocation is monitored; (ii) Established linkages with external funding agencies;			
3	Develop Human Succession Plan for the Sector Staff	i. Develop and maintain mentoring policy, ii. Organize exchange programmes, iii. Upscale on the job and external training, Organizational restructuring		There are high skilled staff		
4	Development and Implementation of National Manpower Training Strategy	i. Drafting the strategy for validation of workshop results on national manpower development and strategy,				
5	Up Scaling Skill Gap Assessment	Updating Periodic manpower audit, training need, and			April/May 2018	

S/N.	Implementation Plan	Activities	Expected Output /KPI	Assumptions	Time Frame	Responsible and Cost implication
		updating stakeholder review and validation workshop				
6	Coordinating Human Resources Development Initiative	i. Establish data base of human resource activities; ii. Establish, synergies, harmonize all available local training resources;				
7	Develop Career Progression Plan/ Program for the Water Sector	1. NWRI develop curriculum 2. States buy in for acceptance	Policy on Career Progression approved	Subject to Approval of the Memo to Council	2019	National Council on Water Resources
8	Establish Monitoring and Evaluation Framework for Human Resources Activities in the Sector	i. Develop procedures for effective monitoring and evaluating the performances and carry out periodic manpower audit and training needs analysis.				The NWRI

6.1 Conclusion

Manpower development and training for institutional strengthening and capacity development are critical requirements for improved service delivery in the water sector in Nigeria. Capacity and skills assessment assist in providing insights and guide to the development of manpower and trainings to address identified capacity gaps. The findings presented in this report are a reflection of the requirements in the Nigerian water sector.

The training needs presented covered a wide range of areas for the water supply and sanitation as well as irrigation sub-sector at Federal, State and LGA levels. Although, institutions such as the Federal Ministry of Water Resources (FMWR), River Basin Development Authorities (RBDAs), Nigeria Hydrological Services Agency (NIHSA), Nigerian Integrated Water Resources Management Commission (NIWRMC), etc. are covered at the national level. However other sub-sectors that have inter-sectoral linkages with water resources like power generation, agriculture, health, education, etc. are not covered in this draft report.

6.2 Recommendations

The following recommendations are made with a view to assist in taking informed decisions:

- i. Decision makers in the education, health and WASH sectors, at national, regional and local levels of administration should be sensitized for adequate funding and mandatory policy framework formulation for manpower development and training in the water sector.
- ii. The information provided in this report can be utilized as baseline data for further studies.
- iii. The need for political will is very important for the successful implementation of the capacity skill gaps identified in the water sector.

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8. NWRI (2012): Report of Training Needs Analysis for Stakeholders in the Water Sector by NWRI, February 2012.
9. RWSSC/NWRI (2011): Report of Training Needs Assessment in Jigawa, Kebbi, Gombe, Taraba, Niger, Ondo and Ekiti States by RWSSC/NWRI, June 2011.
10. RWSSC/NWRI (2012): Report of Training Needs Assessment in Ogun, Adamawa, Zamfara, Abia, Benue and Akwalbom States by RWSSC/NWRI, 2012.
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APPENDIX I

The Questionnaire



National Water Resources Institute Kaduna - Nigeria NEPAD Centre of Excellence in Water Resources

Questionnaire on skills Gap for capacity development

Background on the Survey

The National Water Resources Institute (NWRI), Kaduna Nigeria is one of the new partners for African development (NEPAD) network of Water Centre of Excellence for capacity building and research in the West African Sub-region. To fully accomplish one of the key mandates, there is the need to design water sector oriented trainings to fill water skills gaps that exist in the West African region. The NWRI therefore shall be highly grateful to you if you can kindly fill this questionnaire for the identification of the gaps and other related issues for the progress and development of the water sector in the region.

Thanks for your anticipated cooperation

Final Goal: Design water sector oriented seminars and trainings to be carried out in the West African sub region based on a sound need analysis in order to define the content of the seminars and trainings to be delivered in the region. It is important to understand what water sector skills gaps exist and the number of professional needed in the region by the water sector. This will be understood by carrying out a stakeholder's analysis and analyzing their needs

Task: Survey on requirement in high education and practitioners training in the water sector. Analysis the survey to study how the centre of excellence could better address sector expertise for consultancy and advocacy needed for sector development in the region. Understand the mechanism of dialogue between research, academia and other sector stakeholders (also including donors and governmental actors) at regional level and national level

Methodology

Objective I: Review of existing studies reports and data available in the region. This will allow the identification of first target groups. Distribute the survey among a representative sample of different stakeholder (Academia. NGOs Government representatives etc)

Objective II: Determine the current educational/training offered by researching universities, colleagues and training centres activities. Base on the findings above make linkage between courses provided in the region with the gaps existing in the water sector.

Objective III: Include the survey questions regarding the dialogue (collaboration) between research centres and governmental actors as well as donors and other institutions.

1. Identification of the Institution

- Country
- Name of the institution
- Address
- Creation Date
- Head of the institution
- Mobile Contact
- Email
- Website

2. What type of Organization are you

- Tertiary Education
- Research
- Water Utility
- Consulting
- Private sector - Manufacturing
- Private Sector - Agriculture
- Private Sector - Energy
- Private Sector - Mining
- Local Government
- Federal Government
- Non-governmental Organization (NGO)
- Civil society organization (CSO)

River Basin Organization

Others, Please specify

3. What are the activities of your organization?

Policy Making

Planning

Teaching and Training

Water Resources Management

Water Service Provision

Finance

Communication

Research

Operations and Utilities Management

Networking

Others, Please Specify

4. What is your Main/Primary Activity (Select One)

Policy Making

Planning

Teaching And Training

Water Resources Management

Water Service Provision

Finance

Communication

Research

Operations and Utilities Management

Networking

5. Specify The Main Skills Existing

Skill Exist in your Organization

Research and Development
 Sanitation
 Sector Governance
 Project Management
 Water Conservation
 Waste Disposal
 Waste Handling (Including Hazardous)
 Water Treatment

6. (a). Your current organization approach to skills development.

Please select forms of skills development activities or interventions at your organization and further select what interventions are needed in the WEST AFRICAN (WA) region.

	Intervention at your organization	Intervention needed in West Africa
1. FET (Further Education Training)	<input type="checkbox"/>	<input type="checkbox"/>
2. HET (Higher Educational Training)	<input type="checkbox"/>	<input type="checkbox"/>
3. In service training	<input type="checkbox"/>	<input type="checkbox"/>
4. Bursary support	<input type="checkbox"/>	<input type="checkbox"/>
5. Internship	<input type="checkbox"/>	<input type="checkbox"/>
6. Mentorship	<input type="checkbox"/>	<input type="checkbox"/>
7. Recognition of prior learning (RPL) short course	<input type="checkbox"/>	<input type="checkbox"/>
8. Capacity building strategy and financing	<input type="checkbox"/>	<input type="checkbox"/>
9. Others - Please Specify Below	<input type="checkbox"/>	<input type="checkbox"/>

If Selected 'Others' Please Specify Here

6. (b). which institution is conducting the training mentioned above?

- Further Educational Training (FET) Institution, Universities and Polytechnics
- Higher Education Training (HET) Institution

- Accredited Service Provider
- Others, Please Specify

7. Are you aware of any capacity development strategies or skills audits that have been carried out in your country or in the West African region
Please Specify.

- Do you have a formalized knowledge management system (KMS)? If so, what does it entails
- Do you have a specific group of stakeholders that use the KMS? If so who are they?
- Do you use a specific electronic and/or other platforms e.g. conferences, workshops, publication etc)? as your knowledge management strategy?
- Is there a need for a West African wide knowledge information system? Why do you say that?

8. Could you specify the number of male and female staff working in your Institution

Male.....

Female.....

9. (a). How do you qualify the number of the staff working in your institution for the tasks load assigned?

- Adequate
- Acceptable
- Not Enough
- Very Poor

10. What are the main constraints your institutions is facing when accomplishing its mission.

- Inadequacy of Resources Materials
- Insufficient of Human Resources
- Limited Technical Capacities
- Others, Specify

11) Do training institution programmes in your country cover all water and sanitation themes?

Yes

No

If “No” could you specify areas to be covered by training institution in your country.

12). Does your institution have an appropriate budget allocated to training and reinforcement capacities activities?

Yes

No

13). Does a link exist between research centers, academia and development partners (government and donors)

14) If yes, how well are they functioning? Can they be enhanced and how?

15) If no, how can they be created?

16) Is there a political will to create this link?

17) Are there financial resources available to be devoted to this purpose?

18) Do the participants of this survey know about the sector wide approach principle?

THANK YOU FOR YOUR CONTRIBUTION

APPENDIX II

Completed Questionnaires by Organizations.

(A) River Basin Authorities:

1. Lower Benue River Basin Development Authority, Makurdi, Benue State.
2. Cross River Basin Development Authority Calabar.
3. Benin-Owena River Basin Development Authority. Benin City.
4. Lower Niger River Basin Development Authority, Ilorin
5. Chad Basin Development Authority, Maiduguri
6. Cross River Basin Development Authority, Calabar
7. Niger Delta Basin Development Authority, Port Harcourt. River State.
8. Anambra-Imo River Basin Development Authority, Owerri. Imo State.

(B) National Government Institutions:

1. Federal Ministry of Water Resources, Abuja.
2. Gurara Water Management Authority, Abuja
3. University of Calabar, Calabar
4. University of Maiduguri, Borno
5. University of Ilorin, Ilorin
6. Federal University of Agriculture, Abeokuta
7. Ondo State Chapter of National Orientation Agency, Akure.
8. Federal Ministry of Environment, Abuja
9. National Water Resources Institute, Kaduna
10. Obafemi Awolowo University, Ile Ife
11. NnamdiAzikiweUniversity, Awka, Anambra State
12. Institute of Agricultural Research & Training, Ibadan
13. Nigeria Integrated Water Resources Management Commission, Abuja
14. WaterAid Nigeria, Abuja
15. Women Environmental Programme, Abuja
16. Nigeria Hydrological Services Agency, Abuja

(C) Regional / State Government/Private Institutions

1. Yobe State Ministry of Water Resources, Yobe
2. Y-Tek Investment Ltd., Kano
3. Gombe State Water Board. Gombe.
4. WATSAN, Gombe
5. Water & Environmental Sanitation Agency, Yola
6. Water Surveys and Resources Development, Kaduna
7. Water Corporation, Oyo State

8. Ondo State Water Corporation, Akure
9. RUWASSA, Umuahia
10. Sokoto State RUWASSA
11. Stanwill Engineering Services Ltd., Awka
12. Sustainable Water and Sanitation for Africa (SUWASA), Bauchi
13. Taraba State Water Supply & Sanitation Agency, Jalingo
14. UNICEF, Kaduna
15. Umar Bahago Water Engineering Services Ltd., Jimeta, Yola
16. Steincorp Earth Resources International Ltd., Abakaliki
17. Summertime Engineering Services, Abeokuta
18. Rural Water & Sanitation Agency, Zamfara State
19. RUWASSA, Lagos
20. RUWASSA, Yobe
21. Oyo State Rural Water & Sanitation Agency, Ibadan
22. River State RUWASSA
23. River State Water Board, Port Harcourt
24. Osun State Rural Water & Environmental Sanitation Agency
25. Nassarawa State Ministry of Water Resources and Rural Development, (NWRRD). Lafia
26. Ondo State Water Corporation. Akure
27. Katsina State Ministry of Water Resources
28. National Horticultural Research Institute, Bagauda, Kano
29. Kabag International Investment Ltd., Gombe
30. Kaduna State Water & Sanitation Project
31. Kano State RUWASSA
32. Jadeko Geosciences, Ado-Ekiti
33. J-cos Consult Ltd., Ondo State
34. Gamgum Nig. Ltd., Jalingo
35. Idemgh-link Ventures, Eket
36. Imo State RUWASSA, Owerri
37. GnajjoSeo Limited, Aba
38. Gombe State Water Board
39. Gophina Nigeria Ltd., Calabar
40. Gamawa Local Government WASH unit, Bauchi
41. Enugu State Ministry of Water Resources. Enugu
42. OYO State Rural Water Supply and Sanitation Agency, Ibadan.
43. Plateau State Ministry of Water Resources, Jos.
44. Bauchi State Rural Water Supply and Sanitation Agency, Bauchi
45. Kastina Rural Water Supply and Sanitation Agency, Kastina.
46. Jigawa Rural Water Supply and Sanitation, Dutse.
47. Zamfara State Rural Water Supply and Sanitation Agency, Zamfara.
48. Kastina. State Rural Water Supply and Sanitation Agency, Kastina
49. Kaduna Rural Water Supply and Sanitation Agency, Kaduna.
50. A.G. Engineering Services Nig. Ltd., Kebbi State
51. Ahiazu Mbaise Local Government, Imo State
52. Akwa Ibom State RUWASSA
53. Anambra State Water Corporation, Awka

54. Balid Engineering Ventures, Maiduguri
55. Bemzal (Nig) Ltd, Enugu
56. Katsina State RUWASSA
57. Borno State RUWASSA
58. Ministry of Water Resources, Kano State
59. Ministry of Water Resources Development, Delta State
60. Ministry of Water Resources, Bauchi State
61. Bureau of Infrastructure and Public Utilities, Ado-Ekiti
62. Kebbi State Water Board
63. Kibiya Local Government, Kano
64. Lagos State Agric. Dev. Lagos
65. Lagos State Ministry of Rural Development (Rural Water & Sanitation)
66. Charanchi Local Government, Katsina State
67. Community Emergency Response Initiative, FCT, Abuja
68. Mai-HaliNig. Ltd., Kano
69. Min. for Rural Development, Sokoto
70. Min. of Water Resources & Rural Development, Taraba State
71. Ministry for Water Resources, Zamfara State
72. Ministry of Energy & Water Resources, Benin City
73. Cross River State Ministry of Water Resources
74. Cross River State Rural Development Agency
75. Davechem Industries Ltd.
76. Delta State Rural Water Supply Agency
77. Delta State Urban Water Board, Asaba
78. Eauxwell Nig. Ltd., Lagos
79. Edo State Urban Water Board, Benin City
80. Ekiti State RUWASSA
81. Ekiti State Water Corporation
82. Enugu State RUWASSA

APPENDIX III

Details of Respondents

SN	NAMES/HEAD OF ORGANIZATION	ORGANIZATION	NO	YEAR ESTAB.	E-MAIL/WEBSITE	TELEPHONE
1	Honorable Minister	Federal Ministry of Water Resources (Dept of Water Supply)	1	N/A	dismoroti@yahoo.com (Director of Water Supply)	08033737149 08036312396
2	Managing Director	Lower Benue River Basin Development Authority, Makurdi, Benue State.	1	1976	Muhammadra80@gmail.com (Managing Director)	08027627526
3	Bashir Umarlere (General Manager)	Kaduna Rural Water Supply and Sanitation Agency, Kaduna.	1	1991	Kadwatsan@yahoo.com bumarlere@gmail.com	08037000102
4	General Manager	OYO State Rural Water Supply and Sanitation Agency, Ibadan.	1	1992	ttairu@yahoo.com ttairu2014@gmail.com	08034732640
5	Engr. Emodemi (General Manager)	Ondo State Rural Water Supply and Sanitation Agency, Akure.	1	1992	engromodemi@yahoo.com	08038184843
6	Executive Director	Kastina. State Rural Water Supply and Sanitation Agency, Kastina	1	2004	ktruwassa@gmail.com	-
7	Programme Manager	Zamfara State Rural Water Supply and Sanitation Agency, Zamfara.	2	1999	saniyarog@yahoo.com	08036477125
8	Managing Director	Jigawa Rural Water Supply and Sanitation, Dutse.	1	1999	engineerlabaren@yahoo.com	08065546019
9	Engr Aminu Dayyabu (Managing Director)	Kastina Rural Water Supply and Sanitation Agency, Kastina.	1	2004	aminudayyabu69@gmail.com	0802699089
10	Baba B. Gujbawa (Managing Director)	Bauchi State Rural Water Supply and Sanitation Agency, Bauchi.	1	2009	ruwassa@bauchiruwassa.org.ng bauchiruwassa.org.ng	08025995577
11	Engr. T.U David-West (Managing Director)	Niger Delta Basin Development Authority, Port Harcourt.	1	1962	Tdwhors.com.uk	08033411547
12	Engr. Jimmy Akinrinmade	Ondo State Water Corporation. Akure.	1	1976	folajimiakinrinmade@gmail.com	08037246209
13	Engr. Basseyy E. Nkposong	Cross River Basin Development Authority Calabar.	1	1976	basseynkposong@gmail.com	08182032929
14	Engr. Saliu Osifuemeh Ahmed	Benin-Owena River Basin Development Authority. Benin City.	1	1976	bordba@yahoo.com	0802673260
15	Honorable Commissioner	Plateau State Ministry of Water Resources, Jos.	1	1999	jwuyep@hotmail.com bwehsun@gmail.com	08036158268

SN	NAMES/HEAD OF ORGANIZATION	ORGANIZATION	NO	YEAR ESTAB.	E-MAIL/WEBSITE	TELEPHONE
16	Honorable Commissioner	Enugu State Ministry of Water Ressources. Enugu.	1	2007	fideolake@yahoo.com	08033170388
17	Reverend Michael Nwabufo (c/o Princess Mrs Ngozi Unche.	Anambra-Imo River Basin Development Authority, Owerri.	1	1976	princessnuiu@yahoo.com	0803341941
18	Honorable Commissioner	Nassarwa State Ministry of Water Ressources and Rural Development, (NWRRD). lafia	1	1996	-	08036003675
19	General Manager	Gombe State Water Board. Gombe.	1	1996	isacgeoc@yahoo.com	08036359003
20	Permanent Secretary	Yobe State, Ministry of Water Ressources	1	1992	N/A	N/A
21	Mr. BodeFamose	Ondo State Chapter of National Orientation Agency, Akure.	2	1993	oyebodefamose@yahoo.com www.noa.gov.ng	08033449284
22	Alhaji Aliyu Danagaji Jega (Managing Director)	A.G. Engineering Services Nig. Ltd., Kebbi State	1	2001	-	08035556413
23	Engr. Felix Okonkwo	Abia State Water Board	1	-	Okeziem2004@yahoo.com	-
24	Chairman	Ahiazu Mbaise Local Government, Imo State	1	-	-	-
25	General Manager	Akwabom State RUWASSA	1	1996	effyessien@yahoo.com	08022231160
26	Managing Director	Anambra State Water Corporation, Awka	1	1977	sanunaby@yahoo.com	08033253724
27	Balarabe Baba	Balid Engineering Ventures, Maiduguri	1	2001	-	08138328050
28	General Manager	Bauchi State RUWASSA	1	2010	Alhajiji2012@gmail.com	08036144278
29	Bright Nnamdi Alaribe	Bemzal (Nig) Ltd, Enugu	1	-	bemzal@yahoo.com , www.bemzalnigerialimited.com	-
30	Managing Director	Benin Owena River Basin Dev. Authority	3	1978	Borda1@yahoo.com	-
31	Baba B. Gujbawa (Managing Director)	Borno State RUWASSA	1	2005	-	08035058700
41	Special Adviser on Infrastructure and Public Utilities	Bureau of Infrastructure and Public Utilities, Ado-Ekiti	1	2010	stadunmo@ekitistate.gov.ng www.ekiti.com	08061100438
42	Dr. A. G. Iliya (Managing Director)	Chad Basin Development Authority, Maiduguri	1	1974	www.chadbasin.org.ng	08033251755
43	Chairman	Charanchi Local Government, Katsina State	1	-	-	08037502712 08036183032
44	Attah Benson	Community Emergency Response Initiative, FCT, Abuja	1	2007	cerinitiative@gmail.com	07030052866
45	Engr. M. T. E. Essien (Ag. Managing Director)	Cross River Basin Development Authority, Calabar	1	-	-	-

SN	NAMES/HEAD OF ORGANIZATION	ORGANIZATION	NO	YEAR ESTAB.	E-MAIL/WEBSITE	TELEPHONE
46	Hon. Commissioner	Cross River State Ministry of Water Resources	1	2012	-	-
47	Director General	Cross River State Rural Development Agency	1	2008	atueko@gmail.com	08033120970
48	Patrick Emori (General Manager)	Cross River State RUWASSA	1	1991	Shakus79@yahoo.com	08037225706
49	D. A. Adeyemo	Davechem Industries Ltd.	1	1988	davechemone@yahoo.com	08023336333
50	Engr. Blessing Edewor	Delta State Rural Water Supply Agency	1	1997	ruralwaterdeltastate@yahoo.com	08030717163
51	Engr. Rev. Omemezia F. O.	Delta State Urban Water Board, Asaba	2	1991	-	08034089768
52	Engr. Edwin Enwegbara	Eauxwell Nig. Ltd., Lagos	1	1987	info@eauxwell.com www.eaxwell.com	0-01-8180190
53	General Manager	Edo State Urban Water Board, Benin City	1	-	edourbanwater@yahoo.com	08032987376
54	Engr. Anise	Ekiti State RUWASSA	1	1996	-	08035070552
55	General Manager	Ekiti State Water Corporation	1	1996	ajuolaoladipo@yahoo.com	08063034659
56	Managing Director	Enugu State RUWASSA	1	-	-	0703111638
57	Hon. Minister	Federal Ministry of Environment, Abuja	2	-	bardejd@yahoo.com , www.climatechange.gov.ng	08036147540
58	Hon. Minister	Federal Ministry of Water Resources, Abuja	3	1976	janokeleke@yahoo.com	08033024372
59	Prof. O. B. Oyewole	Federal University of Agriculture, Abeokuta	2	1987	jjkadewumi@yahoo.com www.unaab.edu.ng	08037035908
60	Chairman	Gamawa Local Government WASH unit, Bauchi	1	1976	-	08060006663
61	Managing Director	Gangum Nig. Ltd., Jalingo	1	1998	Gangum2006@yahoo.com	08024077345 07063225868
62	Inah, John Ogbuwa	GnajjoSeo Limited, Aba	1	1992	gnajjoseo@yahoo.com	08036372907
64	General Manager	Gombe State Water Board	1	1996	isacgcoc@yahoo.com	0-07220235
65	Engr. Godwin A. Ushie	Gophina Nigeria Ltd., Calabar	1	1991	gophinanigLtd@yahoo.com	08077024654
66	Engr. Ibrahim Babbaji (Coordinating Director)	Gurara Water Management Authority, Abuja	2	2008	Aminsadiq494@yahoo.com www.guraradam.com	08036134893
67	Idem Iniobong Emmanuel	Idemgh-link Ventures, Eket	2	1998	idemghventures@yahoo.com	08061119908
68	Programme Manager	Imo State RUWASSA, Owerri	1	2003	imowes@yahoo.co.uk	-
69	Prof. B. A. Ogunbodede	Institute of Agricultural Research & Training, O.A.U., Ibadan	1	-	-	-
70	AdekunleEsan	Jadeko Geosciences, Ado-Ekiti	1	2004	adekunleesan@yahoo.com	08033918381
71	Mr. A. A. Banso	J-cos Consult Ltd., Ondo State	1	1998	clemogeone@yahoo.com	08062408716

SN	NAMES/HEAD OF ORGANIZATION	ORGANIZATION	NO	YEAR ESTAB.	E-MAIL/WEBSITE	TELEPHONE
72	Managing Director	Kabag International Investment Ltd., Gombe	1	2000	-	08035981828
73	Bashir U. Lere	Kaduna State Water & Sanitation Project	2	1991	bashirlere@yahoo.com kadwatsan@yahoo.com	08037000102
74	Managing Director	Kano State RUWASSA	1	1997	tahirwater217@yahoo.com	08034502930
75	Hon. Commissioner	Katsina State Min. of Water Resources	1	1992	-	-
76	Executive Director	Katsina State RUWASSA	1	2003	ktnwassa@yahoo.com	08035930077
77	Engr. Mahmud Ahmed Gwandu	Kebbi State Water Board	1	1991	mg-ahmed2010@yahoo.co.uk	08065680016
78	Chairman	Kibiya Local Government, Kano	1	-	Bashirabba60@yahoo.com	08033595620
79	Dr. Yakubu Olajide Bashorun	Lagos State Agric. Dev. Lagos	1	-	-	08029462286
80	Permanent Secretary	Lagos State Ministry of Rural Development (Rural Water & Sanitation)	1	-	-	-
81	Engr. T. A. Aduragba (Managing Director)	Lower Niger River Basin Dev. Authority, Ilorin	4	1977	sulaimanabiodun@Yahoo.com	08074929659
82	Hafizu Uba Adamu	Mai-HaliNig. Ltd., Kano	1	2005	halinig@yahoo.com	08036728583
83	Hon. Commissioner	Min. for Rural Development, Sokoto	1	2012	-	08035054301
84	Hon. Commissioner	Min. of Water Resources & Rural Development, Taraba State	2	1994	-	08080798354
85	Hon. Commissioner	Ministry for Water Resources, Zamfara State	1	1996	-	08065585762
86	Engr. Jerry I. Ekenemoh (Permanent secretary)	Ministry of Energy & Water Resources, Benin City	1	-	Stephen.omorogbe@yah00.com	08032731130
87	Permanent Secretary	Ministry of Water Resources Development, Delta State	1	2002	-	08036271276
88	Hon. Commissioner	Ministry of Water Resources, Bauchi State	1	1996	adamuali@yahoo.com	08060182506
89	Hon. Commissioner	Ministry of Water Resources, Kaduna	3	1990	Mwr.kaduna@gmail.com	-
90	Dr. Yunusa A. Dangwani (Hon. Commissioner)	Ministry of Water Resources, Kano State	1	1990	-	08054405100
91	Hon. Commissioner	Ministry of Water Resources, Kebbi State	1	1995	sanusidebi@yahoo.com	08065680131
92	Hon. Commissioner	Ministry of Water Resources, Kogi State	1	1991	-	-
93	Dr. Mrs. A. O. Olufolaji	National Horticultural Research Institute, Bagauda, Kano	1	-	afolaster@gmail.com	08069481807

SN	NAMES/HEAD OF ORGANIZATION	ORGANIZATION	NO	YEAR ESTAB.	E-MAIL/WEBSITE	TELEPHONE
94	Executive Director	National Water Resources Institute, Kaduna	2	1985	www.nwri.gov.ng	-
95	John Ayoadé Shamonda (Director General)	Nigeria Hydrological Services Agency	2	2010	jashamo@hotmail.com www.nihydro.gov.ng	08033156354
96	Engr. R. A. K. Jimoh (Coordinating Director)	Nigeria Integrated Water Resources Management Commission	6	2006	-	-
97	Prof. Boniface, C. E. Egboka	NnamdiAzikiweUniversity, Awka, Anambra State	1	1992	vc@unizik.edu.ng www.unizik.edu.ng	08034539659
98	Vice Chancellor	Obafemi Awolowo University, Ile Ife	1	-	emmaofoezie@yahoo.com	08034375652
99	Engr. C. O.Sanusí (General Manager)	Ondo State Water Corporation, Akure	4	1976	enrakinro@yahoo.com	08034745776
100	Alhaji Yusuf Oluwatoyin (Programme Manager)	Osun State Rural Water & Environmental Sanitation Agency	2	1994	akogunadiatu@yahoo.com	08034745942
101	General Manager	Oyo State Rural Water & Sanitation Agency, Ibadan	1	1992	-	08034732640
102	F. O. Odungwero	River State RUWASSA	1	2012	rvsruwassa@yahoo.com , foodungwero@yahoo.com	08037029813
103	Engr. M. Mmeo	River State Water Board, Port Harcourt	1	-	-	-
104	Programme Manager	Rural Water & Sanitation Agency. Zamfara State	1	1999	zmruwatsan@yahoo.com	08067234254
105	Cornellius Ojelabi	RUWASSA, Lagos	1	1999	-	-
106	Mohammed M. Bukar	RUWASSA, Yobe	1	-	-	08036069336
107	Programme Manager	RUWASSA. Umuahia	1	-	Olakaoburu2000@yahoo.com	08036831401
108	Project Manager	Sokoto State RUWASSA	1	1996	washesokoto@yahoo.com	07034226334
109	Engr. Wilfred U. Akpu	Stanwill Engineering Services Ltd., Awka	6	2006	wilfredakpu@yahoo.com	08037861075
110	Uji, Adinya Anyebe	Steincorp Earth Resources International Ltd., Abakaliki	1	-	adinyauji@yahoo.com	08033400160
111	Engr. Tunde Kamil	Summertime Engineering Services, Abeokuta	1	-	info@summertimeengineering.com www.sumertimeengineering.com	07055791278
112	Hossana Dajan	Sustainable Water and Sanitation for Africa (SUWASA), Bauchi	1	2011	nyakubu@suwasa.org www.suwasaUSAID.org	08062288423
113	Programme Manager	Taraba State Water Supply & Sanitation Agency, Jalingo	2	1992	isiyakabashir@yahoo.com	08038128423
113	Umar Bahago	Umar Bahago Water Engineering Services Ltd., JimetaYola	1	2000	-	08035381271
114		UNICEF, Kaduna	1	-	-	-
115	Prof. James Epoke	University of Calabar	1	1973	www.unical.edu.ng	-

SN	NAMES/HEAD OF ORGANIZATION	ORGANIZATION	NO	YEAR ESTAB.	E-MAIL/WEBSITE	TELEPHONE
115	Prof. AbdulganiyuAmbali (Vice Chancellor)	University of Ilorin	7	1975	www.unilorin.edu.ng	-
116	Prof. M. M. Daura (Vice Chancellor)	University of Maiduguri	1	1976	proffaadeniji@gmail.com	08035879099
117	Programme Manager	Water & Environmental Sanitation Agency, Yola	1	1996	jadanex@yahoo.com	08036093003
118	Oguntola G. O. (General Manager)	Water Corporation, Oyo State	1	-	sojioguntola@yahoo.com	08037274625
119	Dotun Adekile	Water Surveys and Resources Development, Kaduna	1	1974	dotunadekile@yahoo.com	08034503349
120	Dr. Michael Ojo	WaterAid Nigeria, Abuja	1	-	dayooluboye@wateraid.org	08036422660
121	Programme Manager	WATSAN, Gombe	1	1996	Gombewes99@yahoo.com	08034993468
122	Priscilla M. Achakpa	Women Environmental Programme, Abuja	1	1997	info@wepnigeria.net www.wepnigeria.net	0-092910878
122	Engr. G. A. Danbala	Y-tek Investment Ltd., Kano	1	1999	danbalagarba@yahoo.com	08032887511
123	Hon. Minister	Federal Ministry of Water Resources, Irrigation and Drainage Dept.	1	1975	www.waterresources.gov.ng	
124	Honorable Minister	Federal Ministry of Water Resources (Dept of Water quality and Sanitation)	1	1975		
125	Managing Director	Ogun-Oshun RBDA, Abeokuta	1	1977	www.oorbda.com.ng	08033243845

APPENDIX IV

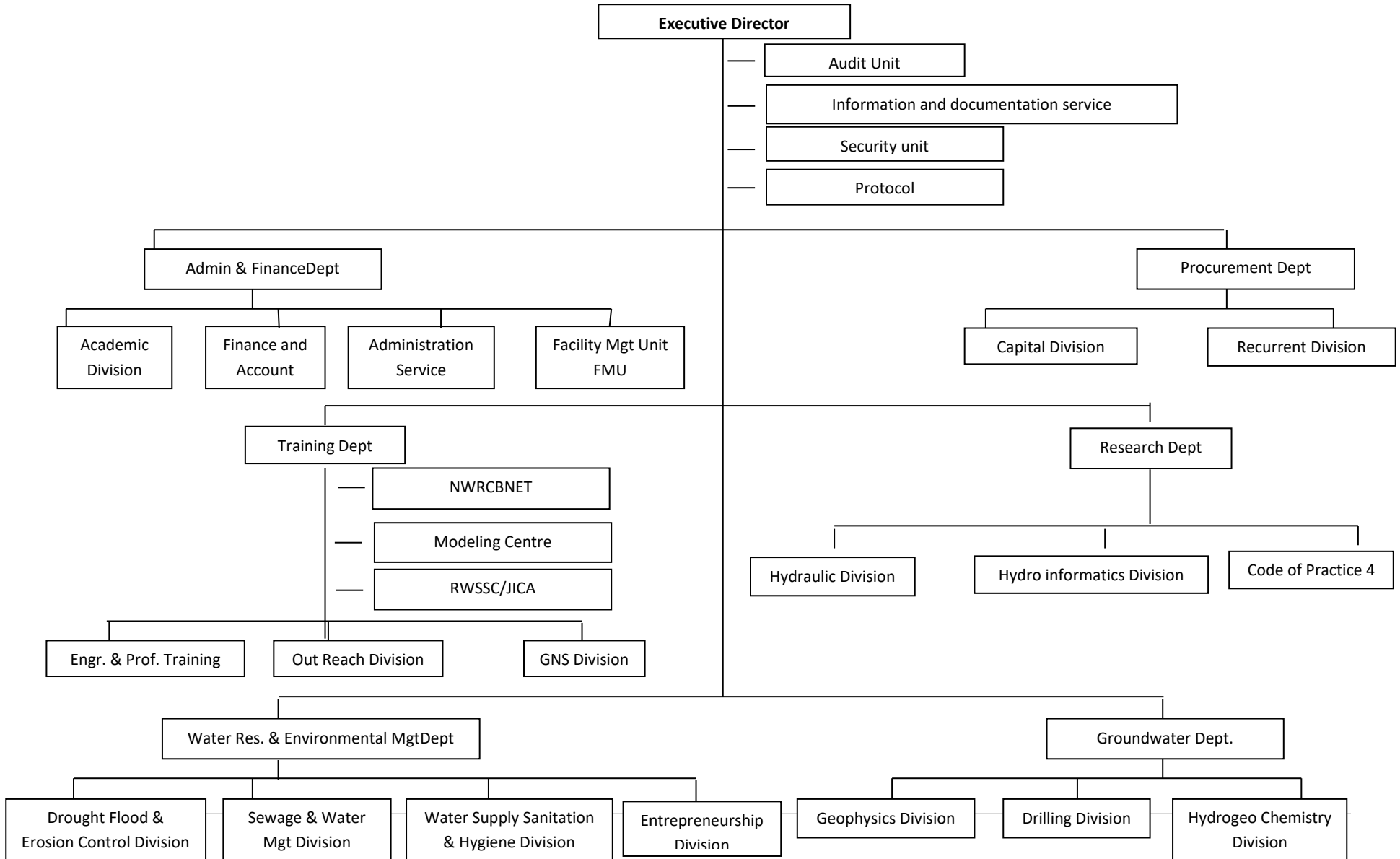
The Validation Team

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			GSM	EMAIL
1	Dr. E.A Adanu	National Water Resources Institute, Kaduna	08033201074	adanuada@yahoo.com
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4	Dr. A.M Ayanshola	NWRCBNet, University of Ilorin, Ilorin, Kwara State.	07069299296	engranayanshola@gmail.com
5	Engr. Aliyu Bamaiyi Usman	Dept of Water Resources & Environmental Engineering, ABU, Zaria, Kaduna State.	08065658749	Ask4bamaiyi@gmail.com
6	Mr. Dangkwat I.P	Federal Ministry of Water Resources, Planning Research and Statistics Dept., Abuja	08065808358	Panmun4@yahoo.com
7	Mr. Maxwel Ejikeme	Federal Ministry of Water Resources, Dept of Water Supply, Abuja	08063990476	dubalq@yahoo.com
8	Mr. Rufai Haruna J.	Katsina State RUWASSA, Katsina.	08036859502	
9	Mrs Omoigberale Laretta	National Steel Raw Materials Exploration Agency, Malali, Kaduna	08037232666	larettaomoigberale@gmail.com
10	Mr. Nasiru Abubakar	Rural Water Supply and Sanitation Agency, Kaduna, Kaduna State	08036993969	naszee73abu@gmail.com
11	Mr. Ibanga, M. Essien	Federal Ministry of Water Resources (Human Resources Dept.), Abuja	08059618179	saviourmonday@ymail.com
12	Mr. Danladi Pillemon	Niger State Ministry of Water Resources & Dams Dept., Minna	08065687511	Phildan74@yahoo.com
13	Mr. Lumi Jonathan	Bauchi State RUWASSA, Bauchi.	07030134718	lumijonathan@yahoo.com
14	Dr. T. Najime	Dept. of Geology, ABU, Zaria	08036125291	enajime@yahoo.com
15	MrsMartina Ananaba	National Steel Raw Material Exploration Agency, Kaduna.	07033400477	martina268@yahoo.com
16	Mr. Isiyaku H. Bala	Kaduna State Water Corporation KADSWAC, Kaduna	08030807999	Yusrah1234@gmail.com
17	Mr. Musa UsmanKende	Kebbi State Water Board, P.O. Box 86, BirninKebbi	08065680090	musakendeh@gmail.com
18	Prof Johnson Otun	Niger Delta Support Programme, MWRD, Asaba Delta State.	08035887828	johnsonotun@yahoo.com

S/N	NAME	ORGANISATION	CONTACT	
			GSM	EMAIL
19	Mr. Adzegah Ugah Micah	Upper Niger River Basin Development Authority, Minna-Niger State	08069661148	uy_ahmicah@hotmail.com
20	Mr. Ugwu Stephen Jessey	National Water Resources Institute, Kaduna	08168500530	ebukush3@gmail.com
21	Mrs Vivien C. Ameso	National Water Resources Institute, Kaduna	08135257741	vivienameso@yahoo.com
22	Dr. Mike O. Nwude	National Water Resources Institute, Kaduna	08036126801	nwudemike@yahoo.com
23	Mr. Owolabi O. Samuel	National Water Resources Institute, Kaduna	08069419232	owolabolu@yahoo.com.au
24	Engr (Mrs) Abdulrahman S. Halima	National Water Resources Institute, Kaduna	08035675762	ummulamina@ymail.com
25	Mrs.Yemisi Joyce John	National Water Resources Institute, Kaduna	08036615426	Anagehforreal95@gmail.com
26	Mrs. Laitu J. Alegbe	National Water Resources Institute, Kaduna	08034118176	Osaremeh2004@yahoo.co.uk
27	Engr. S.G. Sara	National Water Resources Institute, Kaduna	08034508796	Sgsara2010@yahoo.com
28	Engr. Olabode T. Shola	National Water Resources Institute, Kaduna	08032062438	

APPENDIX V

THE ORGANIZATIONAL SETTING



SESSION IN PHOTOS



Technical Session - Group Work



Group Photo - Members of the Committee



The Secretariat