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**NEPAD Africa Centres of Excellence on Water Science and  
Technology (Phase II): Human Capacity Development  
Component**



**FINAL REPORT**

**GHANA NATIONAL STUDY REPORT ON  
THE FRAMEWORK FOR HUMAN RESOURCE  
CAPACITY DEVELOPMENT IN THE WATER,  
SANITATION, HYGIENE (WASH) SECTOR**

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**Submitted to  
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## Abbreviations

|        |   |
|--------|---|
| CWSA   | Community Water and Sanitation Agency           |
| DA     | District Assembly                               |
| EHSD   | Environmental Health and Sanitation Directorate |
| GoG    | Government of Ghana                             |
| GSS    | Ghana Statistical Service                       |
| GWCL   | Ghana Water Company Limited                     |
| HCD    | Human capacity development                      |
| HR     | Human resource                                  |
| HRCDD  | Human resource capacity development             |
| HRs    | Human resources                                 |
| HSD    | Hydrological Service Department                 |
| MMDA   | Metropolitan/Municipal/District Assembly        |
| MSWR   | Ministry of Sanitation and Water Resources      |
| NGO    | Non-Governmental Organization                   |
| O&M    | Operation and maintenance                       |
| RWSP   | Rural Water and Sanitation Project              |
| SDG    | Sustainable Development Goals                   |
| SHEP   | School Hygiene Education Programme              |
| WASH   | Water, Sanitation and Hygiene                   |
| WATSAN | Water and Sanitation                            |
| WRC    | Water Resources Commission                      |

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## **EXECUTIVE SUMMARY**

### **Background of study**

The Human Capacity Development component of the NEPAD WATER ACE 2 project is supporting the implementation of the African Water Ministers' declaration urging AUC and NEPAD Centres of Excellence to develop a "Human Capacity Development Programme for junior professional and technician level capacity challenges in the water sector" at national level in the CoE countries. The Human Capacity Development component of the ACE 2 project activities concern the establishment and implementation of the Human Capacity Development Programme at the national level in all the NEPAD CoE countries.

This study was conducted to provide a framework for WASH sector human capacity development (HCD) in Ghana to deliver quality WASH services to meet the Sustainable Development Goal 6 (SDG 6). According to the Terms of Reference, the deliverables are:

- To undertake a national study to develop a National Framework on Human Capacity Development (HCD) in Ghana, identifying the needs and defining priorities with national government through a multi-stakeholder participative approach;
- To define implementation framework for the human capacity development; and
- Provide monitoring and evaluation (M&E) framework

### **National study method and HCD Framework**

An organisational survey questionnaire was sent to 30 WASH sector organisations including the major companies to identify training needs and skills gaps. A total of 19 organisations provided feedback including key sector stakeholders. An employee survey involving three hundred and sixteen (316) WASH sector employees from 64 WASH organisations in Ghana was conducted using structured questionnaires to identify training needs and skills gaps. These were complemented with a national dialogue workshop which was attended by 28 employees from the key WASH sector organisations. Of the three UNESCO officials in Ghana who were invited, one Officer attended the workshop. Findings from the study were finally presented at a validation workshop to key sector stakeholders.

The national framework for HCD outlines the capacity building principles and the approach to formulate, monitor and evaluate the capacity building activities. This framework helps to effectively plan, implement and evaluate the capacity building activities in a systematic way. The framework provides the following capacity building steps:

- Step 1: Review service quality policy and the national enabling environment to identify needs,
- Step 2: Identify organisational strategy and goals to be achieved, to improve service quality,
- Step 3: Identify training needs and top priority through national survey and dialogue workshop,
- Step 4: HCD strategies and Organisations' resources to support capacity building as well as the roles & responsibilities,
- Step 5: Implementation framework to support and manage the capacity development process,
- Step 6: Monitoring and evaluation framework for providing feedback to the capacity development process,

## Proposed National Framework for HR Capacity Development

### Review service quality policy and the national enabling environment to identify needs:

The National Water Policy and the Environmental Sanitation Policy of Ghana support human capacity development for the water resources management, urban water supply and community water and environmental sanitation. The sector Ministry; Ministry for Sanitation and Water Resources has to identify human capacity needs, chart a course to address these gaps and allocate the necessary budget to support human capacity development in the sector.

### Identify organisational strategy and goals to be achieved to improve service quality:

The sector Organisations, Ministries, Agencies and Departments are tasked to build capacity for service delivery. They have various forms of human capacity development strategies and service delivery goals. The current service levels and access to services show there is the need for capacity building at all the three levels. The capacity development of employees needs to be complemented with organisational or institutional capacity development. When employees acquire new skills, there is the need to change job descriptions to allow the utilisation of new skills and knowledge to improve service delivery.

### Identify training needs and top priority through national survey and dialogue workshop

Section 4 of this report provides the training needs and the top priority areas for capacity building identified at the national dialogue workshop and the surveys. The training needs were identified from the following:

- individual training needs identified in the organisations survey;
- identified individual training needs at the national dialogue workshop; and
- training needs identified by the individual employees

Table 1 presents the skills gaps and the training needs identified by the key WASH sector organisations through the survey and national dialogue workshop. These training needs and training courses were validated at a national workshop.

**Table 1: Training needs of young professionals identified by the key sector organisations survey and national dialogue workshop**

| WASH Sub-sectors       | Training Needs identified in the sector national organisations' survey   | Training Needs identified at the national dialogue workshop  |
|------------------------|--|--|
| <b>Water Resources</b> | <ul style="list-style-type: none"> <li>• Hydrological investigations</li> <li>• IWRM and Sustainable water resources management</li> <li>• Operations and monitoring, planning and design of dams/water structures,</li> <li>• Report writing, Communication and decision support tools</li> <li>• Stream Gauging, Hydrometry and Hydrology</li> </ul> | <ul style="list-style-type: none"> <li>• Water Resources modelling and GIS application</li> <li>• Water quality Modelling, management and surveillance</li> <li>• Water law and policy</li> <li>• Advocacy and communication skills</li> <li>• Report Writing</li> </ul> |
| <b>Water Supply</b>    | <ul style="list-style-type: none"> <li>• Construction &amp; borehole drilling</li> <li>• Water resource management</li> <li>• Community mobilisation</li> <li>• Community development, Lobbying &amp; engagement skills</li> <li>• Business development in WASH</li> </ul>   | <ul style="list-style-type: none"> <li>• Practical laboratory and water quality analytical skills (analytical instrumentation)</li> <li>• Water loss management</li> <li>• Low cost groundwater treatment and drilling technology</li> <li>• GIS training</li> </ul>     |

|   |  |   |
|---|--|---|
|   | <ul style="list-style-type: none"> <li>• Managerial and leadership skills</li> <li>• Report writing</li> <li>• Electro-mechanical</li> </ul>   | <ul style="list-style-type: none"> <li>• Communication and project management skills,</li> <li>• Monitoring and evaluations</li> </ul>  |
| <b>Environmental Sanitation</b>         | <ul style="list-style-type: none"> <li>• Facility management, operational management skills</li> <li>• Behaviour change communication (BCC)</li> <li>• Waste-to-energy engineering skills, Landfill design, landfill capping</li> <li>• Monitoring &amp; Evaluation skills</li> <li>• Business development in WASH-certificate</li> <li>• Report writing, research and marketing</li> </ul>  | <ul style="list-style-type: none"> <li>• Wastes treatment technologies and innovation</li> <li>• Social and Psychology of wastes management, and BCC</li> <li>• Waste value chain and business entrepreneurship</li> <li>• Analytical and research skills</li> <li>• Customer service</li> </ul>  |
| <b>Environmental Health and Hygiene</b> | <ul style="list-style-type: none"> <li>• Rural and urban sanitation technologies</li> <li>• Community mobilisation and development, Lobbying &amp; engagement skill</li> <li>• Monitoring and evaluation skills</li> <li>• Business development in WASH</li> <li>• Report writing skills</li> <li>• Infrastructure planning</li> <li>• Environmental/hygiene</li> <li>• Environmental laws &amp; policies</li> <li>• Health and safety management</li> </ul> | <ul style="list-style-type: none"> <li>• Construction technology of sanitation facilities</li> <li>• Occupational health and safety</li> <li>• Behavioural change communication in WASH</li> <li>• Monitoring and evaluation of WASH Interventions</li> <li>• Entrepreneurship in WASH</li> </ul> |

### ***Training of technicians and artisans with non-tertiary certificates***

Training Courses identified for non-tertiary technician include:

- Practical water quality laboratory skills
- Construction of WASH facilities
- Borehole drilling and construction
- Behaviour change, Communications skills, Community Participation and entry skills,
- Field visits Report writing, Data analysis and management,
- GIS training, ICT skills in specialized software
- Equipment handling, Data collection, Health and Safety
- Project Management, monitoring and evaluation

### **Validation of the national framework for capacity building**

The participants at the validation workshop reflected on the study findings and results of the national dialogue workshop and agreed that the following training courses and HCD strategies are critical to build capacity for the WASH sector.

#### ***Water resources***

- Short-term training needs for young graduates should include Water Resources modelling, GIS and remote sensing, water quality assessment and modelling and principles of integrated water resources management. A critical long-term training programme for young graduates should focus on IWRM and climate change.
- Critical short-term training courses for technicians with non-tertiary certificates should include stream gauging and hygrometry, water quality assessment, monitoring and analyses, and rainwater harvesting techniques.



- Government ministries, agencies and departments should provide funding for human capacity development through budgetary allocations, internally generated funds, dedicated training funds and donor funding.
- Training institutions should attract funding from industry, lead in curriculum development with inputs from industry, constant interaction with industry and bridge the gap between academia and industry.

#### ***Water supply***

- Short-term training courses for young graduates include low-cost groundwater treatment and drilling technology, water loss detection and management; and innovations in water supply. A post-graduate programme in operation and maintenance in water supply systems was also recommended.
- For short-term non-tertiary technician training certificates, courses in sustainability of handpumps, water safety and management and financial management were recommended, while M&E, water treatment and record-keeping were recommended for long-term training.
- In terms of funding, training plans and budgeting, donor support and government allocations were suggested, while training institutions are expected to design programmes that meets the needs of users/employers to attract funding.

#### ***Environmental sanitation***

- Top priority training needs for young graduates should be on behaviour change communication, business development in WASH, waste value chain and entrepreneurship, waste treatment and innovations. A critical long-term course should involve facility and operational management skills, waste-to-energy engineering, landfill design and capping.
- Training for technicians with non-tertiary certificates should include customer service, community mobilization and engagement skills, equipment handling, data collection, health and safety management skills. A prescribed long-term course for technicians could focus on sanitation facility construction.
- Training could be funded by Government ministries, Agencies and Departments through pooled funds and a sanitation fund.

#### ***Environmental health and hygiene***

- Young professionals should be trained in environmental laws and policies; behaviour change communication in WASH; and entrepreneurial skills in WASH as short-term courses. A long-term course may focus on sanitation infrastructure planning.
- Non-tertiary technicians must be trained in rural and urban sanitation technologies; business development in WASH; and environmental laws and policies. A long-term course may focus on construction technology of sanitation facilities.
- Government should provide funding through budget allocations and specialized projects; training institutions must attract funding through proposal development, marketing, partnerships and other innovative fundraising strategies.

### **Developing three master level training courses for young professionals**

The three master level training courses identified at the national validated workshop, *for the young professionals with Bachelor degrees*, will be developed, implemented and the training impact evaluated. *These training courses will be run by the Universities who have the capacity for WASH programmes. It is proposed that to make the programme attractive and institutionalised the trainees may take additional courses to be awarded Postgraduate Diploma Certificates by the respective universities. This will make the programmes attractive to WASH sector employees and for further education. There will also be tailor-made training and re-training programmes as well as capacity development workshops to be delivered through the problem-based learning approach. The training programmes will include uptake of research outcomes and the implementation of new skills to ensure service delivery progress in the WASH sector.*

### **Developing three technician level training courses for technicians without tertiary certificates**

The three training courses identified at the national validated workshop will be developed, implemented and the training impact evaluated. *The technician level training courses will be run for technicians and artisans with non-tertiary certificates. The National Board for Professional and Technician Examinations (NABPTEX) will provide the certification of the training courses. NABPTEX is a National Body responsible for examination in Technical Universities and Polytechnics and the award of certificates, is prepared to provide accredited certificates for the training courses to be taken by the non-tertiary technicians. These courses will be later run as Higher National Diploma (HND) WASH Programme for Technicians interested to develop a career in the WASH sector. This National Board has the legal mandate to award of certificates for the Technical Universities and Polytechnics in Ghana. With the support of this board, the WASH programme to be developed can be institutionalised as a national WASH programme to train the critical mass of technicians for the WASH Sector.*

### **HCD strategies and organisations' resources for capacity building**

The summary of the strategies for the HCD in terms of the roles, responsibilities and resources of Government Ministries, Agencies, WASH Sector Organisations, individuals and Training Institutions are presented below:

**Government and ministries' role, responsibilities and resources for Human Resource Capacity Development include:**

- Government to develop policy framework for human capacity development and implementation to guide all WASH sector organizations
- Government to provide adequate funding for the training of WASH sector staff to deliver improved services

**Agencies and organisations' role, responsibilities and resources for Human Resource Capacity Development include:**

- Define a clear career development plan for the agency, identification of training needs and counterpart funding sources
- Undertake performance appraisal including training, incentives, bonuses and promotions, and the provision of guidelines and framework on employee appraisal
- Dedicated budget for capacity training of members of staff
- WASH sector organizations to provide training opportunities for employees

- Collaboration with relevant training institutions to identify and introduce relevant courses is necessary

**Training Institutions’** role, responsibilities and resources for Human Resource Capacity Development include:

- Training institutions should review and develop new curriculum and new programmes that are responsive to the needs of the WASH sector
- Training Institutions should offer continuous professional development to support training and retraining through the introduction of new courses, and online programmes etc.
- Training institutions should conduct tracer study to identify how their students perform in the job market

**Individual employees’** role, responsibilities and resources for Human Resource Capacity Development include:

- Employees in the WASH sector should be willing to take up new challenges to enable them to identify their skills gaps
- Participate in knowledge management & learning platform meetings for self-development

### **Implementation framework**

The implementation framework represents Step 5 of the capacity building framework. It involves preparing the implementation plan, undertaking the activities and managing the capacity development process, as well as the organisational or decision makers’ support, and inviting decision makers to attend opening sessions of training workshops and keeping them informed regularly.

#### ***Preparing the implementation plan***

- WASH sector organizations to prepare and implement their respective training plan with the guidance of the Central Government’s implementation framework;
- WASH sector to plan and implement training plans;
- Human Resources Management Departments should be strengthened

#### ***Undertaking the activities and managing the capacity development process***

- Organizations and training institutions should take the lead in development and execution of training courses. This could result in new skills, roles and responsibilities.
- Training institutions should commit to financing staff trainings through the mobilization of funds to support new capacity areas identified for training.

#### ***Organisational and decision makers’ support***

- To ensure support from organisations, there is the need to invite decision makers to attend opening sessions of training workshops/meeting/conferences, and keeping them informed regularly.
- Acquisition of new facilities and equipment by organisations to enable utilisation of the new skills acquired by employees.
- Payment for training:
  - ❖ Organizations should commit fund to training plans and paying for training.
  - ❖ Mobilization of funds to support relatively new capacity development areas. Both the institution and Government should budget and pay for the cost of training employees,

- ❖ Individuals should undertake self-funding courses if necessary for new skills, but there is the need for recognition for self-sponsored programme.
- Organizations should revise job descriptions to give recognition to new skills and new knowledge acquired.
- New skills acquired by employees should be utilized. Agencies should set SMART targets in line with new skills and roles, organizations to develop work plans that will utilize the new skills acquired,
- Reassignment of job for staff with new skills and knowledge. Individuals should request for change in job descriptions and accept re-assignment.
- Individuals must be ready to share knowledge with others, and be willing to take up new challenges and identify new areas where knowledge can be applied,

### **Monitoring and Evaluation Framework**

Monitoring and Evaluation (M&E) framework is the final step of the capacity building framework. The M&E of the implementation of the HCD programme seeks to track progress in achieving HCD objectives and learning outcomes, to provide feedback on the impact of the training and the use of the skills, knowledge and competence acquired during the training. The M&E framework to track the progress of the HCD will include to:

- Set up sector HR M&E information system and database to be managed by the training institution, to track progress and impact of the training programme.
- Establish sector coordinating platform and a national M&E focal person at the Ministry of Sanitation and Water Resources (MSWR). This is to harmonise data on HR capacity for the sector by sub-sector and to ensure that data is readily available for skills gaps analysis and analysis of shortages.
- Appoint M& E focal persons at the Ministry and the training institution to undertake data collection to ensure more effective data collection from all training institutions and employers.
- establish employer and trainee surveys to provide data for the M&E on improve skills and competence, and the use of skills and knowledge

### **Monitoring and Evaluation Indicators**

The report presents the summary M&E framework including the objectives, outcomes and outputs of the HCD. The objective verifiable indicators and the means of verification are provided for the HCD. Data collection and measurement for the M&E will be done using the following indicators:

- **Output indicators:**  
These include awareness of the training programmes, number of trainings held, number of trainees and number of accredited courses.
- **Key outcomes and impacts Indicators**
  - Level of Knowledge, Attitude and practices (KAPs) gained
  - Utilisation of skills and knowledge by trainees
  - Application of new knowledge, skills and competencies
  - Improved skilled and capability of trainees
  - Waste-to-value added products and innovative services
  - Improved service delivery & Reduced Open Defaecation

## Training institutions

- Water and sanitation engineering programmes at diploma level in the country are inadequate, and therefore compel employees to take on people with entirely different backgrounds to work in the sector. For example, the urban water and MMDAs need staff with BSc Sanitary Engineering degree but these courses are not run at the moment. There is the need to introduce for technical programme in water and environmental sanitation engineering to train the critical mass of technicians for the WASH sector.
- The National Board for Professional and Technician Examinations (NABPTEX) is prepared to run this Higher National Diploma programme to train the critical mass of technicians for the WASH sector. The implementation of the three courses with NABPTEX under this project will provide the opportunity to start the HND programme.
- The Regional Water and Environmental Sanitation Centre (RWESCK) of KNUST is building capacity at the MSC/PhD levels to support WASH sector capacity building.
- Training institutions have the resources (infrastructural and human resources) to increase the number students. The ability of training institutions to adequately train personnel for the sector does depend on not only the resources for training but also institutions' laboratory and computer related facilities, which are not adequate despite increasing population.
- Funding for students may be a challenge to attract more career seekers despite the increasing population and demand for tertiary education.

### 1.0 INTRODUCTION

#### 1.1 Background of the Project

The Human Capacity Development component of the ACE 2 project is supporting the implementation of the African Water Ministers' declaration urging AUC and NEPAD Centres of Excellence to develop a "Human Capacity Development Programme for junior professional and technician level capacity challenges in the water sector" at national level in the CoE countries. The Human Capacity Development component of the ACE 2 project activities concern the establishment and implementation of the Human Capacity Development Programme at national level in all the NEPAD CoE countries.

EU/JRC and UNESCO are coordinating the implementation of the activities through implementation partnership agreements with the NEPAD CoE. In the framework of this second phase of NEPAD Centres of Excellence on Water with the aim of supporting the establishment of Human Capacity Development Programme in the water sector in Africa, the NEPAD African Network of Centres of Excellence (CoE) in Water Sciences and Technology are undertaking national studies on Water Sector Human Capacity Development in West Africa. The Centres involved in the study are University of Cheikh Anta Diop (UCAD), Kwame Nkrumah University of Science and Technology (KNUST), University of Benin, National Water Resource Institute, Kaduna, and ZIE (Burkina Faso). The University Cheikh Anta Diop (UCAD) of Dakar, Senegal is coordinating the preparation of the Human Capacity Development Programme at national level in four countries of West Africa region hosting the CoE. In each country, the programme is being prepared in close consultation with all key water-related stakeholders. The Centre(s) of Excellence in the country in partnership with national IHP committee will be in charge of coordinating the preparation of the programme.

#### 1.2 Objectives, activities and deliverables

The overarching aim of the study is to establish a national Human Capacity Development Programme addressing junior professional and technician level capacity challenges in NEPAD CoE Countries from West Africa.

According to the Terms of Reference the deliverables are:

- To undertake a national study to develop National Framework on Human Capacity Development in Ghana, identifying the needs and defining priorities with national government through a multi-stakeholder participative approach,
- To define implementation framework for the human capacity development,
- Provide monitoring and evaluation (M&E) framework,

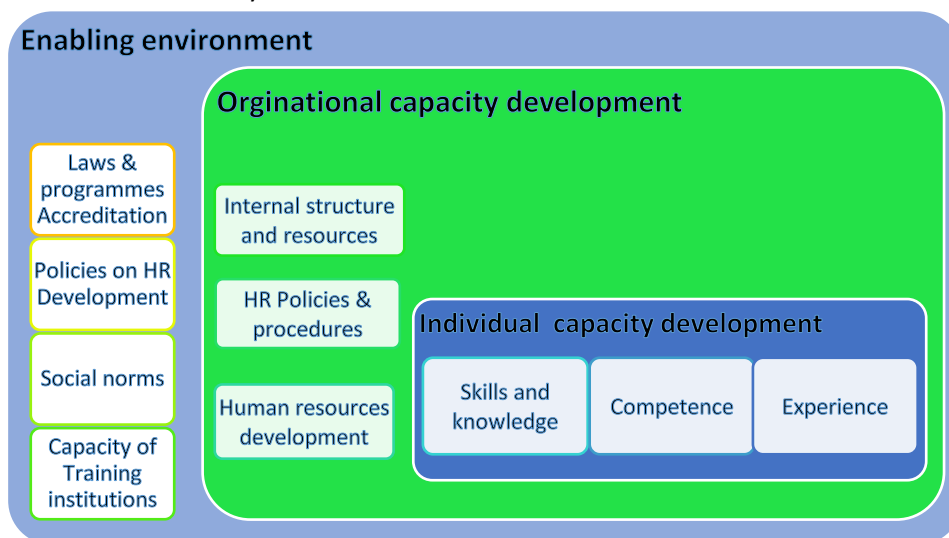
After national validation and adopting of the Human Capacity Development Framework for junior professional and technician, if funds are made available Ghana will initiate the implementation of the human capacity framework as a pilot by carrying out the following activities:

- Disseminate the Human Capacity Development Framework for junior professional and technician, to stakeholders, development partners and training institutions at national level (training of trainers at national level);
- Design new courses (2.5 months trimester programme) addressing junior professional and technician level capacity for top 3 priorities established in the framework;
- Implement the new courses for junior professionals and technicians (including the establishment of GIS and water quality analysis laboratories);
- Undertake personnel and students’ regional exchanges to improve regional networking and collaboration.

### 1.3 Review of Capacity Building Frameworks for human capacity Development

Human capacity development is crucial to ensuring improvements in global water, sanitation, and hygiene (WASH) (Carefoot and Gibson, 1984; WHO, 1982). However, in a 2014 global assessment by the WHO, it was revealed that only one-third of countries had human resource capacity development strategies for WASH (WHO, 2014). The lack of capacity poses a huge constraint to improvements in the WASH sector. This is because without the right caliber of educated and skilled professionals in the sector, appropriate technical strategies cannot be developed, implemented and reviewed to cause the needed improvements at the local and national levels.

**Capacity development** is defined as a process where individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time (UNDP, 2009). Generally, capacity development consists of three fundamental elements: (i) creating an enabling environment with appropriate policy and legal frameworks; (ii) institutional development and organisational capacity; and (iii) human resources development and strengthening of managerial systems (UNDP, 2009; IICBA, 2005). These are all inter-related and have a huge influence on one another. UNESCO International Institute for Capacity Building in Africa (IICBA) (2005) indicates three capacity levels for capacity building (Figure 1). This capacity building framework provides guidance for this national study.



**Figure 1 Basic elements of capacity development (adapted from UNDP, 2009; IICBA)**

The enabling environment is the broad social system within which people and organizations function. It includes all the rules, laws, policies, power relations and social norms that govern civic engagement.

It is the enabling environment that sets the overall scope for capacity development. The institutional or organisational level refers to the internal structure, policies and procedures that determine an organization's effectiveness. It is here that the benefits of the enabling environment are put into action and a collection of individuals come together. The better resourced and aligned these elements are, the greater the potential for growing capacity.

At the individual level are the skills, knowledge, competence and experience that allow each person to perform. Some of these are acquired formally, through education and training, while others come informally, through doing and observing. Access to resources and experiences that can develop individual capacity are largely shaped by organizational and environmental factors, which in turn are influenced by the degree of capacity development in each individual.

Horton *et al.* (2003) proposed the following six steps capacity building framework for holistic capacity development (as cited in IICBA, 2005):

- Step 1. Monitor the external environment to identify needs and opportunities for organizational change;
- Step 2. Review the organization's strategy;
- Step 3. Identify capacity needs and plan for capacity development;
- Step 4. Negotiate external support;
- Step 5. Implement and manage the capacity development process; and
- Step 6. Monitor and evaluate the capacity development process.

### **1.3 Structure of the Report**

The report is structured into ten chapters:

Chapter 1 introduces the study and covers the background, study objectives and definition of human capacity development,

Chapter 2 provides review of national institutional context for the study,

Chapter 3 describes the methodology and analytical framework of the study,

Chapter 4 presents the findings of the organisational and employees surveys,

Chapter 5 presents an overview of national dialogue workshop of WASH sector stakeholders,

Chapter 6 outlines the national framework for Human Capacity Development in Ghana, identifying the roles, responsibilities, and resources of sector organisations and government,

Chapter 7 defines implementation framework for the human capacity development,

Chapter 8 outlines of the monitoring and evaluation (M&E) framework,

Chapter 9 provides the overview of training institutions and the courses offered,

Chapter 10 provides summary and key conclusions on the national study.



## 2.0 REVIEW OF INSTITUTIONAL CONTEXT AND HUMAN CAPACITY

### 2.1 Ghana WASH Institutional structure, functions and Context

Access to potable water and improved sanitation is a fundamental need and a human right. It is critical to achieving favourable health outcomes, which in turn enhance economic growth and sustain poverty reduction. Against this backdrop, the Government of Ghana has committed itself over the years to developing systems and structures that would improve access to WASH nationwide. In terms of institutional arrangements and policy formulation, Ghana’s WASH sector can be said to have gone through massive transformation over the years particularly since the early 1990s. The sector currently has various institutions responsible for policy formulation and planning, facilitation and regulation, and service delivery. The public sector agencies are involved in policy-making and planning, facilitation and regulation of service delivery.

For service delivery, the sector is organised into three categories of service: urban water, urban sanitation, and rural water supply and sanitation. Institutions tasked with improving access to sanitation are also responsible for hygiene education, but little is done in this regard.

The local service delivery actors are the service providers and the costumers. The institutional arrangements demonstrate a clear separation of service delivery functions from sector policy and implementation functions. The functions of these institutions with regards to implementation and promotion of the WASH services in Ghana are shown in Table 2.

**Table 2: Water and Sanitation Sector Organisations and their functions**

| Organisation   | Functions  |
|--|--|
| Ministry of Local Government and Rural Development (MLGRD) | <ul style="list-style-type: none"> <li>• Policy formulation for all local government and rural development activities i.e. Metropolitan, Municipal and District Assemblies (MMDAs).</li> </ul>   |
| Ministry of Health (MOH)                                   | <ul style="list-style-type: none"> <li>• Development and promotion of proactive policies to protect public health</li> <li>• Support and provide hygiene promotion education activities in health institutions and communities.</li> <li>• Contribute to regulation and standard-setting for environmental sanitation services and disease prevention and control.</li> </ul>  |
| Ministry of Sanitation and Water Resources                 | <ul style="list-style-type: none"> <li>• Policy formulation and co-ordination for the water, works and housing sub-sectors</li> <li>• Monitoring and evaluation of programmes related to provision of potable drinking water in urban and rural areas ie overseeing the activities of Water Resources Commission (WRC), Ghana Water Company Limited (GWCL) and the Community Water and Sanitation Agency (CWSA).</li> <li>• Through the EHSD the MSWR coordinates all environmental sanitation tasks within Metropolitan, Municipal and District Assemblies</li> <li>• Has 10 Regional Offices for coordination of activities with MMDAs.</li> </ul> |
| Local Government Secretariat                               | <ul style="list-style-type: none"> <li>• Promote the participation of local people in decision making</li> </ul>   |

|  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>• Assists MMDAs in enhancing sanitation service delivery through Waste Management Departments</li> </ul>   |
| Environmental Protection Agency (EPA)  | <ul style="list-style-type: none"> <li>• Regulatory agency for environmental quality.</li> <li>• Setting effluent standards and monitoring compliance.</li> <li>• Ministry of science and environment oversees EPA.</li> </ul>  |
| Metropolitan, Municipal and District Assemblies (MMDAs)                                | <ul style="list-style-type: none"> <li>• Have the legal mandate to provide and operate sanitation facilities and services in the rural and urban communities.</li> <li>• Have mandate for rural water supply</li> </ul>   |
| Water Resources Commission (WRC)   | <ul style="list-style-type: none"> <li>• Regulation and management of the sustainable utilization of water resources and to coordinate related policies</li> <li>• Granting of water rights and the allocation water resources among various competing users</li> <li>• Coordinates the activities of River Basin Offices at various locations in the country</li> </ul>  |
| River Basin Boards   | <ul style="list-style-type: none"> <li>• Represents the WRC in 5 different basins nationwide to enforce water use regulations, monitoring and water resources planning</li> </ul>   |
| Public Utilities Regulatory Commission (PURC)  | <ul style="list-style-type: none"> <li>• Regulates and oversees the provision of utility services in the country</li> <li>• Provision of guidelines for water tariffs</li> <li>• Monitoring and enforcement of standards of performance for provision of utility services</li> </ul>  |
| Ghana Water Company Limited (GWCL)   | <ul style="list-style-type: none"> <li>• Responsible for producing and distributing potable water to the urban population for domestic, public and industrial purposes.</li> <li>• GWCL is the asset holder (planning and development of water supply systems and oversees management and operation)</li> <li>• Undertake the operation and maintenance of the water supply systems.</li> </ul>   |
| Community Water and Sanitation Agency (CWSA)   | <ul style="list-style-type: none"> <li>• Facilitates design and construction of water and sanitation infrastructure in the rural and small towns through the District Water and Sanitation Team (DWST) of the MMDAs.</li> <li>• Hygiene education and promotion</li> <li>• Capacity building of communal water management committees, artisans and hygiene promoters</li> </ul>   |
| Waste Management Departments (WMD) and Environmental Health Departments (EHD) of MMDAs | <ul style="list-style-type: none"> <li>• Provide sanitation services at the Metropolitan, Municipal and District levels with private sector inputs</li> <li>• Hygiene education and promotion</li> </ul>  |
| Community Water and Sanitation boards and WATSAN Committees                            | <ul style="list-style-type: none"> <li>• Community-managed water boards and WATSAN Committees hire operators to manage piped systems and repair point source water supply systems</li> <li>• Set tariffs, maintain accounts and manage day-to-day operations of water points.</li> </ul>  |
| Private Sector Companies & NGOs  | <ul style="list-style-type: none"> <li>• Private consulting firms and contractors are involved in execution of water and sanitation construction projects</li> <li>• Private sector operators are involved in small towns' water supply, and some water point sources (informal independent service providers).</li> <li>• Private operators are involved in operation of sanitation facilities operation</li> <li>• NGOs are involved in provision of water and sanitation services in rural areas and urban poor communities</li> </ul> |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>• Provide technical assistance and capacity building to community management groups.</li> </ul> |
|--|--|

Source: Oduro-Kwarteng et. al., 2013

## 2.2 Policy framework for Human Capacity Development in Ghana

The National Water Policy supports the human resource capacity development for the water resources management, urban water supply and community water (MWRWH, 2007).

### *Water Resources Management*

1. Support the development of skills related to various water management functions at all levels,
2. Adequately empower and equip water management institutions and DAs with appropriate tools and sustainable resources to effectively undertake their functions,

### *Urban Water Supply*

1. Review and update operational guidelines on capacity building to ensure adequate capacities at all levels
2. Develop and strengthen human resources and institutional/operational capacities
3. Build Capacity to provide adequate data and appropriate technologies

### *Community Water*

1. Support private sector and tertiary institutions in training relevant water sector practitioners
2. Support provision of post-installation capacity building to facility and system managers
3. Promote technology and know-how transfer
4. Promote and support local manufacture of equipment

### **Environmental Sanitation Policy**

The National Environmental Sanitation Policy supports the human resource capacity development for the drainage, sanitation and waste management (MLGRD, 2010).

1. Develop capacity of the sector for the provision of environmental sanitation services;
2. Upgrade Schools of Hygiene to tertiary institutions for Hygiene and Environmental Sanitation
3. Appoint appropriately qualified staff to MMDAs including, sanitary engineers, environmental health technologists,
4. Provide logistics and appropriate working tools for management of environmental sanitation service

## 2.3 Review of National HR studies in the past

### **Skill gap analysis of ACE I NEPAD Study**

The critical skills in KNUST NEPAD ACE 1 study in 2013 were assessed based on two criteria: skill gaps and the skills required to fill the vacancies. The critical skills requiring training as identified from the survey are presented in Table 3. The skills gaps identified were: Sanitary engineering, Sediment/costal

engineering, Eco-toxicology, Environmental law, Water resources modelling (surface and sub-surface), Ecological assessment and modelling expert etc). Again, the newly graduates who acquire general training needed further training in specific skills and experience to be able to perform task assign to the jobs. Some skills (eg. mechanical, electrical, civil engineers, Hydro-geologist, Remote sensing and GIS specialist) exist in the country but the difficulty in getting them was due to the unattractive salary and conditions of service in the WASH sector.

**Table 3 skills gap Identified**

| No. | Critical Skills gap Identified                                   | Number required |
|-----|--|-----------------|
| 1   | Sanitary Engineers   | 40              |
| 2   | Dam Safety officers (with Civil, Structural, hydrology, geology) | 5               |
| 3   | Hydro-geologist  | 4               |
| 4   | Sediment/costal engineering specialist                           | *               |
| 5   | Remote sensing and GIS specialist                                | *               |
| 6   | Fish Genetic specialist  | *               |
| 7   | Macro Invertebrate specialist                                    | *               |
| 8   | Phycologist (algae) specialist                                   | *               |
| 9   | Cartographer   | *               |
| 10  | Agronomist   | *               |
| 11  | Water resources modelling (surface and sub-surface)              | *               |
| 12  | Eco-toxicology   | *               |
| 13  | Ecological assessment and modelling                              | *               |
| 14  | Water and sanitation engineering                                 | *               |
| 15  | Sustainable infrastructure management                            | *               |
| 16  | Water asset management and financial management                  | *               |
| 17  | Water treatment technology                                       | *               |
| 18  | Information, communication technology for water management       | *               |
| 19  | Integrated water resources management                            | *               |
| 20  | Policy and planning for water infrastructure                     | *               |
| 21  | Operations and utility management                                | *               |
| 22  | Operations and Plant maintenance                                 | *               |
| 23  | Environmental law  | *               |
| 24  | Climate change and development                                   | *               |
| 25  | Disaster and risk management                                     | *               |

*\* More are required and depend on vacancies available and number of organisations requiring them, Source: Field survey, 2017*

There were knowledge and skill gaps for newly employed graduates for design, operation and maintenance of water systems. The critical skill gaps that require more training to fill the gaps were Artisans/technicians for water services, Natural Resources Inspection Officers, Dam Safety Officers, water and sanitation engineers, sanitary engineers, Hydro-geologist among others. These skill gaps exist because the newly graduates needed further training and experience to be able to perform task assign to the jobs.

The urban water Ghana utility has training schools where those who graduated from basic and high schools are trained in the areas of pipe fitting, water production and treatment. The Ministry of Health trains professionals in general environmental health which incorporates sanitation in their curriculum in the various Schools of Hygiene. The environmental health professionals however perceive their training to involve more of abatement of nuisance and so the service delivery and designs of sanitation systems are not the focus of their training.

### **Findings from KNUST/IWA National Study on Skills gaps and shortages in WASH Sector**

The analysis of the HR capacity showed that there are knowledge and skill gaps for newly employed staff for design, operation and maintenance of water supply systems. The lack of Engineering Professionals in sanitation was due to the unattractive salary and benefits in the MMDAs. There were few engineers working on sanitation service delivery. Table 3 shows the vacancies at the time of the study.

**Table 4 Level of Shortage and Gaps from Survey in 2013**

| <b>Skill gaps and categories of job</b>   | <b>Shortage</b> |
|---|-----------------|
| Environmental Health Assistants           | 706             |
| Junior Staff required in urban water      | 224             |
| Environmental Health Officers             | 81              |
| Sanitation Engineers for urban sanitation | 40              |
| Technical/other technical in rural water  | 29              |

There were indications that shortages exist in engineering fields especially sanitary engineers since there was no specific training in environmental sanitation engineering. The Civil Engineers who are trained to take up jobs as sanitary engineers find the MMDAs unattractive.

## **3.0 STUDY METHODS AND ANALYTICAL FRAMEWORK**

### **3.1 HR Development Framework**

The framework provides the capacity building steps (IICBA, 2005). The framework for the National WASH's HR development is presented in Figure 2 and is outlined into 6 steps below:

- Step 1: Review service quality policy and the national enabling environment to identify needs,
- Step 2: Identify organisational strategy and goals to be achieved, or to improve performance and service quality,
- Step 3: Identify training and capacity needs, and top priority at the three levels: environment, organisation and individual. Training needs to be developed: skills, knowledge, and understanding,
- Step 4: Support and resources organisations offer for capacity building, including training institutions capacity for training and organisations' funding support for training,
- Step 5: Implementation plan for managing the capacity development process, developing and implementing training programmes and continuous professional development programme,

Step 6: Monitoring and evaluating plan for the capacity development process, identify indicators to measure achievements.

There is the need for individual and institutional strengthening (re-defining HR policy and restructuring sector's HR numbers and skill mix) and developing performance management systems, retention and incentives strategies.

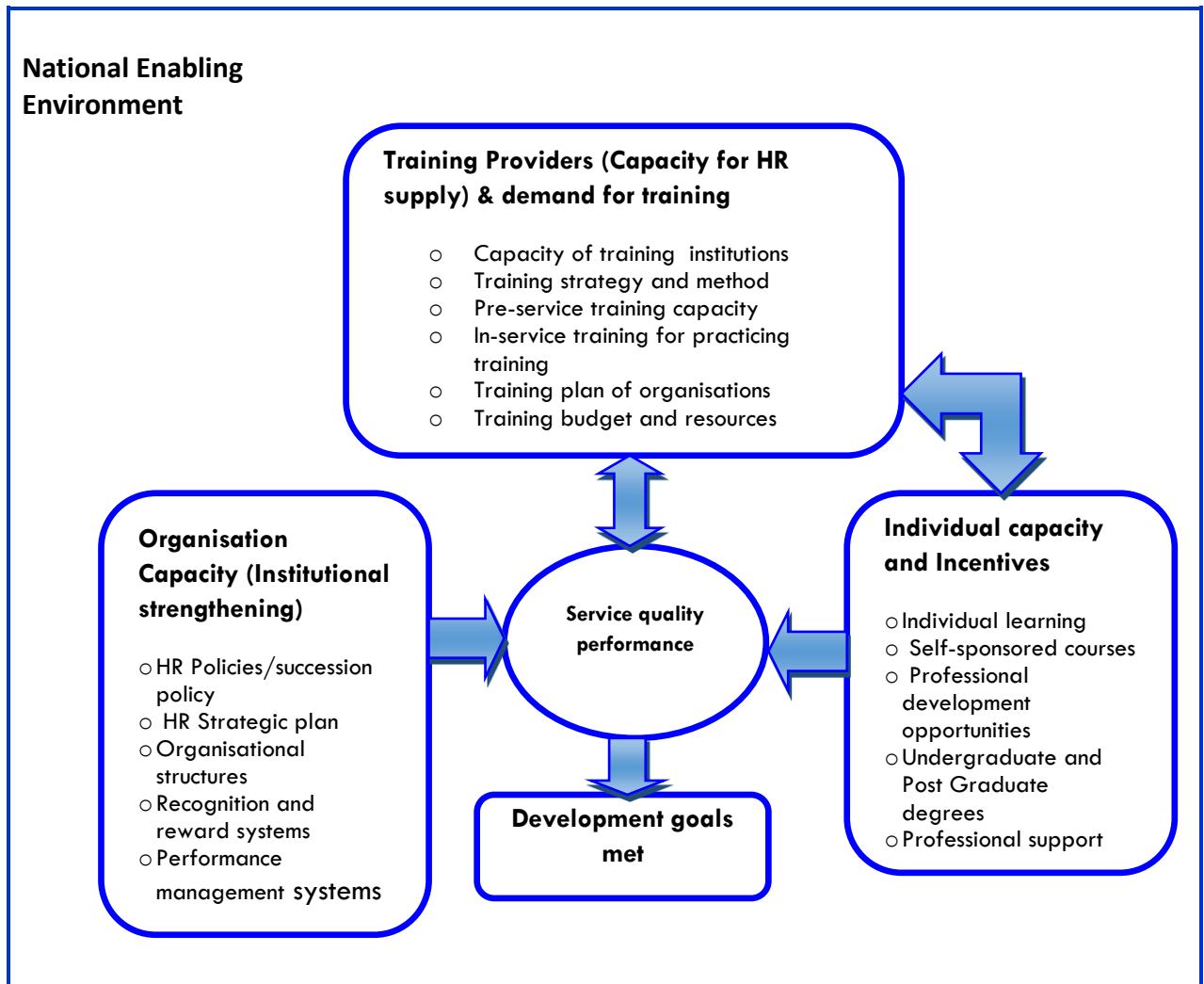


Figure 2: Capacity Development framework (Source: KNUST/IWA Study, 2013)

### 3.2 Organisational survey

Table 4 presents the list of organisations involved in the institutions survey. A total of 19 organisations including the key sector stakeholders were involved in the survey.

**Table 5: WASH Sector Organizations involved in the Organisational survey**

| <b>Water Supply</b>                                      | <b>Location &amp; coverage</b> | <b>Type of organisation</b>                       |
|--|--------------------------------|---|
| WaterAid Ghana   | National, Accra (HQ)           | NGO (International/Development Partner)           |
| SNV  | National, Accra                | NGO (International/Development Partner)           |
| Afram Plains Development Organisation                    | Tamale                         | Ghanaian/Local NGO                                |
| Integrated Action For Community Development -NGO         | Tamale                         | Ghanaian/Local NGO                                |
| Alternative initiative for Development (AID)             | Tamale                         | Ghanaian/Local NGO                                |
| Northern Development Society -NGO                        | Tamale                         | Ghanaian/Local NGO                                |
| Maple Consult  | Accra                          | Private Consulting Firm                           |
| Watersite  | Tamale                         | Private Consulting Firm                           |
| Community Water and Sanitation Agency                    | National                       |   |
| Ghana Water Company Ltd, -Accra                          | Accra East Region              | Public Institution or Agency for Service Delivery |
| <b>Waste Management</b>                                  |                                |   |
| J Stanley-Owusu &Co Limited                              | National, Accra (HQ)           | Private Company (Service Delivery)                |
| Sewerage Systems Ghana Ltd                               | Accra                          | Private Company (Service Delivery)                |
| KMA Waste Management Department                          | Kumasi                         | Public Institution or Agency for Service Delivery |
| AMA Waste Management Department                          | Accra                          | Public Institution or Agency for Service Delivery |
| Clean Team Ghana Limited                                 | Kumasi                         | Private Company (Service Delivery)                |
| Temale MA Environmental Health and Sanitation Department | Tamale                         | Public Institution or Agency for Service Delivery |
|  |                                |   |
| <b>Water Resources</b>                                   |                                |   |
| Water Resource Commission                                | National, Accra (HQ)           | Public Institution or Agency for Service Delivery |
| Hydrological Service Department                          | National, Accra (HQ)           | Public Institution or Agency for Service Delivery |
| Ghana Irrigation Development Authority                   | National, Accra (HQ)           | Public Institution or Agency for Service Delivery |

### 3.3 Employees Survey

A total of 316 WASH sector employees from 64 organisations in Ghana were involved in the employees' survey.

**Table 6: Organizations involved in the Employees' survey**

| Water and Sanitation NGOs Organisations  | Sanitation and Waste management organisations  |
|--|--|
| Resource Center Network (RCN) Ghana<br>Higher Life Outreach Mission<br>Global Peace Advocacy (GLOPA)<br>SNV Ghana<br>Divine Group International<br>UNICEF<br>OHLGS<br>GLOWDEP<br>Comoy Water Partnership Ghana<br>Global Affairs Canada<br>World Vision International Ghana<br>Endogenous Development Service Ghana<br>Galest Amasaman<br>Community Initiative foundation<br>Community Development Unit<br>Global Communities<br>Water and Sanitation for the Urban Poor<br>Family support life line<br>Alternative Initiative for Development<br>Afram Plains Development Organization<br>Integrated Action For Community Development<br>INTAGRAD<br>Northern Development Organisation<br>WATERAID GHANA<br>Quanum Health<br>SPRING/GHANA | Environmental Health and Sanitation Department<br>MMDA Bimbilla<br>RCC Eastern Region<br>Environmental Health and Sanitation Directorate<br>Gomoa East District Assembly<br>West Gonja District Assembly<br>Savelugu-nanton Municipal Assembly<br>Chereponi District Assembly<br>Ledzokuko-Krowor Municipal Assembly<br>Bole District Assembly<br>MSWR/EHSD<br>Nanumba North D/A<br>Savelugu Nanton Mun. Assembly<br>Offinso North District Assembly<br>Effutu Municipal Assembly<br>EHSU- KNMA<br>Ejisu-Juaben Municipal, Ass<br>Pru District Assembly<br>Kumasi Metropolitan Assembly<br>Kassena Nankana Municipal Assembly<br><br>Mampong Municipal Assembly<br>Attwa District Assembly<br>Jasikan District Assembly<br>Nawumba North D/A<br>Asema/EHSU<br>Environmental Health and Sanitation Dept., KMA<br>Waste Management Department, Kumasi<br>Tamale Central Sub-Metro Assembly |

| Water Supply and Water Resources Organisations   |
|--|
| Ghana Water Company<br>Community Water And Sanitation Agency<br>Maple Consult<br>Water Resources Commission<br>Hydrological Services Department<br>Ghana Irrigation Development Authority<br>CSIR - Water Research Institute<br>Water Site LTD |



### 3.4 National Stakeholders Dialogue Workshop

Twenty-eight (28) participants from the key WASH sector organisations and training institutions attended the workshop. Representatives from academia, government agencies and ministries, international organizations and NGO's were present. The expertise present was a good representation of the WASH sector. Broadly, participants had expertise in Human Resource Management, Monitoring and Evaluation, Integrated Water Resources Management, Environmental Sanitation, Environmental Health and Hygiene. Figure 1 presents a group photo of the participants. See Annex for the list of participants. Of the three UNESCO officials in Ghana who were invited, Miss Melody Boateng of UNESCO Ghana Office attended the workshop.



**Figure 3 Participants at the National Dialogue Workshop**

#### 3.4.1 Presentation on the Workshop Objectives

Professor Samuel Nii Odai chaired the workshop and made a speech highlighting on the important of the human capacity development task and the need for the workshop. He presented background activities of the KNUST CoE and the capacity development activities.

Prof. Sampson Oduro-Kwarteng presented the concept of the Human Capacity Development Consultative and Dialogue Workshop. He explained that the aim of the workshop was to identify the human resource capacity gap, training needs as well as the training required to enhance the development of the sector.

Findings from previous studies (International Water Association and NEPAD CoE Human Capacity Gaps) were highlighted; key points include:

- Lack of training and re-training for sector staff,
- Lack of qualified technical personnel at the MMDA's,
- Poor conditions of service for WASH sector staff,
- Unregulated retraining for staff among others.

The aim of the workshop was to dialogue and to build consensus on Human Capacity Development, Develop Implementation Framework and M&E plan and identify sub-sector training needs. Prior to the workshop, questionnaires were distributed to the sector to collate information on sector needs of which preliminary results were shared. Figure 4 is a photo of KNUST Presentation of key findings on capacity gaps and needs.



**Figure 4 KNUST Presentation of key findings on capacity gaps and needs**

### **3.4.2 Thematic and Dialogue Groups**

Four thematic groups were formed based on the specialisations in the Water and Sanitation Sector. These thematic areas are:

Thematic Area 1 - Water Resources

Thematic Area 2 - Water Supply

Thematic Area 3 - Environmental Sanitation

Thematic Area 4 - Environmental Health and Hygiene

The four thematic groups discussed and made presentations on the following frameworks and capacity development needs:

- Training Needs and Capacity building of Young Professionals with HND/BTech/ BSc/BA
- Training Needs and Capacity building of Technicians with Non-Tertiary Certificates (NVTI Certificates, etc),
- National Framework for Human Resource Capacity Development (HRCDD)
- Implementation Framework
- Monitoring and Evaluation (M&E) Plan

Figure 5 presents a photo of the thematic Groups discussions on the frameworks, capacity gaps and training needs.



**Figure 5 Thematic Groups discussions on the frameworks, capacity gaps and needs**

### **3.4.3 Sector Organisations' Presentations of HR Capacity**

There were 3 presentations on existing human resource capacity and challenges from the following three sector organizations:

**A. Water Resources Commission**

The Commission is mandated to regulate and manage the utilization of water resources and to coordinate relevant government policies in relation to them. Planning, Environmental Quality, Finance and Administration, Education and Information and legal and Monitoring.

**B. Hydrological Services Department**

The Hydrological Services Department (HSD) is the national establishment with responsibility for monitoring all rivers and surface water bodies in Ghana; providing engineering consultancy services in hydrology, water resources, drainage engineering, sewage engineering, coastal engineering and related fields. According to the HSD, there is an urgent need to support and augment the capacity the HSD to effectively carry out its core functions, and so capacity building of technical and professional staff is very crucial to the sustenance of drive to undertake HSD commitment.

**C. Waste Management Department of Accra Metropolitan Assembly**

WMD has the mandate to collect liquid and solid waste from the city for treatment and disposal, and monitoring and supervision of private sector involvement in waste management and sanitation. Training needs exist in WMD according to the presenter. There is no evaluation of performance contributing to the reasons why WMD is not performing well. There is the need for research and development specialist to provide the reasons why WMD is not

performing. Waste management involve transport and mechanical equipment issues, so more automotive engineers are needed. The entry requirement for staff are as follows;

- Technical staff - Diploma and Degree,
- Non-technical (administrative staff & finance) – Diploma and Degree,
- Non-tertiary technicians (tradesmen/artisans) - NVTI

### **Human capacity gaps and challenges**

These organisations affirmed that the human capacity gaps and challenges exist, including:

- Vacancies for engineers – Two (2), Technicians – Four (4),
- For the Waste Management Department, 10 technical positions vacancies need to be filled to enhance workflow; M&E - 2, Research and Development officer – 2, Automotive Engineers – 3, administrative staff & finance Officers – 3.
- Urgent need to augment capacity of technical and professional staff,
- Few females in technical positions, however females occupy several positions in administration and other non-technical areas,
- Lack of incentives to attract females,
- The vacancies exist because there was no approval to recruit.

## **3.5 National Stakeholders' Validation Workshop**

A national validation workshop was held on the 15th February 2018 to prioritise the human resource capacity gaps, training needs as well as the capacity building training required to enhance the development of the WASH sector. Twenty-nine (29) participants from the key WASH sector organisations and training institutions attended the workshop. There were also 23 Media Personnel at the event to observe and record the proceedings for public education and advocacy. The Chief Director of the Ministry of Sanitation and Water Resources (MSWR) chaired the validation workshop and co-chaired by Professor Geophrey Anornu, KNUST; Regional Director of the Community Water and Sanitation Agency (CWSA), Representative from the National Board for Professional and Technician Examinations (NABPTEX) and the Human Resources Director of WATERAID.



**Figure 6: Chairpersons at the National Validation Workshop**

The participants were grouped into following four thematic groups based on the organisations they work with.

Thematic Area 1: Water Resources Management and Development

Thematic Area 2: Water Supply (Urban and Community Water)

Thematic Area 3: Environmental Sanitation (Waste Management)

Thematic Area 4: Environmental Health and Hygiene

Each thematic group was tasked to discuss and validate the results on the following:

- Courses to be run for young professionals, short-term or long-term education and certification
- Courses to be run for technicians, short-term or long-term education and certification
- National Framework for Human Resource Capacity Development (HRCD)
- Implementation Framework
- Monitoring and Evaluation (M&E) Plan



NLLAP 71 platform was used to organize the workshop on WASH human capacity development in Ghana, validate results of a human capacity study and also reflect on the commitment of WASH sector organizations and development partners to support capacity building. NLLAP is a WASH sector multi stakeholder platform with the overall goal of improving sector learning and dialogue. It is hosted by the Ghana WASH Resource Centre Network (RCN).

## 4.0 NATIONAL STUDY ON HUMAN RESOURCE CAPACITY GAPS

### 4.1 Organisational survey results

Table 7 presents the skills gaps and the training needs of young professionals identified by the key sector organisations during the survey.

**Table 7 Training needs**

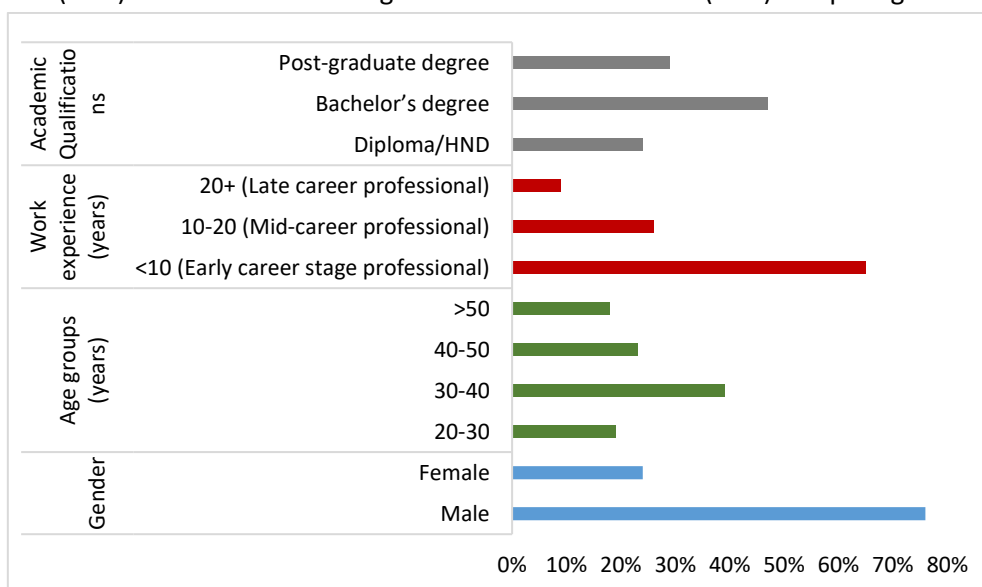
| Sub-sectors            | Training Needs of Junior Professionals   | Training Needs of Technicians   |
|------------------------|--|---|
| <b>Water Resources</b> | <ul style="list-style-type: none"><li>• Hydrological investigations</li><li>• IWRM and Sustainable water resources management,</li><li>• Operations and monitoring, planning and design of dams/water structures,</li><li>• Report writing, Communication and decision support tools</li></ul> | <ul style="list-style-type: none"><li>• Stream Gauging</li><li>• Hydrometry</li><li>• Hydrology</li></ul> |



|   |  |  |
|---|--|--|
|   | <ul style="list-style-type: none"> <li>• Management of ecosystem and chemistry,</li> <li>• Climate change and land use</li> <li>• Economics of adaptation,</li> <li>• Development studies,</li> <li>• Environmental science,</li> <li>• Water laws and regulations, monitoring of water Resources,</li> <li>• Coastal Engineering,</li> <li>• Water Resource Engineering,</li> <li>• Environmental Resource management</li> <li>• Water Management,</li> <li>• Agro-Economics/Agro Business,</li> </ul>  |  |
| <b>Water Supply</b>                     | <ul style="list-style-type: none"> <li>• Community mobilisation</li> <li>• Community development, Lobbying &amp; engagement skill</li> <li>• Business development in WASH</li> <li>• Managerial and leadership skills</li> <li>• Report writing</li> <li>• Electro-mechanical</li> <li>• Water resource management</li> <li>• Construction &amp; borehole drilling certificate,</li> <li>• Urban and rural sanitation,</li> <li>• Infrastructure planning and Policy analysis</li> <li>• Environmental/hygiene certificates</li> <li>• Site investigates works, examining terrains</li> </ul>            | <ul style="list-style-type: none"> <li>• Community mobilisation</li> <li>• Report writing</li> </ul>   |
| <b>Environmental Sanitation</b>         | <ul style="list-style-type: none"> <li>• Monitoring &amp; Evaluation skills</li> <li>• Business development in WASH</li> <li>• Facility management, operational management skills</li> <li>• Behaviour change</li> <li>• Report writing, research and marketing</li> <li>• Landfill design, landfill capping, waste-to-energy engineering skills</li> <li>• Marketing skills</li> <li>• Statistics, data collection &amp; data management skills,</li> <li>• Auto engineering</li> <li>• Environmental laws &amp; policies</li> <li>• Health and safety management</li> <li>• Policy analysis</li> </ul> | <ul style="list-style-type: none"> <li>• Facility management, operational management skills</li> <li>• Report writing, research and marketing</li> </ul>     |
| <b>Environmental Health and Hygiene</b> | <ul style="list-style-type: none"> <li>• Community mobilisation and development, Lobbying &amp; engagement skill</li> <li>• M&amp;E skills</li> <li>• Report writing skills</li> <li>• Rural and urban sanitation</li> <li>• Infrastructure planning</li> <li>• Environmental/hygiene</li> <li>• Environmental laws &amp; policies</li> <li>• Health and safety management</li> <li>• business development in WASH-certificate</li> </ul>  | <ul style="list-style-type: none"> <li>• Community mobilisation and development, Lobbying &amp; engagement skill</li> <li>• Report writing skills</li> </ul> |

## 4.2 Employees' Survey Results

A total of 316 WASH sector employees in Ghana were involved in the study and their characteristics are presented in figure 7. Out of this, about three-quarters (76%) were males and mostly between the active working ages of 30 and 40 years. Close to two-thirds (65%) were early career stage professionals having less than 10 years working experience. In terms of academic qualification, about half of respondents (47%) had at least a first degree while about one-third (29%) had post-graduate degrees.



**Figure 7: Characteristics of study respondents**

Respondents were dominated (34%) by those working for public institutions providing water or sanitation service (Table 8). About a third (31%) of respondents worked for institutions involved in rural water and sanitation services while a tenth (10%) worked for those involved in water resources management (Table 9).

**Table 8: Classification of respondents' organisations in the WASH subsector (N = 316)**

| Sub-sector                 | Frequency | Percentage |
|----------------------------|-----------|------------|
| Public Service Provider    | 100       | 34%        |
| Public Agency or Regulator | 91        | 31%        |
| NGO                        | 61        | 21%        |
| Private Service Provider   | 24        | 8%         |
| Consulting Firm            | 17        | 6%         |
| Private Contractor         | 1         | 0.3%       |
| Missing data               | 22        |            |

**Table 9: Classification of respondents' organizations according to WASH activity**

| WASH Activity              | Frequency | Percentage |
|----------------------------|-----------|------------|
| Rural water and sanitation | 150       | 31%        |

|  |     |     |
|--|-----|-----|
| Rural and urban environmental health and hygiene | 118 | 24% |
| Urban Environmental Sanitation                   | 109 | 22% |
| Urban water supply                               | 59  | 12% |
| Water resources management                       | 49  | 10% |

### Training of WASH Sector employees

Table 10 presents the post-employment training of WASH sector employees. Four out of every 5 employees (81%) have received on-the-job training since appointment. More than half (64%) of employees have undertaken related short-courses since being employed in the sector. For about two-thirds (64%) of employees who have undertaken short-courses, this has been a motivating factor not to leave their job. Employees are mostly (55%) sponsored by external support agencies, typically development partners to undertake short-courses related to their jobs. Close to 1 out of every 3 (32%) employees who have undertaken short-courses personally financed the cost of the short courses.

**Table 10: Post-employment training of WASH sector employees**

| Parameter                     | Variables  | Frequency | Percentage |
|-------------------------------|--|-----------|------------|
| Received on-the-job training  | Yes  | 239       | 81%        |
|                               | No   | 56        | 19%        |
|                               | Missing data   | 21        |            |
| Taken related short-courses   | Yes  | 192       | 64%        |
|                               | No   | 108       | 36%        |
|                               | Missing data   | 16        |            |
| Motivation from short courses | Yes  | 112       | 64%        |
|                               | No   | 63        | 36%        |
|                               | Missing data   | 13        |            |
| Financing for short-courses   | Self-financing only                                  | 39        | 22%        |
|                               | External support only                                | 61        | 34%        |
|                               | Employer only  | 60        | 33%        |
|                               | Employer & External support                          | 11        | 6%         |
|                               | Self & other sponsorship (employer/external support) | 10        | 6%         |
|                               | Missing data   | 11        |            |

Table 10 shows a comparison of organization type and sources of funding for short-courses. Private companies in the WASH have no external support for training their employees in short-courses. Most employees in private firms are either supported by their employers to undertake short courses or personally provide funds for the training courses. Overall, close to a third (28%) of all employees who have been supported by their employers to undertake short-courses work in private institutions. This is similar to employees of Non-Governmental Organizations in the WASH sector.



Conversely, the public sector enjoys enormous support from external agencies to undertake short courses. Almost all employees (97%) supported by external agencies were from public institutions.

**Table 11 Comparison of organization type and sources of funding for short-courses**

| Type of organization       | Sources of funding for short-courses |                       |               |                                |                               | Total     |
|----------------------------|--------------------------------------|-----------------------|---------------|--------------------------------|-------------------------------|-----------|
|                            | Self-financing                       | External support only | Employer only | Self-financing & other support | Employer and external support |           |
| Public Agency or Regulator | 7 (18%)                              | 40 (66%)              | 12 (20%)      | 4 (40%)                        | 8 (73%)                       | <b>71</b> |
| Private Consulting Firm    | 1 (3%)                               | 0                     | 9 (15%)       | 1 (10%)                        | 0                             | <b>11</b> |
| NGO                        | 7 (18%)                              | 2 (3%)                | 13 (22%)      | 1 (10%)                        | 0                             | <b>23</b> |
| Public Service Provider    | 15 (38%)                             | 19 (31%)              | 18 (30%)      | 4 (40%)                        | 3 (27%)                       | <b>59</b> |
| Private Service Provider   | 9 (23%)                              | 0                     | 8 (13%)       | 0                              | 0                             | <b>17</b> |
| <b>Total</b>               | <b>39</b>                            | <b>61</b>             | <b>60</b>     | <b>10</b>                      | <b>11</b>                     |           |

### Training Needs of WASH sector employees

Table 12 presents the Short Courses required to improve skills of respondents (WASH sector employees). The top training needs or short-courses outlined by study respondents were: Business development, Monitoring and Evaluation, Project Management and Facilitation skills and Report Writing. These top training needs required by WASH sector employees will be prioritised at the validation workshop (Table 11). Specifically, for those in the Public Agencies or Regulatory institutions, Project Management and Monitoring and Evaluation were the two topmost areas where training is required (Figure 4).

**Table 12: Short Courses required to improve skills of Respondents (WASH sector employees)**

| No. | Short courses   | TOTAL count |
|-----|---|-------------|
| 1   | Business Management, Human Resource Management, leadership and strategic management | 63          |
| 2   | Project Management  | 41          |
| 3   | Monitoring and Evaluation on WASH activities  | 39          |
| 4   | ICT and database management skills for WASH   | 36          |
| 5   | Facilitation and advocacy skills including policy, CLTS, capacity building skills   | 32          |
| 6   | Research methods, Report Writing, proposal  | 27          |
| 7   | Management of water and sanitation facilities                                       | 20          |
| 8   | Prosecution & environmental Health law  | 20          |
| 9   | Environmental Auditing and public/environmental Health management                   | 20          |
| 10  | Finance Management and mobilisation   | 15          |

|    |   |    |
|----|---|----|
| 11 | Waste water (faecal) treatment, designs         | 12 |
| 12 | Water quality and laboratory skills             | 12 |
| 13 | GIS for WASH mapping                            | 11 |
| 14 | Water resource management                       | 9  |
| 15 | Landfill management /solid waste                | 8  |
| 16 | Public health                                   | 7  |
| 17 | Waste management                                | 6  |
| 18 | Occupational Health and Safety                  | 5  |
| 19 | Environmental Auditing and needs assessment     | 5  |
| 20 | Toilet tech construction                        | 4  |
| 21 | Risk management & QA                            | 3  |
| 22 | BCC Skills and participatory methods, education | 2  |
| 23 | Gender in WASH                                  | 2  |
| 24 | Water supply system management                  | 2  |
| 25 | Water treatment                                 | 1  |
| 26 | Coastal engineering                             | 1  |

Table 13 presents the short courses required to improve the job skills of technicians and young graduates. The topmost short courses are Project Management, Community mobilisation, Business Management, Report writing and Data analysis.

**Table 13: Short Courses required to improve skills of WASH sector young professionals and technicians**

| No. | Short courses   | Total count |
|-----|---|-------------|
| 1   | Project Management  | 26          |
| 2   | Community mobilisation  | 26          |
| 3   | Business Management & HRM, leadership, strategic management       | 16          |
| 4   | Prosecution & environmental Health law                            | 15          |
| 5   | Environmental Auditing and public/environmental Health management | 15          |
| 6   | ICT and database management skills for WASH                       | 15          |
| 7   | Water quality and laboratory skills                               | 13          |
| 8   | management of water and sanitation facilities                     | 12          |
| 9   | Monitoring and Evaluation on WASH activities                      | 10          |
| 10  | Facilitation and advocacy skills, policy, CLTS, capacity building | 8           |
| 11  | water resource management   | 7           |
| 12  | Research methods, Report Writing, proposal                        | 7           |
| 13  | environmental Auditing and needs assessment                       | 7           |
| 14  | groundwater exploration   | 7           |
| 15  | report writing  | 7           |
| 16  | GIS for WASH mapping  | 5           |
| 17  | toilet tech construction  | 4           |
| 18  | Waste management  | 4           |
| 19  | water supply system management                                    | 4           |
| 20  | Waste water (faecal) treatment, designs                           | 3           |
| 21  | Water treatment   | 3           |
| 22  | Finance Management and mobilisation                               | 2           |

|    |   |   |
|----|---|---|
| 23 | Data management                                 | 2 |
| 24 | Proposal writing                                | 2 |
| 25 | Occupational Health and Safety                  | 1 |
| 26 | BCC Skills and participatory methods, education | 1 |
| 27 | Coastal engineering                             | 1 |

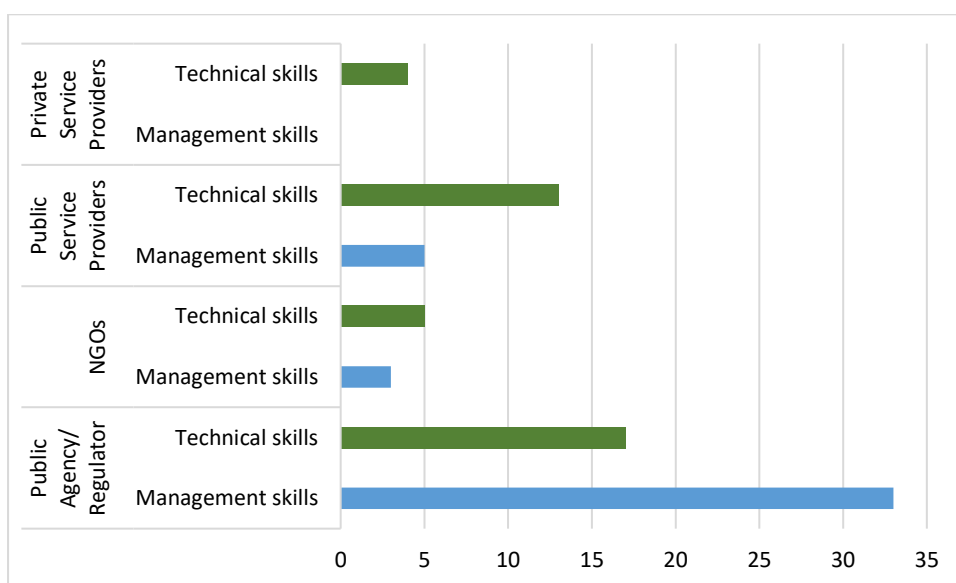
Table 14 presents the short courses required to improve job skills of Artisans (eg. Pipework Fitters, Boreholes Drillers, Latrine Artisans, Handpumps Mechanics, etc)

Table 14: Short Courses required to improve skills of WASH sector artisans and non-tertiary technicians

| No. | Short courses                                | Total count |
|-----|--|-------------|
| 1   | Toilet technologies construction             | 64          |
| 2   | Handpump mechanics                           | 26          |
| 3   | Pipework construction                        | 12          |
| 4   | Entrepreneur and business development        | 9           |
| 5   | Borehole drilling mechanics                  | 6           |
| 6   | Report writing                               | 2           |
| 7   | Wastewater (faecal) treatment                | 1           |
| 8   | Occupational Health and Safety               | 1           |
| 9   | Monitoring and Evaluation on WASH activities | 1           |

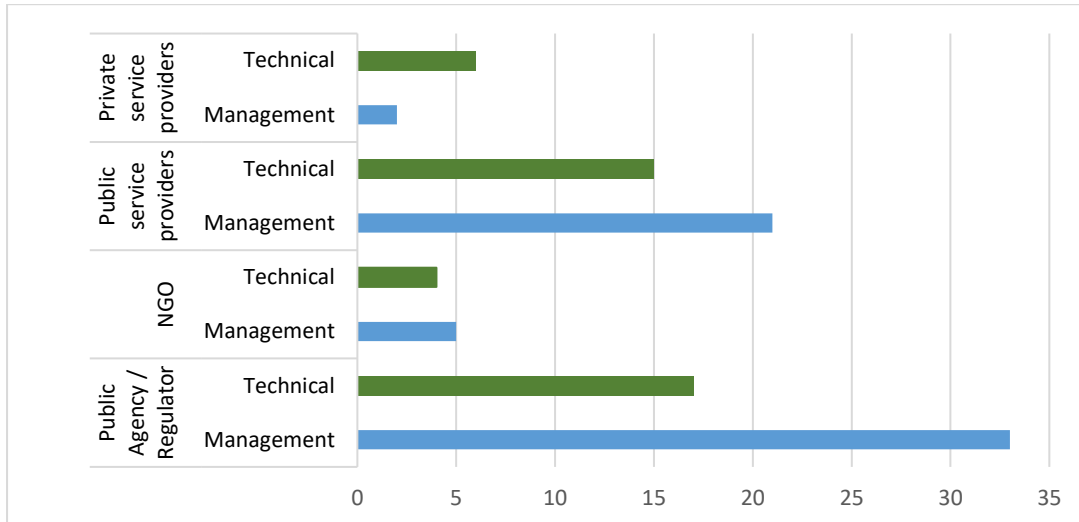
### Skills lacking in the WASH Sector

In terms of job-related skills lacking in the sector, the study found that, management skills were particularly lacking in the Public Agencies/Regulators while in all the other institutions, technical skills were identified as lacking among employees (Figure 8). Management skills, according to this study includes those skills related to ICT, Report writing, Project Management. Conversely, Technical Skills include those related to Waste Management, Data Management, and Supervision.

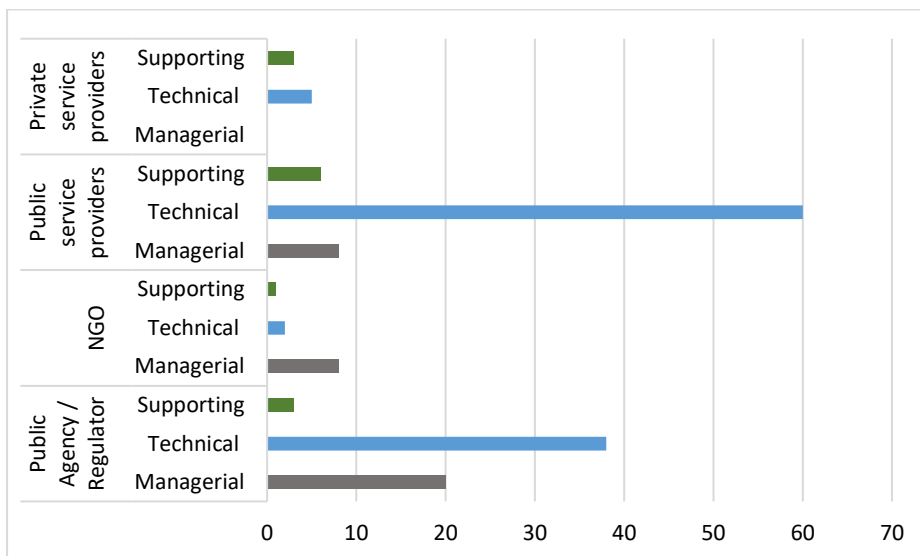


**Figure 8: Inadequate job-related skills among sector employees**

All institutions involved in the study, except private service providers lacked management skills. Lack of management skills was highest among employees in the Public Agencies/Regulator (Figure 9). However, most existing vacancies in the sector were technical positions, especially for Public Service Providers. Vacancies for Managerial positions were highest among Public Agencies/Regulators (Figure 10).



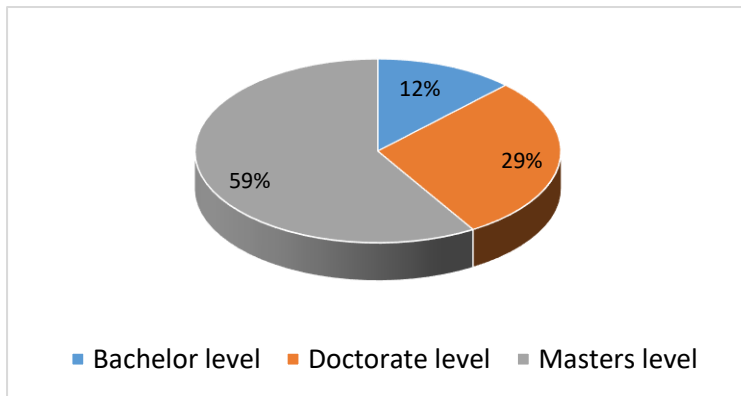
**Figure 9: Type of skills lacking in the WASH sector according to type of institution**



**Figure 10: Existing vacancies in the WASH sector according to type of institution**

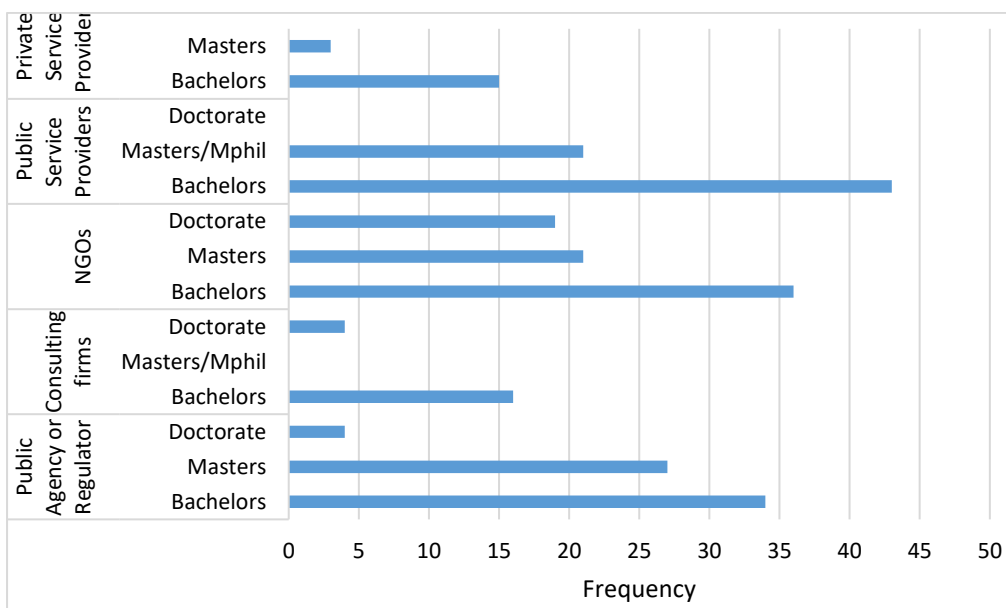
**Higher education capacity building**

From 276 employees in the sector who indicated their need for further educational training, more than half (59%) indicated their preference for training at the Masters level while about one-third preferred training at the Doctorate level (Figure 11).



**Figure 11: Training needs by qualifications (N = 276)**

Predominantly, employees across all institutions requested for training at the undergraduate level. This was however very high among public sector workers; both regulators and public service providers. Training at the doctorate level was the least requested among the employees but was mostly preferred by employees in the NGO sector.



**Figure 12: Higher education and Training needs (N = 276)**

### 4.3 Priority Capacity Needs of Young Professionals

A national stakeholders' dialogue workshop was organised to prioritise the human resource capacity gaps, training needs as well as the capacity building training required to enhance the HR development in the WASH sector. Table 15 presents the training needs identified at the workshop.

This section summarizes key issues raised by the four working groups at the national dialogue workshop held on the 12<sup>th</sup> September, 2017.

The training courses identified were validated at a national workshop. The Master Level training courses (2.5 months trimester courses) will be run for the young professionals with bachelor’s degrees by the Universities who have the capacity for WASH programmes. It is proposed that the trainees be given Postgraduate Diploma Certificates by the respective universities. This will make the programmes attractive to WASH sector employees and for further education. There will also be tailor-made training and re-training programmes as well as capacity development workshops to be delivered through the problem-based learning approach. The training programmes will include uptake of research outcomes and the implementation of new skills to ensure progress in the WASH sector.

**Table 15 Summary of Training Needs of Junior Professionals and Technicians**

| Sub-sectors                     | Training Needs of Junior Professionals  | Training Needs of Technicians  |
|---------------------------------|---|--|
| <b>Water Resources</b>          | <ul style="list-style-type: none"> <li>• Water Resources modelling and GIS application</li> <li>• Water quality Modelling, management and surveillance</li> <li>• Water law and policy</li> <li>• Policy development</li> <li>• Advocacy and communication skills</li> <li>• IWRM,</li> <li>• GIS and IT skills</li> <li>• Report Writing</li> </ul>              | <ul style="list-style-type: none"> <li>• Water Resources Measurements</li> <li>• Practical laboratory and water quality analytical skills (analytical instrumentation)</li> <li>• Behaviour change and community entry skills</li> <li>• Field visits and Report writing</li> <li>• Data collection, equipment handling</li> <li>• Data analysis and management, ICT skills in specialized software</li> </ul> |
| <b>Water Supply</b>             | <ul style="list-style-type: none"> <li>• Practical laboratory and water quality analytical skills (analytical instrumentation)</li> <li>• Water loss management</li> <li>• Low cost groundwater treatment and drilling technology</li> <li>• GIS training</li> <li>• Communication and project management skills</li> <li>• Monitoring and evaluations</li> </ul> | <ul style="list-style-type: none"> <li>• Practical laboratory and water quality analytical skills</li> <li>• Water Loss Measurements Technology</li> <li>• Low cost groundwater drilling technology</li> <li>• Gender Awareness</li> <li>• Community Participation</li> <li>• GIS training</li> <li>• Communications skills</li> <li>• Project Management</li> <li>• Monitoring and evaluation</li> </ul>      |
| <b>Environmental Sanitation</b> | <ul style="list-style-type: none"> <li>• Wastes treatment technologies and innovation</li> <li>• Social and Psychology of wastes management</li> <li>• Waste value chain and business entrepreneurship</li> <li>• Analytical and research skills</li> <li>• Ethics and professionalism</li> <li>• Customer service</li> </ul>                                     | <ul style="list-style-type: none"> <li>• Wastes treatment technologies and innovation</li> </ul>   |

|   |   |   |
|---|---|---|
| <b>Environmental Health and Hygiene</b> | <ul style="list-style-type: none"> <li>• Construction technology of sanitation facilities</li> <li>• Occupational health and safety</li> <li>• Behavioural change communication in WASH</li> <li>• Monitoring and evaluation of WASH Interventions</li> <li>• Entrepreneurship in WASH</li> </ul> | <ul style="list-style-type: none"> <li>• Construction of sanitation facilities</li> <li>• Occupational health and safety</li> </ul> |
|---|---|---|

The three top priority Courses for Human Capacity development in each of the WASH sub-sector are:

#### **WATER RESOURCES**

- GIS application and modelling in water resources
- Water quality management and surveillance
- Water law and policy: Water sector administration in terms of environmental issues, law concerning water resources and policy. GIS should be coupled with hydrological modelling.

#### **WATER SUPPLY**

- Analytical implementation: This means laboratory analysis skills or practical lab skills,
- Water loss detection and management: Unaccounted for water, non-revenue water and mismanagement,
- Low cost groundwater quality improvement technologies: example in drilling boreholes and managing the water quality in a low-cost way (using locally available material),

#### **ENVIRONMENTAL SANITATION**

- Training on technological innovations: engineering and technological innovations: The technological innovations need to look at training in various technologies, design, operations and maintenance of sanitation facilities and waste treatment plants.
- Social and Psychological, behavioural change and communication (mind things that you need to be able to change, the mind-sets of the people to change their behaviours),
- Business and Entrepreneurial (Engineering and Innovation): Private sector should be innovative and make profit and not just increase fees and levies to be able to make profit.

#### **ENVIRONMENTAL HEALTH**

- Construction technology of WASH facilities
- Occupational Health and Safety in WASH
- Behavioural Change and communication

### **4.4 Training and capacity needs of technicians and artisans with non-tertiary certificates**

Training Courses identified for non-tertiary technician were:

- Practical water quality laboratory skills
- Construction of WASH facilities
- Borehole drilling and construction

- Behaviour change, Communications skills, Community Participation, community entry skills, Gender Awareness
- Field visits Report writing
- GIS training
- Data collection, equipment handling, Health and Safety
- Data analysis and management, ICT skills in specialized software
- Project Management, monitoring and evaluation

The National Board for Professional and Technician Examinations (NAPTEX) is prepared to provide accredited certificate for the training courses undertaken by the non-tertiary technicians. These courses will be later run as HND WASH Programme for Technicians interested to develop a career in WASH. This National Board has the legal mandate to approve award of certificates for the Technical Universities and Polytechnics in Ghana. With the support of this board the WASH programme to be developed can be institutionalised as a national WASH programme to train the critical mass of technicians for the WASH Sector.

## 5.0 NATIONAL FRAMEWORK FOR HR CAPACITY DEVELOPMENT

### 5.1 Overview of Frameworks for Human Capacity Development

The national framework for HRCDD outlines the systematic approach to WASH sector capacity building and how to achieve improved service delivery goals. This framework provides the capacity building principles and approach to formulate, monitor and evaluate the capacity building activities. It will help to effectively plan, implement and evaluate the capacity building activities in a systematic way.

The framework provides the following capacity building steps (IICBA, 2005):

- Step 1: **Review service quality policy** and the national enabling environment to identify needs,
- Step 2: **Identify organisational strategy and goals** to be achieved, or to improve performance and service quality,
- Step 3: **Identify training needs and top priority** through national survey and dialogue workshop as well as the capacity needs at the three levels: environment, organisation and individual. What kind of capacity needs to be developed: skills, knowledge, understanding, attitude, leadership, management, standards, equipment use, etc.
- Step 4: **Organisations' resources and offer to support capacity building** as well as the roles, responsibilities and exit strategy, (paying course fees, paying cost of training workshops, etc)
- Step 5: **Implementation plan** and management of the capacity development process, organisational support or decision makers' support, inviting decision makers to attend opening sessions of training workshops/meeting/conferences, and keeping them informed regularly.
- Step 6: **Monitor and evaluate** the capacity development process, identify indicators to measure achievements,

The steps 1 to 4 are outlined in this section while steps 5 and 6 are presented in sections 6 and 7 of this report.



## 5.2 Proposed National Framework for HR Capacity Development

### **Step 1: Review service quality policy and the national enabling environment to identify needs**

The National Water Policy supports the human resource capacity development for the water resources management, urban water supply and community water (MWRWH, 2007). Section 2.2 of this report provides a review of the National Water Policy and the environmental sanitation policy. Both policies support the human resource capacity development for the water resources management, urban water supply and community water and environmental sanitation in Ghana.

### **Step 2: Identify organisational strategy and goals to be achieved, or to improve performance and service quality,**

The sector Organisations, Ministries, Agencies and Departments are tasked to build capacity for service delivery. They have various forms of human capacity development strategies and service delivery goals. The current service levels and access to services show there is the need for capacity building at all the three levels. The capacity development of the individuals alone is not effort without organisational or institutional capacity development. There is the need to change job descriptions to allow the utilisation of new knowledge to improve service delivery.

### **Step 3: Identify training needs and top priority through national survey and dialogue**

Section 4 provides the training needs and the top priority identified at the national dialogue workshop. The training needs were identified at three levels:

- Organisations' identified individual training needs
- Identified individual training needs at the national dialogue workshop
- Training needs identified by the individual employees

### **Step 4: Organisations' resources and offer to support capacity building as well as the roles, and responsibilities**

The summary of the roles, responsibilities and resources of Government Ministries, Agencies, WASH Sector Organisations, individuals and Training Institutions are presented below:

**Government and ministries' role, responsibilities and resources for Human Resource Capacity Development include:**

- Government to develop capacity policy framework to guide WASH sector organization. A clear policy governing capacity development in Water Supply should be defined
- Government to develop a general policy framework for human capacity development implementation to guide all WASH sector organizations

- Government to include WASH in curriculum for both basic schools and Colleges of Education
- Government to investment in building capacity for trainers in the WASH sector
- Government to provide adequate funding for the supply of WASH sector staff to deliver quality services to clients

**Agencies and organisations’** role, responsibilities and resources for Human Resource Capacity Development include:

- Defining a clear career development plan for the agency, identification of training needs and counterpart funding sources. This may require collaboration with other relevant sector institutions to identify courses and its subsequent roll-out, plus funding.
- Organizations should be equipped with resources to function adequately
- Performance appraisal which include training, incentives, bonuses and promotions, including the provision of guidelines and framework on employee appraisal
- Dedicated budget for capacity training of members of staff. Training needs, plan and counterpart funding should be identified and sourced respectively
- WASH sector organizations to provide training opportunities for employees
- Collaboration with relevant training institutions to identify and introduce relevant courses is necessary
- WASH sector organizations to place employees who have acquired new skills in the right job roles to enable them deliver. WASH organizations to provide appropriate tools for employees to work with

**Training Institutions’** role, responsibilities and resources for Human Resource Capacity Development include:

- Feedback from students and sector should be used to improve curriculum for continuous professional development to support training and retraining through the introduction of new courses, online programmes etc.
- Training Institutions in the WASH sector should review and develop new curriculum that are responsive to the needs of the nations
- Training institutions should conduct research to identify how their students perform in the market
- Training Institutions should be equipped with resources to function adequately

**Individual employees’** role, responsibilities and resources for Human Resource Capacity Development include:

- Individual employees in the WASH sector should be willing to take up new challenges to enable them identify their skills gaps,
- Participate in knowledge management & learning platform meetings for self-development

**Table 16 Summary of institutions/organisations roles and gaps**

| Institutions/Organisations/ | Roles and responsibilities | Gaps/Resources needed |
|-----------------------------|----------------------------|-----------------------|
|-----------------------------|----------------------------|-----------------------|

| <b>individual</b>   |   |  |
|---|---|--|
| <b>Government/Ministries:</b> <ul style="list-style-type: none"> <li>• MSWR, MLGRD, MESTI</li> <li>• MoBD, MoZIND, MoME</li> </ul>  | <ul style="list-style-type: none"> <li>• Policy direction</li> <li>• M &amp; E</li> <li>• Capacity building</li> <li>• Some form of regulation</li> </ul>   | <ul style="list-style-type: none"> <li>• Weak Inter-sectorial coordination and response</li> </ul>   |
| <b>Agencies</b> <ul style="list-style-type: none"> <li>• EPA, MMDAs, OHLGS</li> <li>• Public services</li> </ul> <b>Departments</b> <ul style="list-style-type: none"> <li>• Waste management units/department</li> <li>• PHD, Budget/rating, Planning/HR</li> <li>• WASH Sector Organisation:</li> </ul> | <ul style="list-style-type: none"> <li>• Provide funding</li> <li>• Training Opportunities</li> <li>• Scholarships/Sponsorships/</li> <li>• Technical advice</li> <li>• Data for decision making</li> </ul>   | <ul style="list-style-type: none"> <li>• Inter-sector coordination/response</li> <li>• PSC needs assessment(continuous)</li> <li>• Capacity building</li> <li>• Funding(consultancy units to raise funds)</li> </ul> |
| <ul style="list-style-type: none"> <li>• Development Partners – INGOs,</li> <li>• Private Sector,</li> <li>• Umbrella Organisations: ESPA, CONIWAS</li> <li>• Research Institution: TERSUS, (WATSAN Journalist Network)</li> </ul>  | <ul style="list-style-type: none"> <li>• Provide funding</li> <li>• Training Opportunities</li> <li>• Scholarships/Sponsorships/</li> <li>• Technical advice</li> <li>• Data for decision making</li> </ul>   | Limited funds to support WASH capacity building  |
| <b>Individual employees</b>   | <ul style="list-style-type: none"> <li>• Personal development plans</li> <li>• Savings culture</li> <li>• Participate in knowledge management &amp; learning platform meetings for self-development</li> </ul>  | Inadequate funds for self-funding of higher education  |
| <b>Training Institutions</b>  | <ul style="list-style-type: none"> <li>• Collaboration with public, private and non-state actors to fame their courses</li> <li>• Need to institute post training assurance programmes. (e,g investment in people)</li> <li>• Build technical / scientific skills to create innovations in MMDAs</li> <li>• Lobby for sponsorships / scholarships from relevant institutions</li> </ul> | Institutional limitations and financial resources to identify gaps and opportunities   |

## 6.0 IMPLEMENTATION FRAMEWORK HR CAPACITY DEVELOPMENT

### 6.1 Implementation Framework

The implementation framework involves preparing the implementation plan, undertaking the activities and managing the capacity development process, as well as the organisational or decision makers' support, and inviting decision makers to attend opening sessions of training workshops/meeting/conferences, and keeping them informed regularly.

#### Preparing the implementation plan

- WASH sector organization to prepare and implement training plan under the guide of the governments implementation framework,
- WASH sector to plan and implement training plans,
- Human Resources Management Departments should be strengthened

#### **Undertaking the activities and managing the capacity development process**

- Organizations and training institutions should take the lead in development and execution of training courses. This could result in new skills, roles and responsibilities.
- Training Institutions should commit to financing staff trainings through the mobilization of funds to support new capacity areas identified for training.

#### **Organisational and decision makers' support**

- To ensure support from organisations, there is the need to invite decision makers to attend opening sessions of training workshops/meeting/conferences, and keeping them informed regularly.
- Acquisition of new facilities and equipment to support roll-out of the new skills acquired.
- Payment for training:
  - ❖ Organizations should allocate funds for training plans and paying for training.
  - ❖ Mobilization of funds to support relatively new capacity areas. Both the institution and Government should budget and pay for the cost of training employees,
  - ❖ Individuals should undertake self-funding courses if necessary for new skills, but there is the need for recognition for self-sponsored programme
- Organizations should revise job descriptions to give recognitions to new skills and new knowledge acquired
- New skills developed by staff members should be utilised. Agencies should set SMART targets in line with new skills and roles, organizations to develop work plans that will utilize the new skills acquired
- Reassignment of job for staff with new skills and knowledge. Individuals should request for change in job descriptions and commit to reassignment
- Individuals to be ready to share knowledge with others, and be willing to take up new challenges and identify new (gray) areas where knowledge can be applied

**Table 17 Training Implementation**

| <b>Organisations</b>                            | <b>Roles and budget Support for implementation</b>  | <b>Time frame for the training</b>   | <b>Preparation of Training plan and delivery</b>  | <b>Utilisation of new skills and new knowledge acquired from training</b>  |
|---|---|--|---|--|
| Government Ministries, Agencies and Departments | <ul style="list-style-type: none"> <li>• Provide HR policy</li> <li>• Policy direction</li> <li>• M &amp; E</li> <li>• Capacity building</li> </ul> | <ul style="list-style-type: none"> <li>• 2.5 months trimester for 3 top courses</li> </ul> | <ul style="list-style-type: none"> <li>• Prepare and implement training plan</li> </ul> | <ul style="list-style-type: none"> <li>• Revise job descriptions to use new skills and new knowledge acquired</li> <li>• Reassign job for staff with new skills</li> </ul> |

|                           |   |  |   |   |
|---------------------------|---|--|---|---|
|                           | <ul style="list-style-type: none"> <li>• Provide budget/ funding for training employees</li> </ul>  |  |   |   |
| WASH Sector Organisations | <ul style="list-style-type: none"> <li>• Commit fund to training plans</li> <li>• Pay for training.</li> <li>• Recognition for self-sponsored programme.</li> </ul> | <ul style="list-style-type: none"> <li>• 2.5 months trimester for 3 top courses</li> </ul> | <ul style="list-style-type: none"> <li>• Prepare and implement training plan</li> </ul> | <ul style="list-style-type: none"> <li>• Revise Job Descriptions to use new skills and new knowledge acquired.</li> <li>• Reassign job for staff with new skills</li> </ul> |
| Training Institutions     |   |  | Prepare and implement new programmes  | <ul style="list-style-type: none"> <li>• Prepare training reports and course assessment and evaluation,</li> </ul>  |
| Individuals               | Undertake self-funding courses if necessary for new skills,   | 2.5 months trimester for 3 top courses   |   | <ul style="list-style-type: none"> <li>• Request for change in Job Descriptions</li> <li>• Use new skills</li> <li>• Commit to reassignment of jobs</li> </ul>              |

## 7.0 MONITORING AND EVALUATION FRAMEWORK

### 7.1. Monitoring and evaluation framework

Monitoring and Evaluation (M&E) framework for the implementation of the HRCD programme seeks to track progress in achieving HRCD objectives and learning outcomes to provide feedback on the impact of the training and the use of the skills, knowledge and competence acquired during the training. The M&E framework to track the progress of the HRCD will include:

- Set up Sector HR M&E information system and database to be managed by the training institution, to track progress and impact of the training programme.
- Appoint M& E focal persons at the Ministry and the training institution to undertake data collection to ensure more effective data collection from all training institutions and employers.
- Establish sector coordinating platform and a national M&E focal person at the Ministry of Sanitation and Water Resources (MSWR). This is to harmonise data on HR capacity for the sector by sub-sector and to ensure that data is readily available for skills gaps analysis and shortages analysis.
- Establish employer and trainee surveys to provide data for the M&E on improve skills and competence, and the use of skills and knowledge,

## 7.2 Monitoring and Evaluation Indicators

Data collection and measurement for the M&E will be done using the following indicators:

- Output indicators:
  - Awareness of the training programmes,
  - Number of trainings held,
  - Number of trainees,
  - Number of accredited courses
- Key outcomes and impacts Indicators:
  - Level of Knowledge, Attitude and practices (KAPs) gained
  - Utilisation of skills and knowledge by trainees
  - Application of new knowledge, skills and competencies
  - Improved skilled and capability of trainees
  - Waste to value added products and innovative services
  - Improved service delivery & Reduced Open Defaecation

Table 18 presents the summary M&E framework and shows the objectives, outcomes and outputs of the HRCD. The objective verifiable indicators and the means of verification are provided for the HRCD.

**Table 18 Summary M&E framework**

| <b>M&amp;E FRAMEWORK</b>   |  |   |
|--|--|---|
| <b>RESULTS</b>   | <b>OBJECTIVES VERIFIABLE INDICATORS</b>  | <b>MEANS OF VERIFICATION</b>  |
| <b>OBJECTIVES</b>  |  |   |
| Increase number of capacity building short term training and number of trainees of young professionals and technicians   | <ul style="list-style-type: none"> <li>• Number or percentage of trainees undergone trainings</li> <li>• Number or percentage of organisation providing participants for the training</li> </ul> | <ul style="list-style-type: none"> <li>• Training reports</li> <li>• Baseline, annual reports and progress report from training institutions</li> </ul> |
| Increase number of capacity building short term training and number of trainees of artisans and non-tertiary technicians | <ul style="list-style-type: none"> <li>• Number or percentage of trainees undergone trainings</li> <li>• Number or percentage of organisation providing participants for the training</li> </ul> | <ul style="list-style-type: none"> <li>• Training reports</li> <li>• Baseline, annual reports and progress report from training institutions</li> </ul> |
| Increase in the number of training institutions involved in the training   | Number of training institutions involved in the training   | Progress reports  |
| <b>OUTCOMES/IMPACT</b>   |  |   |
| Increase level of skills and knowledge of young professionals and technicians  | Utilisation of skills and knowledge by trainees and  | Survey on utilisation of skills and knowledge   |

|   |  |  |
|---|--|--|
| for WASH service delivery and facilities construction   | performance improvement at the workplace   |  |
| Increase level of skills and knowledge of artisans and non-tertiary technicians for WASH service delivery and facilities construction | Utilisation of skills and knowledge by trainees and performance improvement at the workplace     | <ul style="list-style-type: none"> <li>• Survey on utilisation of skills and knowledge</li> <li>• Progress reports on Facility and Service delivery performance</li> </ul> |
| Increase in the number of accredited certification by institutions and recognition of the certificates for further education          | Number of training institutions involved in the training giving out accredited certificates      | <p>Progress reports</p> <p>Sample certificate of the accredited training institutions</p>  |
| <b>OUTPUTS</b>  |  |  |
| Sensitisation and awareness of the training programmes in the WASH sector and in the media  | Number of organisations sponsoring employees to undergo the training, and number of news stories | <ul style="list-style-type: none"> <li>• Dissemination workshop reports</li> <li>• Training reports from training institutions</li> <li>• Media monitoring</li> </ul>      |
| Number of training courses run and number of trainees   | Number of training courses run and number of trainees  | Training reports from training institutions  |
| Certification by accredited institution and recognition of the certificate for further education to the next level                    | Evidence of accredited Certification   | Sample certificate of the accredited institutions  |

### Responsibility for the M&E and Reporting system

The key sector organisations will provide data to track the progress towards the HRCD programme and for reporting. The Ministry and selected training institution will be responsible for tracking the HRCD in the WASH sector. The M&E focal persons both Ministry and selected training institution will carry out data collection to track the following:

- Monitor number of trainings and trainees
- Monitor the use of the skills and knowledge acquired from the training,

## 8.0 TRAINING INSTITUTIONS PROGRAMME

This section gives an overview of the institutions' capacity (staff strength and infrastructure) to carry out their mission of training personnel for the sector.

## 8.1 Types of Training Institutions

### ***Formal Training***

A number of training institutions in the country currently produce graduates with the requisite qualifications and competencies for the WASH sector. The training institutions are categorised as follows:

- National universities providing programmes at diploma, degree and post graduate levels. The universities have the mandates to award certificates.
- The Technical Universities and Polytechnics provide training, where the National Board for Professional and Technician Examinations (NABPTEx) award accredited certificates for the training programmes. This board will support the national WASH programme to train the critical mass of technicians for the WASH Sector.
- Technical training institutes providing non-degree qualifications, competency based training, (eg training in National Vocational Training Institutes, NVTI) has not been strengthened to support water and sanitation sector development,
- Overseas courses which national level students regularly attend and return with diplomas, degrees or post-graduate or other courses degrees,
- Professional organisations (networks, associations, resource centres), in supporting the supply and retention of professionals in the sector.

### ***Informal Training***

It must be noted that, informal training of personnel in sector also deserves recognition since it provides the needed manpower for construction works as well as operation and maintenance of some water and sanitation facilities especially in rural areas. In Ghana, majority of artisans (masons, carpenters, plumbers, etc) acquire their skills through informal training and are capable of constructing and maintaining sanitation facilities in both urban and rural centres. Therefore, they form an essential component of the needed human resource for achieving the MDGs.

Although the country has a number of training institutions (National Vocational Training Institutes, NVTI) that formally train artisans, they have made little impact due to lack of recognition of the informal sector for these types of trained and certified jobs in the country. These institutions, apart from being very few in the country, also lack the necessary resources to train more people.

### ***Project Capacity Building***

Water and sanitation large scale projects and programmes (NGO's, Government institutions, private sector) with water and sanitation training capacity also provide opportunities for staff training and these staff become available 'on the market' for other work in the WASH sector.

CWSA and NGOs have been training some Area Mechanics and Latrine Artisans. In order to track the existing informal capacity and to plan for them, there is the need to get them registered. The graduates in Ghana who holds the NVTI certification get employment in the formal sector organisations.



## 8.2 WASH Technical Programmes

Table 19 shows the other technical field programmes. It must be noted that, not all these graduates enter the WASH sector due to lack of capacity on the part of both the public and private sector. Particularly, graduates are not attracted to the sanitation sector due to low remuneration and other conditions of service that do not compare with other sectors such as banking and finance.

**Table 19 : Water and sanitation technical programmes**

| Course/Programme                                  | Training Institutions                             |
|---|---|
| BSc Environmental Health and Sanitation Education | UEW   |
| Diploma Environmental health                      | School of Hygiene                                 |
| HND Civil Engineering                             | Technical Universities/ Polytechnics <sup>1</sup> |
| BSc water and sanitation                          | UCC   |
| BSc Civil Engineering                             | KNUST, KAAF, Central University                   |
| BSC waste engineering                             | UDS   |
| MSc Water Supply and Environmental Sanitation     | KNUST   |
| MSc Water Resource Engineering and Management     | KNUST   |
| MA Environmental sanitation                       | University of Ghana                               |

<sup>1</sup>Accra, Kumasi, Takoradi, Cape Coast,

## 8.3 Other technical programmes

Table 20 shows the other technical field programmes, which supply WASH sector employees.

**Table 20: Other technical programmes**

| COURSE/PROGRAME                       | INSTITUTION         |
|---------------------------------------|---------------------|
| BSc. Mechanical Eng                   | KNUST               |
| BSc. Electrical Eng.                  | KNUST               |
| HND Electrical Eng.                   | 4 Polytechnics      |
| HND Mechanical Eng.                   | 4 Polytechnics      |
| BSc. Chemistry                        | All Universities    |
| BSC Biological Science                | All Universities    |
| BSc. Biochemistry                     | All Universities    |
| BSc. Environmental Science            | KNUST, UCC, UDS, UG |
| BSc Natural Resource Management       | KNUST               |
| Dip. Natural Resource management      | KNUST               |
| MA. Environmental Resource Management | KNUST               |
| MA Environmental Resources            | UDS                 |

## 8.4 WASH Capacity Building Projects

A number of WASH projects in the country have also been instrumental in training personnel in the sector. Through these projects, several short courses and refresher courses were organised for project staff. Most of these staff are now working with Community Water and Sanitation Agency and other water and sanitation consulting firms. On-the-job training was provided for some of the key staff on these projects.

The National Level Learning Alliance Platform (NLLAP) also provides avenue for sector practitioners to share knowledge and learn of new technologies, policies and practices to improve service delivery and access to services.

## 8.5 Findings from Capacity of Training Institutions

Review of past study and interviews indicate that:

- Water and sanitation engineering related programmes at diploma levels in the country are inadequate, and therefore compel employees to take on people with entirely different backgrounds to work in the sector. For example, the urban water and MMDAs need staff with BSc Sanitary Engineering degree but these courses are not run at the moment. There is the need to introduce for technical programme in water and environmental sanitation engineering.
- The Regional Water and Environmental Sanitation Centre (RWESCK) of KNUST is building capacity at the MSC/PhD levels to support WASH sector capacity building.
- Training institutions have the resources (infrastructural and human resources) to increase the number students. The ability of training institutions to adequately train personnel for the sector does depend on not only the resources for training but also institutions' laboratory and computer related facilities, which are not adequate despite increasing population.

## 9.0 VALIDATION WORKSHOP ON CAPACITY FRAMEWORKS

A national validation workshop was organised to set the priorities of the human resource capacity gaps/skill gaps as well as the capacity building training needs (Table 20) required to enhance the HR development in the WASH sector. The thematic groups discussed and prioritised the following capacity development needs and frameworks:

- Courses to be run for young professionals, short-term or long-term education and certification,
- Courses to be run for technicians, short-term or long-term education and certification,
- National Framework for Human Resource Capacity Development (HRCDD)
- Implementation Framework
- Monitoring and Evaluation (M&E) Plan

**Table 20. Priority training needs**

| <b>WASH Sub-sectors</b>                           | <b>Training courses to build capacity of young professionals</b>   | <b>Training courses to build capacity of technicians</b>   |
|---|--|--|
| <b>Water Resources management and development</b> | <ul style="list-style-type: none"> <li>• Water Resources Modelling and GIS &amp; Remote Sensing</li> <li>• Water Quality Assessment and Modeling</li> <li>• Principles of IWRM</li> <li>• (All should have report writing training)</li> </ul>   | <ul style="list-style-type: none"> <li>• Stream Gauging and Hydrometry</li> <li>• Water Quality assessment, Monitoring and analysis</li> <li>• Rain water Harvesting techniques</li> </ul>   |
| <b>Water Supply</b>                               | <ul style="list-style-type: none"> <li>• Low cost ground water treatment and drilling technology</li> <li>• Water loss detection and management</li> <li>• Innovations in water supply e.g. smart meters, e-billing</li> </ul>   | <ul style="list-style-type: none"> <li>• Sustainability of handpumps (O&amp;M)</li> <li>• Water safety &amp; management</li> <li>• Financial management</li> </ul>   |
| <b>Environmental Sanitation</b>                   | <ul style="list-style-type: none"> <li>• -Behaviour change communication + Social and psychology of waste management, BCC</li> <li>• - Business development in WASH + Waste value chain and business entrepreneurship</li> <li>• - Waste treatment technologies and innovations</li> </ul> | <ul style="list-style-type: none"> <li>• Customer service (Behaviour change, communication skills, community participation and entry skills)</li> <li>• Equipment handling, data collection, and health and safety</li> <li>• Construction of WASH facilities</li> </ul> |
| <b>Environmental Health and Hygiene</b>           | <ul style="list-style-type: none"> <li>• Behavioural change communication in wash</li> <li>• Entrepreneurship in WASH</li> <li>• Environmental laws and policies</li> </ul>  | <ul style="list-style-type: none"> <li>• Rural and urban sanitation technologies</li> <li>• Business development in WASH</li> <li>• Environmental laws and policies</li> </ul>   |

- The strategy for Human Capacity Development (HCD) was that Government should provide funding through budget allocations and specialized projects; training institutions may attract funding through proposal development, marketing, partnerships and other innovative fundraising strategies.
- Training institutions should attract funding from industry, lead in curriculum development with inputs from industry, constant interaction with industry and bridge the gap between academia and industry.

## **10.0 SUMMARY AND CONCLUSION**

The Human Capacity Development component of the NEPAD WATER ACE 2 project activities concern the establishment and implementation of the Human Capacity Development Programme at national level in all the NEPAD CoE countries. The national framework for HCD outlines the capacity building principles and approach to formulate, monitor and evaluate the capacity building activities. This

framework will help to effectively plan, implement and evaluate the capacity building activities in a systematic way.

### **National HR capacity development study method**

The study identified the training needs and the top priority needs at the national dialogue workshop and from the surveys. The training needs were identified from the following:

- Organisations' identified individual training needs,
- Identified individual training needs at the national dialogue workshop,
- Training needs identified by the individual employees,

A total of 19 organisations including the key sector stakeholders were involved in the survey to identify training needs and skills gaps. A total of 316 WASH sector employees from 64 organisations in Ghana were also interviewed to identify training needs and skills gaps. Twenty-eight (28) participants from the key WASH sector organisations and training institutions attended the national dialogue workshop. Representatives from academia, government agencies and ministries, international organizations and NGO's were present. Of the three UNESCO officials in Ghana who were invited, one Officer attended the workshop.

### **Validation of findings on the capacity building strategy**

The participants at the validation workshop reflected on the study findings and results of the national dialogue workshop, and agreed that the following training courses and strategies are critical to build capacity for the WASH sector.

#### ***Water resources***

- Short-term training needs for young graduates should include Water Resources modelling, GIS and remote sensing, water quality assessment and modelling and principles of integrated water resources management. A critical long-term training programme for young graduates should focus on IWRM and climate change.
- Critical short-term training courses for technicians with non-tertiary certificates should include stream gauging and hygrometry, water quality assessment, monitoring and analyses, and rainwater harvesting techniques.
- Government ministries, agencies and departments should provide funding for human capacity development through budgetary allocations, internally generated funds, dedicated training funds and donor funding.
- Training institutions should attract funding from industry, lead in curriculum development with inputs from industry, constant interaction with industry and bridge the gap between academia and industry.

#### ***Water supply***

- Short-term training courses for young graduates include low-cost groundwater treatment and drilling technology, water loss detection and management; and innovations in water supply. A post-graduate programme in operation and maintenance in water supply systems was also recommended.
- For short-term non-tertiary technician training certificates, courses in sustainability of handpumps, water safety and management and financial management were recommended, while M&E, water treatment and record-keeping were recommended for long-term training.

- In terms of funding, training plans and budgeting, donor support and government allocations were suggested, while training institutions are expected to design programmes that meet the needs of users/employers to attract funding.

#### ***Environmental sanitation***

- Top priority training needs for young graduates should be on behaviour change communication, social and psychology of waste management, business development in WASH, waste value chain and entrepreneurship, waste treatment and innovations. A critical long-term course should involve facility and operational management skills, waste to energy engineering, landfill design and capping.
- Training for technicians with non-tertiary certificates should include customer service, community mobilization and engagement skills, equipment handling, data collection, health and safety management skills. A prescribed long-term course for technicians could focus on sanitation facility construction.
- Training could be funded by Government ministries, Agencies and Departments through pooled funds and a sanitation fund.

#### ***Environmental health and hygiene***

- Young professionals should be trained in environmental laws and policies; behaviour change communication in WASH; and entrepreneurial skills in WASH as short-term courses. A long-term course may focus on sanitation infrastructure planning.
- Non-tertiary technicians may be trained in rural and urban sanitation technologies; business development in WASH; and environmental laws and policies. A long-term course may focus on construction technology of sanitation facilities.
- Government should provide funding through budget allocations and specialized projects; training institutions may attract funding through proposal development, marketing, partnerships and other innovative fundraising strategies.

#### **Developing three master Level training courses for young professionals**

The three master level training courses identified at the national validated workshop will be developed, implemented and the training impact evaluated. The Master Level training courses (3 courses) will be run for the young professionals with bachelor degrees by the Universities who have the capacity for WASH programmes. It is proposed that the trainees be given Postgraduate Diploma Certificates by the respective universities. This will make the programmes attractive to WASH sector employees and for further education. There will also be tailor-made training and re-training programmes as well as capacity development workshops to be delivered through the problem-based learning approach. The training programmes will include uptake of research outcomes and the implementation of new skills to ensure progress in the WASH sector.

#### **Developing three technician Level training courses**

The three technician level training courses identified at the national validated workshop will be developed, implemented and the training impact evaluated. The National Board for Professional and Technician Examinations (*NABPTEX*) is ready to provide accredited certificates for the three training courses to be run for the non-tertiary technicians. These courses will be run as Higher National Diploma (HND) WASH Programme for Technicians interested to develop a career in WASH sector. This

National Board has the legal mandate to award certificates for the Technical Universities and Polytechnics in Ghana. With the support of this board, the WASH programme to be developed will be institutionalised as a national WASH programme to train the critical mass of technicians for the WASH Sector.

### **Human capacity development strategies**

To build capacity in the WASH Sector, the HCD strategies in terms of the roles, responsibilities and resources of Government Ministries, Agencies, WASH Sector Organisations, individuals and Training Institutions were identified. The National Water Policy and environmental sanitation policy support the human capacity development for the water resources management, urban water supply and community water and environmental sanitation. The sector Ministries will have to provide budget to support human capacity development. The sector Organisations, Ministries, Agencies and Departments are tasked to build capacity for service delivery. They have various forms of human capacity development strategies and service delivery goals. The current service levels and access to services show there is the need for capacity building at all the three levels. The capacity development of the individuals alone is not effort without organisational or institutional capacity development. There is the need to change job descriptions to allow the utilisation of new skills and knowledge to improve service delivery.

Government need to develop policy framework and adequate funding for human capacity development and implementation to guide all WASH sector organizations. Agencies and organisations provide dedicated budget for capacity training and undertake performance appraisal including training, incentives, bonuses and promotions, and the provision of guidelines and framework on employee appraisal. WASH sector organizations need to collaborate with relevant training institutions to identify and introduce relevant courses. Training institutions should conduct tracer study to identify how their students perform in the market. Individual employees in the WASH sector should be willing to take up new challenges to enable them identify their skills gaps.

### **Implementation framework**

The implementation framework has been developed for undertaking the activities and managing the capacity development process. The proposed implementation framework involves the following:

- WASH sector organization to prepare and implement their respective training plan under the guide of the governments implementation framework,
- Organizations and training institutions should work together to develop and execute training courses on new skills required by the industry.
- To ensure support from organisations, there is the need to invite decision makers to attend opening sessions of training workshops and keeping them informed regularly.
- Acquisition of new facilities and equipment to support roll-out of the new skills acquired.
- Organizations should commit fund to training plans and paying for training. Both the organisations and Government should budget and pay for the cost of training employees,
- Organizations should revise Job Descriptions to give recognitions to new skills and new knowledge acquired.
- New skills developed by staff members should be utilised or change job description to utilize the new skills acquired.

- Reassignment of job for staff with new skills and knowledge. Individuals should request for change in job descriptions and commit to reassignment.

### **Monitoring and Evaluation Framework**

Monitoring and Evaluation (M&E) framework seeks to track progress in achieving HCD objectives and learning outcomes to provide feedback on the impact of the training and the use of the skills, knowledge and competence acquired during the training. The M&E framework to track the progress of the HRCD will include:

- Set up Sector HR M&E information system and database to be managed by the training institution, to track progress and impact of the training programme.
- Appoint M& E focal persons at the Ministry and the training institution to undertake data collection to ensure more effective data collection from all training institutions and employers.
- Establish sector coordinating platform and a national M&E focal person at the Ministry of Sanitation and Water Resources (MSWR). This is to harmonise data on HR capacity for the sector by sub-sector and to ensure that data is readily available for skills gaps analysis and shortages analysis.
- Establish employer and trainee surveys to provide data for the M&E on improve skills and competence, and the use of skills and knowledge,

The report presents the summary M&E framework including the objectives, outcomes and outputs of the HRCD as well as the objective verifiable indicators and the means of verification.

### **Training institution**

- Water and sanitation engineering related programmes at diploma levels in the country are inadequate, and therefore compel employees to take on people with entirely different backgrounds to work in the sector. For example, the urban water and MMDAs need staff with BSc Sanitary Engineering degree but these courses are not run at the moment. There is the need to introduce for technical programme in water and environmental sanitation engineering.
- The Regional Water and Environmental Sanitation Centre (RWESCK) of KNUST is building capacity at the MSC/PhD levels to support WASH sector capacity building.
- Training institutions have the resources (infrastructural and human resources) to increase the number students. The ability of training institutions to adequately train personnel for the sector does depend on not only the resources for training but also institutions' laboratory and computer related facilities, which are not adequate despite increasing population.

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## Annex

### NATIONAL DIALOGUE WORKSHOP HUMAN RESOURCE CAPACITY DEVELOPMENT IN THE WATER RESOURCES, WATER SUPPLY AND ENVIRONMENTAL SANITATION SECTOR IN GHANA

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**NATIONAL WORKSHOP ON THE FRAMEWORK FOR HUMAN RESOURCE CAPACITY DEVELOPMENT IN THE WATER RESOURCES, WATER SUPPLY AND ENVIRONMENTAL SANITATION SECTOR IN GHANA**

**Working Groups**

Group 1 - Water Resources

Group 2 - Water Supply

Group 3 - Environmental Sanitation

Group 4 - Environmental health and hygiene

**Group Discussions Questions and Presentations**

**A. Training Needs and Capacity building of Young Professionals with HND/BTech/ BSc/BA/**

- a. What are the skills and knowledge gaps of young graduates entering the WASH Sector?
- b. List the on-the-job training needs which are necessary to be provided by the Sector Organisations,

- c. List 4 most critical short-term training or short courses for young graduates entering the WASH Sector,
- d. For long-term training, list 4 most critical new programmes (BSc/BA/MSc/MA) necessary for developing critical mass of human resources for the sector,

**B. Training Needs and Capacity building of Technicians with Non-Tertiary Certificates (NVTI, Technician Certificates, etc),**

- a. What are the skills and knowledge gaps of the Non-Tertiary Technicians entering the WASH Sector?
- b. List the on-the-job training needs which are necessary to be provided by the Sector Organisations,
- c. List 4 most critical short-term training or short courses for the Non-Tertiary Technicians entering the WASH Sector,
- d. For long-term training, list 4 most critical new programmes (**Accredited Certificates**) necessary for developing critical mass of human resources for the sector,

**C. National Framework for Human Resource Capacity Development (HRCDD)**

1. What roles, responsibilities and resources of Government Ministries, Agencies and Department are necessary to strengthen WASH Sector HR Capacity?
2. What roles, responsibilities and resources of WASH Sector Organisations are necessary or needed to enhance the capacity of employees in order to improve work performance and service quality?
3. What should be the roles and responsibilities of the individuals in order to enhance their capacity?
4. What should be the roles and responsibilities of the Training Institutions to enhance WASH Sector HR Capacity?

**D. Implementation Framework**

1. Who should prepare and who should implement the training plan?
2. Who should pay for the cost of employees training outside the organisation?
3. What should organisations do to utilise the skills and knowledge acquired during training?
4. What should the individuals do to utilise their acquired skills and knowledge in their daily work?

**E. Monitoring and Evaluation (M&E) Plan**

1. What key outcomes and impacts should be expected as a nation from the HRCDD?
2. What are the monitoring indicators and how should they be measured to monitor the progress and impact of the training?
3. Who should prepare the M&E plan?
4. Who should conduct the M&E and to provide feedback to meet the SDGs?

**NATIONAL VALIDATION WORKSHOP 15<sup>TH</sup> FEBRUARY 2018**  
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