UNITED REPUBLIC OF TANZANIA
MINISTRY OF WATER

WATER INSTITUTE

TERMS OF REFERENCE (TOR)

FOR

DESIGN AND SUPERVISION OF CONSTRUCTION OF VERTICAL EXTENSION OF BUILDINGS CONTAINING CLASSROOMS, LECTURE THEATRES, LIBRARY, ICT/ COMPUTERS, LABORATORIES, WORKSHOPSAND ADMINISTRATION FOR THE WATER INSTITUTE (WI)

1. 0 INTRODUCTION

Water Institute (WI) was established by Government Notice No. 138 of 22nd August, 2008 according to the Executive Agencies Act (cap.245) to replace the then Water Resources Institute that existed since 1974. The Institute therefore has over 30 years' experience in delivery of technical education and training programmes. The Agency (Water Institute) operates under the Ministry of Water.

Under the Sustainable Rural Water Supply and Sanitation Program (2018-2024) financed by the World Bank, Water Institute will be supported to implement the renovation of the buildings which will include the vertical extension, purchase of the laboratory equipment and four vehicles for logistics issues . The purpose for this support is to capacitate the WI so as to continue on providing quality training, and consultancy as well as undertaking researches that focuses on solving challenges that are facing the water sector in general but also providing a good environment for the future female students to join the water institute for studies. Figure 1 depicts the Organization Structure of the Water Institute.

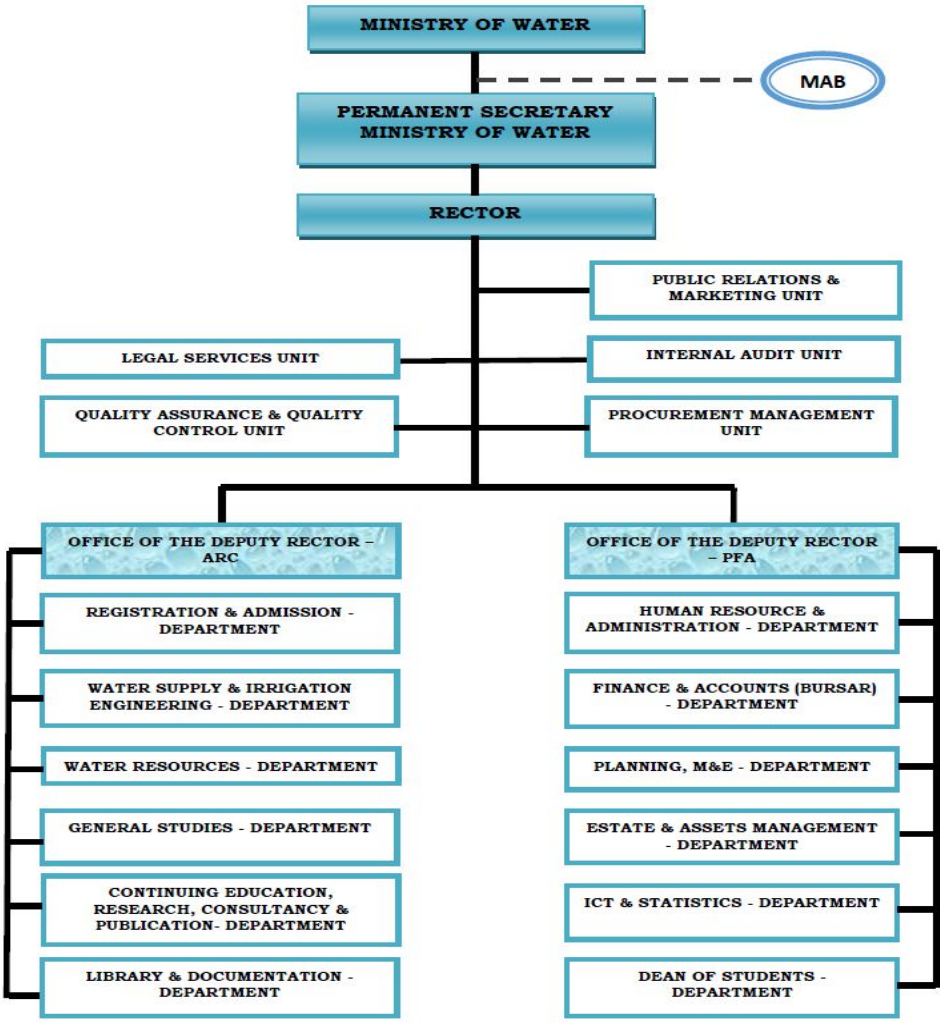

Figure 1: Organization Structure of the Water Institute.

In the deemed project, WI needs to make vertically extension of its existing buildings and to improve the quality of its buildings in order to enhance the teaching and learning environment.

1.1 Current situation.

1.1.1 Buildings requiringRenovation

WI has Five (5) blocks comprising of ten classrooms,eight offices and ten toilets, one computer and ICT block, three laboratories, one library, twoworkshops, one cafeteria, one drawing room and one administration block.

The WI requires vertical extension and rehabilitation of its following five (5) blocks:-

a) Block **A -** Administration building
b) Block **B** - ICT + Computer and Library building
c) Block **C** - Classrooms building
d) Block **D** - Classrooms U - Shaped building
e) Block **E** - Hydraulics laboratory building

1.1.2 The vertical extension buildings to be constructed

Currently the WI is facing a major challenge of shortage of classrooms, lecture theatres, ICT + Computer rooms, conference halls, board room, library, office accommodations, laboratories and workshops.

In view of the above, WI intends to construct vertical extension of buildings at its premises. The buildingswill accommodate the following:

a) Eighteen (18) classrooms
b) Three (3) ICT + Computer rooms
c) Three (3) Library Halls
d) Seven(7) laboratories/classrooms
e) Four (4) lecture theaters
f) Sixty (60) Office accommodations
g) One (1) conference hall
h) Two (2) Mini conference
i) Eight (8) Changing rooms
j) Four (4) stores
k) Two (2) Boardrooms/Meeting rooms

l) One (1) Dining room

m) Ten (10) Urinals and (73) Toilets

n) Five (5) pantries/stores

1.2 **Location of the Project**

Water Institute main campus is located at Ubungo main campus along the University road, near the College of Engineering and Technology of the University of Dar es Salaam. The physical address is: Water Institute, University Road, P.o.Box 35059 Dar es Salaam. Tel. +255 22 2410040, Fax. +255 22 2410404; E-mail: Rectorl@wi.ac.tz.

2.0 OBJECTIVE OF THE ASSIGNMENT

The objective of this consultancy is to design and later supervise construction of vertical extensions of the identified buildings and rehabilitation of the same in the ground floor for improved quality and increased capacity of WI buildings.

3.0 SCOPE OF WORK

This assignment is made up of two distinct phases. These are Phase 1 (**P1**) – detailed design and preparation of tender documents of the project and Phase 2 (**P2**) – supervision of works. The Consultant is required to clearly indicate costs for the two phases separately in his Financial Proposal as the conditions of payment and timing for the two phases are different. Whereas service described in **P1** come early and will be paid under a lump sum contract. Those in **P2** come later on and payment will be under a time - based contract. n

The consultant shall be *furnished with the available designs and reports which were used to construct the referenced buildings. The consultant shall assess the structural integrity of the existing column bases and columns prior to design of the vertical extensions. If necessary, the consultant shall re-design the column bases and columns* including underpinning the foundation so that the proposed plan of vertical extensions of the buildings is technically feasible. Where demolition of the existing building or part of it will prove to be the better option, the consultant will proceed to recommend the same to the Client for consideration.

The following are the detailed tasks to be carried out by the Consultant:

3.1 Phase 1: Detailed Design

3.1.1 Rehabilitation of buildings

a) Carry out comprehensive study on the condition of the ground floors of Administration building, ICT + Computer and Library building, Lecture theatre, Classrooms buildings, Hydraulics laboratory building, Plumbing workshop, Incubation zone, Water quality laboratory building,Guard Post and Main Gate to identify the required rehabilitation works.

b) Collect all necessary data that will enable to make detailed analysis and designs related to rehabilitation of the buildings.

c) Analyze the data obtained and develop an Architectural brief that will cover (but not be limited to) spatial requirements of the WI proposal for the rehabilitation.

d) Obtain clients approval on the architects brief and proceed to prepare a scheme design and preliminary cost estimates to enable the client to prioritize.

e) Prepare project drawings basing on client's priorities and prepare procurement packages and tender documents for i.e. goods (equipment and materials.

f) Prepare structural designs of components of the buildings to be rehabilitated where applicable giving the required strength of masonry, concrete, timber works, ferro-cement as well as other building materials, bar bending schedules etc.

g) Conduct field survey and market survey to establish cost estimates.

h) Prepare specifications, bills of quantities, and / or schedules of materials as appropriate.

i) Prepare Consultant's confidential estimates of cost of works to completion

j) Present results of the detailed design in the form of Design Report. The Design Report shall indicate the criteria used in the design, the result of the various analysis and its conclusion as well as presentation of the detailed project, its costs, and input requirements. The cost estimate shall show separately the costs divided into foreign and local components

k) Prepare Bidding Documents related to rehabilitation works

3.1.2 Design of vertical extension of buildings

a) Carry out comprehensive review ofthe available designs and reports which were used to construct the referenced building.

b) Carryout assessment on the structural integrity especially the capacity of the foundations and analyze the requirements of Administration building,ICT + Computer and Library building, Classrooms, laboratories, Plumbing workshopand Lecture theatre,develop an architect's brief that will cover (but not limited to) requirements of the WI.
c) Obtain client's approval on the architect's brief and proceed to prepare designs and preliminary elemental cost estimates to enable the client to develop a prioritization plan.
d) Prepare detailed architectural designs for construction of facilities, tender documents and cost estimates.
e) Prepare detailed structural designs of buildings giving the required strength of masonry, concrete, timber works, ferro-cement as well as other building materials, bar bending schedules etc.
f) Prepare technical specifications
g) Prepare site layout plans
h) Prepare bills of quantities and / or schedules of materials as appropriate.
i) Prepare Consultant's confidential estimates of cost of works.
j) Present results of the detailed design exercise in the form of Design Report. The Design Report shall indicate the criteria used in the design, the result of the various analysis and its conclusion as well as a presentation of the detailed project, its costs, and input requirements. The cost estimate shall show separately the costs divided into foreign and local components.
k) Prepare Bidding Documents and assist the client in the tendering process.

During tendering and tender evaluation, the Consultant shall assist the client in:-

a) Making invitation to tenders
b) Answering bidders' queries during the pre-tender site meetings
c) Preparing minutes of the pre-tender site meeting and
d) Conducting evaluation of tenders;

During negotiations and award of contract, the Consultant shall assist the client in:-

a) Answering the queries raised by the lowest evaluated bidder.
b) Discussing with the lowest evaluated bidder on various issues such as methodology, staffing, special conditions of contract etc.
c) Preparing minutes of the contract negotiations.
d) Preparing the Contract Document and
e) Award of contract to the selected contractor

3.1.3 Requirements for the extension buildings

a) **Lecture theatres/ Classrooms**

The lecture theatres and classrooms shall be designed using standards applicable in Tanzania to accommodate 50 students each as well as provide for additional support space. The support space must take into consideration both the set up and use of audio-visual equipment, access for the disabled, layout of the instructor's materials, chalkboard, projection screen or video monitor. The Furniture for lecture theatres shall be floor fixed chairs and tables of approximately $1m^2$/person and shall be made of hard wood timber.

b) **Laboratories**

The buildings shall be designed to accommodate eight laboratories for soil, hydraulics, materials, water quality, geology, chemistry, physics and hydrogeology. The design of laboratories shall be carried out by using standards and approved guidelines for design of laboratories applied in Tanzania. The laboratories shall be equipped with equipment and tools relevant to the specific use of the laboratory.

c) **ICT and Computer rooms**

The ICT and Computer rooms shall be designed using standards applicable in Tanzania appropriate for design of ICT and Computer rooms, with space sufficient to accommodate at least 100 people. The ICT and Computer rooms shall be designed to provide the "total learning Environment" that is, it shall naturally provide a minimum amount of ICT infrastructure to support a successful learning. Therefore, the design shall put into consideration that ICT and Computer rooms must have interior architecture that allows for sufficient power accessibility, design elements and physical arrangement to support the convenient and unobstructed use of all up-to-date ICTand Computer technologies. In addition, the ICT and Computer rooms shall be designed to have Internet connectivity and multiple power outlets located throughout the rooms.

d) **Conference hall**

The conference hall shall be designed using standards applicable in Tanzania appropriate for design of conference halls, with space sufficient to accommodate at least 200 people. The conference hall shall be designed to provide the "total Meeting Environment" that is, it shall naturally provide a minimum amount of technology infrastructure and equipment to support a successful meeting.

Therefore, the design of conference hall shall put into consideration that conference space must have interior architecture that allows for sufficient power accessibility, signal infrastructure, design elements and physical arrangement to support the convenient and unobstructed use of all up-to-date portable equipment for audio-visual presentation technologies. In addition, the conference hall shall be designed to have wall surfaces suitable for tacking other display of flip chart-type sheets, in-room telephone outlet, simultaneous Internet connectivity and multiple power outlets located throughout the conference room. The conference hall shall be designed with dining area for the convenience of conference groups.

e) **Library**

The library shall be designed using standards applied in Tanzania appropriate for design of academic libraries with space sufficient to accommodate 200 users at once. The library facility should be well planned to include the following spaces, collection space, electronic workstation space, multimedia workstation space, viewing room, listening room, user seating space, staff work space, meeting space, special use space and non-assignable space (including mechanical space) and it should provide secure and adequate space, conducive to study and research with suitable environmental conditions for its services, personnel, resources, and collections. The library's equipment should be adequate and efficient.

f) **Administration building**

The building shall comprise of mixed use offices ranging from small, medium as well as suites for executives and senior staff. Officerooms need to cater for about 200 staff.The administration building shall also comprise of Board room. Appropriate furniture with detailed specifications shall be provided for administration building.

g) **Board room**

The Board room shall be designed using standards appropriate for design of conference halls applicable in Tanzania with space sufficient to accommodate on average 50 people. The Board room shall be designed to provide the "total Meeting Environment" that is, it shall naturally provide a minimum amount of technology infrastructure and equipment to support a successful meeting.

3.2 **Phase 2: Supervision of works.**

In this phase, the Consultant will ensure that the works are executed according to the schedules, specifications and within the budgets. The Consultant will supervise all Contractors' activities at all stages of project implementation and this will include:-:

a) **Mobilization of Contractors**

The Consultant shall assist the Client in ensuring that the chosen contractors mobilize promptly. Consultant will supervise the following elements of the project:

- The site set-up and compound to be used by the contractors.
- The agreement with the contractors on strict adherence to the construction programme.
- Control the contractor's and sub-contractors' site personnel at all grades for suitability for the construction of the works.
- Scrutinizing the application for replacement of any of the Contractor's Key Personnel and make appropriate recommendation to the client.
- Check and approve the site installations, equipment and plant that are to be used by the contractor for performance and safety.
- Check and approve the material testing laboratories that will be required for material testing that will be specified by the Consultant during the construction.
- Check the suitability of sub-contractors as they arrive on site.
- Check materials and equipment for conformity with the tender specifications by physical inspection and by gathering the manufacturer's and suppliers' certificates of conformance
- Verify the contractors' purchasing schedules so that materials and equipment necessary for the swift advancement of the works are available when needed, thus ensuring that the work keeps to the established programs

b) **Consultant's Equipment for Supervision and Commissioning of the Works**

Supervision of the contractor's activities will be required during implementation stage of the project. It is important to note that any equipment required to verify the conformance or to test the works during and after rehabilitation / construction, e.g. surveying equipment, soil testing equipment and all other necessary equipment for the entire materials or components shall be provided by the Contractors within the sites or to be performed by outside (local or

international) reputable laboratories with recognized and reputable staffs to carry out such tests.

c) **Supervision of the physical elements**

Check the setting-out of the works to line and level before any rehabilitation / construction takes place, ensuring that sufficient markers are in place for the operatives to follow. Check construction materials and equipment for quality and proper installation. Clarify any queries on the Contract Data.

During supervision of the works, the Consultant will carry out the following:

(i) **For building/ civil works**:

Check and ensure appropriateness of:

- Construction / rehabilitation methods.
- Site set up for contractors' facilities on site
- Setting out
- Depth and extent of excavations
- Quality and compaction of fill material.
- Reinforcement (cover, spacing, diameter, cleanliness)
- Formwork (line, finish, structural solidity, adequacy of shuttering oil)
- Concrete pouring (mix composition, pouring sequence, vibration, finishing, protection for curing).
- Structural steel works (length and size of sections, connections for protection for interior steelworks, corrosion protection for external steelworks)

(ii) **For equipment**

The major elements to be checked are:

- Specifications and installation sequence of the equipment
- Adherence to suppliers' installation instructions
- Supervision of the installation and testing of the equipments
- Transport, storage and protection of the equipment once installed
- Protective measures against over voltage, under voltage, dry run, etc.

d) **Acceptance of the Works Carried Out**

For building /civil works the Consultant shall approve all the testing of materials used

throughout the construction / rehabilitation.

The Consultant will recommend and supervise any remedial works that may be necessary to bring the construction / rehabilitation to the required standard.

e) **General Supervision and Liaison between the Client and the Contractors**

- The Consultant shall make such visits to the sites as considered necessary to monitor the activities of the contractors' personnel and to ensure that the works are generally executed according to contract and in accordance with good engineering practice. The Consultant will also ensure that the Contractors cause minimum disturbance to the surrounding environment and that all procedures on and off site are carried out in a safe and secure manner.
- The Consultant will inform the Client and subsequently resolve any important problems concerning the advancement of the works due to technical or, other constraints, which would have an incidence on the cost or program of the works.
- The Consultant will assist in the settling of any disputes or differences which may arise between the Client and the Contractor including advising the Client on issues requiring arbitration where arise
- During the course of the works, the Consultant will maintain site records and determine estimates for the costs and advancement of works so that interim payments are based on monthly statements/works progress from the Contractors. Payment certificates will subsequently be issued for the approval of the Client.
- The Consultant with the participation of the Client and Contractors will arrange weekly site progress meetings. The Consultant will prepare the minutes of those meetings and submit them to the Client.
- In case of any modifications of certain components of the designs during construction / rehabilitation, the Consultant will define it/ them together with the required specifications and submit to the Client for approval. Addendums to the contract will be prepared and work orders relating to modifications to the original lump sum contract issued to the Contractor, based upon unit rates originally quoted in the contractors' tenders.

4.0 DURATION OF THE ASSIGNMENT

4.1 Duration for phase P1

The duration of phase P1 will be six (6)months.

4.2 Duration for phase P2

The duration of phase P2 will be eight (8) monthsfor construction and rehabilitation works and installation of equipment plus six (6) months for DefectsLiability Period. Thus, the total duration of the contract shall be 20 months.

5.0 LIST OF REPORTS, SCHEDULE OF DELIVERIES

5.1 List of reports, schedule of deliveries – Phase 1

The Consultant shall prepare and submit to the client: Inception report, Implementation and Institutional and Design Report for the extension buildings, and two Detailed Design Reports, one being for rehabilitation of buildings and the other for the extension buildings. Electronic copies of all reports shall be submitted in draft form for review and comments 2 weeks ahead of the dates for submission of the relevant final reports. Draft reports shall be submitted in 10 copies. The Client shall review and submit his comments to the Consultant within a period of 2 weeks. Final reports comments shall be submitted in 15 copies within 2 weeks after expiration of the deadline for submission of comments.

5.1.1 Inception Report

The inception report shall be submitted six weeks after the date of commencement. The report shall outline the Consultant's organization and program of works, revised methodologies, approaches and schedules of manpower to reflect the result of contract negotiations and Consultant's initial findings.

5.1.2 Implementation and Institutional Design Report

This report shall be presented 12 weeks (3 months) after the date of commencement of the assignment. The report shall present Environmental, Social, Financial and Economic findings.

5.1.3 Detailed Design Reports

The final detailed design reports for rehabilitation of buildings as well as for the vertical extension of the buildings shall be presented at the end of design period, approximately twenty weeks from the date of commencement. They shall comprise detailed descriptions of the proposed project works as well as detailed designs of the same. All assumptions, design criteria and standards as well as design calculations shall be clearly presented in form of annexes.

Consultant's cost estimates broken down into various components and in local foreign costs as well as expenditure schedules shall be shown. Work shall be packaged into appropriate contract packages and tender documents shall be prepared for procurement of works and goods. The phase 1 deliverables are shown in table 1 below.

Table 1: Phase 1 deliverables

Report/Product for Phase 1	**Expected Time for Submission of Final Report**
(a) Inception report	Six weeks after the date of commencement of the consultancy services
(b) Implementation and Institutional Design Report	Twelve weeks (3 months) after the date of commencement of the assignment.
(c) Detailed Design report for rehabilitation of buildings,Detailed Design report for vertical extension of buildings and the Bidding documents for the works and goods	Twenty weeks after commencement of the consultancy services

5.1.4 Bidding Documents

The bidding documents shall conform to Standard Bidding Documents (SBD) in accordance with the World Bank "Guideline: Procurement under IBRD Loans and IDA Credits" dated July 2016 Revised November 2017 and August 2018 ("Procurement Regulations"). Procurement will be done using the Bank's Standard Bidding Documents (SBD). The guidelines and standard biding documents can be accessed through the website: www.worldbank.org. Bank's "Procurement Regulations for IPF Borrowers.

5.2 List of reports and records – Phase 2

The Consultant will prepare reports and records during the supervision of the works. These will include weekly, monthly and final completion reports and site records as follows:

5.2.1 Weekly Progress Reports

The Consultant shall submit progress report to the Client at the end of each working week. The progress reports will contain the following information:

- Quantities of materials brought to site in the week and their use in construction /

rehabilitation works.

- Description of quantity and nature of works carried out in the week by the Contractor.
- Description of the means and manpower available to the Contractors in the week for the good conduct of the works.

- Forecast of work to be completed in the next reporting period based upon achievement and the progress trend visa-avis the planned works schedule.
- Costing of works to-date
- Revised project cost and construction schedules
- Progress photographs will form a part of this documentation.
- Special reports on any subject that the Client requires concerning the construction / rehabilitation project.

5.2.2 **Monthly Progress Reports**

The Consultant shall submit progress report to the Client at the end of each working month. The progress reports will contain the following information:

- A brief description of actual versus planned progress, problems encountered, resolutions, and comments on the quality of work and Contractor's performance.
- Quantities of materials brought to site in the working month and their use in construction / rehabilitation works
- Description of quantity and nature of works carried out by the Contractor.
- Description of the means and manpower available to the Contractor in the working week for the good conduct of the works
- Forecast of work to be completed in the next reporting period based upon achievement and the progress trend visa-vis the planned works schedule
- Costing of works to-date
- Revised project cost and construction schedules
- Progress photographs will form a part of this documentation
- Special reports on any subject that the Client requires concerning the construction / rehabilitation project
- Project completion report upon final acceptance of the works

5.2.3 **Site Records**

The Consultant shall submit various records to the Client at the end of each working month. The reports will comprise of: Daily advancement, equipment/plants, materials and personnel assigned to various activities maintained in a diary format.

5.2.4 **Final completion Report**

A final completion report will be prepared by the consultant at the end of defects liability period once all defects have been rectified. The final completion report shall provide a summary of activities during construction phase describing the works that have been completed, the variations that have been agreed, the claims for loss and expense or extension of time that have been agreed, the original contract sum, the final account, completion date etc.

6.0 ESTIMATED STAFF-MONTHS AND QUALIFICATION OF KEY PERSONNEL

6.1 Estimated staff-months and qualification of key personnel for Phase 1 (P1)

6.1.1 Estimated staff-months

The Consultant will need to draw up a team of key personnel required for the detailed designs related to rehabilitation of buildings as well as detailed designs of the vertical extension buildings which is expected to last for twenty four (24) weeks (not more than 6 months). The Consultant may propose an alternative team composition to that indicated, but alternative proposals will have to be agreed upon at contract negotiation. The Consultant shall include enough documentation with the alternative team proposal to show that the proposed team can successfully deliver the objectives of the assignment.

6.1.2 Experience and qualification of key team members

Personnel engaged on the assignment shall have qualifications and experience as described in the following paragraphs.

Team Leader

The team leader shall be a professional Architect witha minimum academic qualification of MSc degree in architecture with proven experience in the field of architecture. He / She shall be registered with Tanzania Architects and Quantity Surveyors Registration Board (AQRB) and with practicing license.He / She shall have a minimum of ten (10) years overall experience and seven (7) years relevant experience on similar assignments. The team leader/ Architect shall be in charge of architectural design and project planning. He / She

shall also be responsible for the visual appearance of buildings and structures. As a team leader, Architectshall be in charge of overseeing timely and profitable completion of a project.

Civil/Structural Engineer

The professional Civil/Structural Engineer shall have a minimum academic qualification of MSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license. He / She shall have a minimum of ten (10) years overall experience and five (5) years relevant experience on similar assignments. The Civil/ Structural Engineer shall be in charge of structural design of buildings and structures that must endure stresses and pressures inflicted through human use and environmental conditions. He/ She shall configure structures, choose appropriate building materials, inspect the construction works and ensure the structural soundness of buildings and structures.

Quantity Surveyor

The Quantity Surveyor to be engaged in the project shall be professional with a minimum academic qualification of MSc degree in the related field. He / She shall be registered with Tanzania Architects and Quantity Surveyors Registration Board (AQRB) and with practicing license. He / She shall have a minimum of ten (10) years overall experience and five (5) years relevant experience on similar assignments. The Quantity Surveyor shall prepare bills of quantities and Cost Estimates of the project. He/ She shall keep a close eye on project finance and contractual relationships between the various parties involved in the project. He/ She shall make sure that the financial position of construction project is accurately reported and controlled effectively.

Electrical Engineer

The Electrical Engineer to be engaged in the project shall be professional with a minimum academic qualification of MSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license. He / She shall have a minimum of ten (10) years overall experience and five (5) years relevant experience on similar assignments. Electrical engineer shall design and develop electrical systems for the buildings, transport systems and power distribution networks.

He / She shall prepare electrical Engineering designs including drawings for the construction works.

ICT Expert

The ICT Expert to be engaged in the project shall be professional with a minimum academic qualification of MSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license. He / She shall have a minimum of ten (10) years overall experience and five (5) years relevant experience on similar assignments. The ICT Expert shall be responsible for the design of audiovisual and telephone networks with computer networks through a single cabling or link system. He/ She shall be responsible for the design of communication device, encompassing radio, television, cell phones, computer and network hardware.

Land Surveyor

The Land Surveyor to be engaged in the project shall be professional with a minimum academic qualification of BSc degree in the related field. He / She shall be registered with National Council of Professional Surveyors (NCPS) and with practicing license. He / She shall have a minimum of eight (8) years overall experience and five (5) years relevant experience on similar assignments.The Land Surveyor shall conduct topographical survey of the project site and prepare contours maps to be used by the Civil/ structural engineer for designs.

Water Engineer

The Water Engineer to be engaged in the project shall be professional with a minimum academic qualification of BSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing licenseHe / She shall have a minimum of eight (8) years overall experience and five (5) years relevant experience on similar assignments. The Water Engineer shall deal with the design of provision of clean water, disposal of waste water and sewage. He/ She shall prepare working drawings for the construction works.

Environmental Specialist

The Environmental Specialist to be engaged in the project shall be professional with a minimum academic qualification of BSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license.

He / She shall have a minimum of eight (8) years overall experience and five (5) years relevant experience on similar assignments.Environmental Specialist shall be responsible for designs of protecting the environment by reducing waste and pollution. He/ She shall provide design technologies and processes that control pollution and clean up contamination of the project environment. He/ She shall design renewable energy resources and maximize the use of existing materials.

Public Health Expert

The Public Health Expert to be engaged in the project shall be professional with a minimum academic qualification of BSc degree in the related field. He / She shall be registered with the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDEC) (Tanzania) and with practicing license. He / She shall have a minimum of eight (8) years overall experience and five (5) years relevant experience on similar assignments. The Public Health Expert shall be responsible for coordination of the resources of health care, social service and safety. He / She shall develop tools to address behavioral causes of diseases and direct or control prevention programs of such diseases and environmental medicine. He / She shall prepare precautionary health reports which include problem explanations, analyses, alternate solutions, and suggestions. The Public Health Expert shall deliver details about potential health risks and possible treatments. He / She shall design, implement, or assess health service delivery systems.

S/n	Team member	Input (Person months)
1	Architect (Team Leader):	3.0
2	Civil/ Structural Engineer (Assist. Team Leader)	3.0
3	Quantity Surveyor	1.0
4	Electrical Engineer	0.3
5	ICT Expert	0.2
5	Land Surveyor	0.5
6	Water Engineer	0.5
7	Environmental Specialist	0.3
8	Public Health Expert	0.2
	TOTAL	**9.0**

6.2 Estimated staff-months and qualification of key personnel for Phase 2 (P2)

6.2.1 Estimated staff-months

The Consultant will be required to draw up a team of key personnel required for the supervision of rehabilitation and construction works which are expected to last for thirty two (32) weeksplus twenty four weeks (24)for Defects Liability Period. The Consultant may propose an alternative team composition to that indicated, but this will be discussed and agreed upon at contract negotiation. The Consultant shall include enough documentation with the alternative team proposal to show that the proposed team can successfully deliver the objectives of the assignment.

6.2.2 Experience and qualification of key team members

Personnel engaged on the assignment shall have qualifications and experience as described in the following paragraphs.

Team Leader

The team leader shall be a professional Architect witha minimum academic qualification of MSc degree in architecture with proven experience in the field of architecture. He / She shall be registered with Tanzania Architects and Quantity Surveyors Registration Board (AQRB) and with practicing license.

He / She shall have a minimum of ten (10) years overall experience and seven (7) years relevant experience on similar assignments. The team leader/ Architect shall be in charge of architectural design and project planning. He / She shall also be responsible for the visual appearance of buildings and structures. As a team leader, Architectshall be in charge of overseeing timely and profitable completion of a project.

Civil/ Structural Engineer

The professional Civil/ Structural Engineer shall have a minimum academic qualification of MSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license. He / She shall have a minimum of ten (10) years overall experience and five (5) years relevant experience on similar assignments. The Civil/ Structural Engineer shall be in charge of structural design of buildings and structures that must endure stresses and pressures inflicted through human use and environmental conditions. He/ She shall configure structures, choose appropriate building materials, inspect the construction works and ensure the structural soundness of buildings and structures.

Quantity Surveyor

The Quantity Surveyor to be engaged in the project shall be professional with a minimum academic qualification of MSc degree in the related field. He / She shall be registered with Tanzania Architects and Quantity Surveyors Registration Board (AQRB) and with practicing license. He / She shall have a minimum of ten (10) years overall experience and five (5) years relevant experience on similar assignments. The Quantity Surveyor shall prepare bills of quantities and Cost Estimates of the project. He/ She shall keep a close eye on project finance and contractual relationships between the various parties involved in the project. He/ She shall make sure that the financial position of construction project is accurately reported and controlled effectively.

Electrical Engineer

The Electrical Engineer to be engaged in the project shall be professional with a minimum academic qualification of MSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license. He / She shall have a minimum of ten (10) years overall experience and five (5) years relevant experience on similar assignments. Electrical engineer shall design and develop electrical systems for the buildings, transport systems and power distribution networks.

He / She shall prepare electrical Engineering designs including drawings for the construction works.

ICT Expert

The ICT Expert to be engaged in the project shall be professional with a minimum academic qualification of MSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license. He / She shall have a minimum of ten (10) years overall experience and five (5) years relevant experience on similar assignments. The ICT Expert shall be responsible for the design of audiovisual and telephone networks with computer networks through a single cabling or link system. He/ She shall be responsible for the design of communication device, encompassing radio, television, cell phones, computer and network hardware.

Land Surveyor

The Land Surveyor to be engaged in the project shall be professional with a minimum academic qualification of BSc degree in the related field. He / She shall be registered with National Council of Professional Surveyors (NCPS) and with practicing license. He / She shall have a minimum of eight (8) years overall experience and five (5) years relevant experience on similar assignments.The Land Surveyor shall conduct topographical survey of the project site and prepare contours maps to be used by the Civil/ structural engineer for designs.

Water Engineer

The Water Engineer to be engaged in the project shall be professional with a minimum academic qualification of BSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license He / She shall have a minimum of eight (8) years overall experience and five (5) years relevant experience on similar assignments.

The Water Engineer shall deal with the design of provision of clean water, disposal of waste water and sewage. He/ She shall prepare working drawings for the construction works.

Environmental Specialist

The Environmental Specialist to be engaged in the project shall be professional with a minimum academic qualification of BSc degree in the related field. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license. He / She shall have a minimum of eight (8) years overall experience and five (5) years relevant experience on similar assignments. Environmental Specialist shall be responsible for designs of protecting the environment by reducing waste and pollution. He/ She shall provide design technologies and processes that control pollution and clean up contamination of the project environment. He/ She shall design renewable energy resources and maximize the use of existing materials.

Public Health Expert

The Public Health Expert to be engaged in the project shall be professional with a minimum academic qualification of BSc degree in the related field. He / She shall be registered with the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDEC) (Tanzania) and with practicing license.

He / She shall have a minimum of eight (8) years overall experience and five (5) years relevant experience on similar assignments. The Public Health Expert shall be responsible for coordination of the resources of health care, social service and safety. He / She shall develop tools to address behavioral causes of diseases anddirect or control prevention programs of such diseases and environmental medicine. He / She shall prepare precautionary health reports which include problem explanations, analyses, alternate solutions, and suggestions. The Public Health Expert shall deliver details about potential health risks and possible treatments. He / She shall design, implement, or assess health service delivery systems.

Resident Engineer

The Resident Engineer shall have a B.Sc. in Civil Engineering with a minimum of Eight (8) years working experience and four (4) years in supervision of projects of similar scope, size and complexity with proven success in the field of construction supervision. He / She shall be registered with Tanzania Engineers Registration Board (ERB) and with practicing license. The Resident Engineer shall oversee the construction process and staff for the buildings project. He/ She shall also be responsible for project supervision and issuing of instructions to the contractor and to report regularly to the consultant.

S/N	Team member	Input (Person months)
1	Architect (Team Leader):	2.0
2	Civil/ Structural Engineer (Assist. Team Leader)	2.0
3	Quantity Surveyor	1.0
4	Electrical Engineer	0.6
5	ICT Expert	0.4
5	Land Surveyor	0.8
6	Water Engineer	0.5
7	Environmental Specialist	0.4
8	Public Health Expert	0.3
9	Resident Engineer	2.0
	TOTAL	**10.0**

7.0 DATA, SERVICES & FACILITIES TO BE PROVIDED BY THE CLIENT

The client will provide the following data and services:

7.1 Documents

The Client shall furnish to the Consultant all available documents relevant to the assignment. Such documents shall comprise of Architectural, Structural and Services drawings of buildings listed for rehabilitation, reports on previous studies/investigations on the proposed project and other relevant information available for the efficient execution of this assignment.

7.2 Decisions

The Client shall review and make decisions on all Consultants' recommendations and other matters properly referred to him by the Consultant for decision in as short time as possible but not exceeding two working days since the date of reference of the matter to the Client so as not to cause any delay.

8.0 INSTITUTIONAL AND ORGANIZATION ARRANGEMENTS

The Rector of WI shall be the overall coordinator of this project. The Rector shall appoint an engineer to work as a counterpart to the Consultant and he/ she will be called the Project Engineer. This Project Engineer will advise the Rector of WI on the progress of the project and issues related to the progress of design and construction works, he shall represent the Rector in site meetings to be organized by the Consultant; he shall approve Contractors' certificates submitted by the Consultant.