CONTRACT FOR CONSULTANT'S SERVICES

Lump-Sum

Project Name WATER MANAGEMENT AND DEVELOPMENT PROJECT (WMDP)

Loan No. P123204

CONSULTANCY SERVICES FOR THE ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENTS AND DEVELOPMENT OF RESETTLEMENT ACTION PLANS FOR ARUA, GULU, MBALE AND BUSHENYI WATER SUPPLY AND SANITATION PROJECTS.

Contract No. NWSC –HQRS/SRVCS/13-14/158793/158804

between

NATIONAL WATER & SEWERAGE CORPORATION

and

AIR WATER EARTH (AWE) LIMITED

Dated: 06/05/2015

RN

I. Form of Contract

LUMP-SUM

(Text in brackets [ ] is optional; all notes should be deleted in the final text)

This CONTRACT (hereinafter called the "Contract") is made the ...6th..... day of the month of ...May... ..2015..... between, on the one hand, *National Water and Sewerage* (hereinafter called the "Client") and, on the other hand, *Air Water Earth (AWE) Ltd* (hereinafter called the "Consultant").

WHEREAS

(a) the Client has requested the Consultant to provide certain consulting services as defined in this Contract (hereinafter called the "Services");

(b) the Consultant, having represented to the Client that it has the required professional skills, expertise and technical resources, has agreed to provide the Services on the terms and conditions set forth in this Contract;

(c) the Client has received a loan from the *International Development Association (IDA)]* toward the cost of the Services and intends to apply a portion of the proceeds of this loan to eligible payments under this Contract, it being understood that (i) payments by the Bank will be made only at the request of the Client and upon approval by the Bank; (ii) such payments will be subject, in all respects, to the terms and conditions of the financing agreement, including prohibitions of withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, is prohibited by the decision of the United Nations Security council taken under Chapter VII of the Charter of the United Nations; and (iii) no party other than the Client shall derive any rights from the financing agreement or have any claim to the loan proceeds;

NOW THEREFORE the parties hereto hereby agree as follows:

1. The following documents attached hereto shall be deemed to form an integral part of this Contract:

   (a) The General Conditions of Contract (including Attachment 1 "Bank Policy – Corrupt and Fraudulent Practices);
   (b) The Special Conditions of Contract;
   (c) Appendices:

   Appendix A: Terms of Reference
   Appendix B: Key Experts
   Appendix C: Breakdown of Contract Price
   Appendix D: Form of Advance Payments Guarantee

IE RN

In the event of any inconsistency between the documents, the following order of precedence shall prevail: the Special Conditions of Contract; the General Conditions of Contract, including Attachment 1; Appendix A; Appendix B; Appendix C; Appendix D. Any reference to this Contract shall include, where the context permits, a reference to its Appendices.

2. The mutual rights and obligations of the Client and the Consultant shall be as set forth in the Contract, in particular:

   (a) the Consultant shall carry out the Services in accordance with the provisions of the Contract; and
   (b) the Client shall make payments to the Consultant in accordance with the provisions of the Contract.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.

For and on behalf of ***National Water and Sewerage Corporation***

Dr. Eng. Silver Mugisha, Managing Director

For and on behalf of ***Air Water Earth (AWE) Ltd***

Eng. Lammeck Kajubi, PE.

ENG. LAMMECK KAJUBI
UGANDA ENGINEERS REGISTRATION BOARD
ERB
ERB REGISTRATION NO: 570

AIR WATER EARTH (AWE) LTD
awe awe awe awe awe ISO9001:2008

II. General Conditions of Contract

A. General Provisions

1. Definitions

1.1. Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:

(a) "Applicable Guidelines" means Guidelines for Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011.

(b) "Applicable Law" means the laws and any other instruments having the force of law in the Client's country, or in such other country as may be specified in the **Special Conditions of Contract (SCC)**, as they may be issued and in force from time to time.

(c) "Bank" means the International Bank for Reconstruction and Development (IBRD) or the International Development Association (IDA).

(d) "Borrower" means the Government, Government agency or other entity that signs the financing agreement with the Bank.

(e) "Client" means the implementing agency that signs the Contract for the Services with the Selected Consultant.

(f) "Consultant" means a legally-established professional consulting firm or entity selected by the Client to provide the Services under the signed Contract.

(g) "Contract" means the legally binding written agreement signed between the Client and the Consultant and which includes all the attached documents listed in its paragraph 1 of the Form of Contract (the General Conditions (GCC), the Special Conditions (SCC), and the Appendices).

(h) "Day" means a working day unless indicated otherwise.

(i) "Effective Date" means the date on which this Contract comes into force and effect pursuant to Clause GCC 11.

(j) "Experts" means, collectively, Key Experts, Non-Key Experts, or any other personnel of the Consultant, Sub-consultant or JV member(s) assigned by the Consultant to perform the Services or any part thereof under the Contract.

(k) "Foreign Currency" means any currency other than the currency of the Client's country.

(l) "GCC" means these General Conditions of Contract.

LE RN

(m) "Government" means the government of the Client's country.

(n) "Joint Venture (JV)" means an association with or without a legal personality distinct from that of its members, of more than one entity where one member has the authority to conduct all businesses for and on behalf of any and all the members of the JV, and where the members of the JV are jointly and severally liable to the Client for the performance of the Contract.

(o) "Key Expert(s)" means an individual professional whose skills, qualifications, knowledge and experience are critical to the performance of the Services under the Contract and whose Curricula Vitae (CV) was taken into account in the technical evaluation of the Consultant's proposal.

(p) "Local Currency" means the currency of the Client's country.

(q) "Non-Key Expert(s)" means an individual professional provided by the Consultant or its Sub-consultant to perform the Services or any part thereof under the Contract.

(r) "Party" means the Client or the Consultant, as the case may be, and "Parties" means both of them.

(s) "SCC" means the Special Conditions of Contract by which the GCC may be amended or supplemented but not over-written.

(t) "Services" means the work to be performed by the Consultant pursuant to this Contract, as described in Appendix A hereto.

(u) "Sub-consultants" means an entity to whom/which the Consultant subcontracts any part of the Services while remaining solely liable for the execution of the Contract.

(v) "Third Party" means any person or entity other than the Government, the Client, the Consultant or a Sub-consultant.

2. Relationship between the Parties

2.1. Nothing contained herein shall be construed as establishing a relationship of master and servant or of principal and agent as between the Client and the Consultant. The Consultant, subject to this Contract, has complete charge of the Experts and Sub-consultants, if any, performing the Services and shall be fully responsible for the Services performed by them or on their behalf hereunder.

3. Law Governing Contract

3.1. This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law.

4. Language

4.1. This Contract has been executed in the language specified in the **SCC**, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.

5. Headings

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

6. Communications

6.1. Any communication required or permitted to be given or made pursuant to this Contract shall be in writing in the language specified in Clause GCC 4. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent to such Party at the address specified in the **SCC**.

6.2. A Party may change its address for notice hereunder by giving the other Party any communication of such change to the address specified in the **SCC**.

7.. Location

7.1. The Services shall be performed at such locations as are specified in **Appendix A** hereto and, where the location of a particular task is not so specified, at such locations, whether in the Government's country or elsewhere, as the Client may approve.

8. Authority of Member in Charge

8.1. In case the Consultant is a Joint Venture, the members hereby authorize the member specified in the **SCC** to act on their behalf in exercising all the Consultant's rights and obligations towards the Client under this Contract, including without limitation the receiving of instructions and payments from the Client.

9. Authorized Representatives

9.1. Any action required or permitted to be taken, and any document required or permitted to be executed under this Contract by the Client or the Consultant may be taken or executed by the officials specified in the **SCC.**

10. Corrupt and Fraudulent Practices

10.1. The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in **Attachment** 1 to the GCC.

a. **Commissions and Fees**

10.2. The Client requires the Consultant to disclose any commissions, gratuities or fees that may have been paid or are to be paid to agents or any other party with respect to the selection process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee. Failure to disclose such commissions, gratuities or fees may result in termination of the Contract and/or sanctions by the Bank.

B. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

11. Effectiveness of Contract

11.1. This Contract shall come into force and effect on the date (the "Effective Date") of the Client's notice to the Consultant instructing the Consultant to begin carrying out the Services. This notice shall confirm that the effectiveness conditions, if any, listed in the **SCC** have been met.

12. Termination of Contract for Failure to Become Effective

12.1. If this Contract has not become effective within such time period after the date of Contract signature as specified in the **SCC**, either Party may, by not less than twenty two (22) days written notice to the other Party, declare this Contract to be null and void, and in the event of such a declaration by either Party, neither Party shall have any claim against the other Party with respect hereto.

13. Commencement of Services

13.1. The Consultant shall confirm availability of Key Experts and begin carrying out the Services not later than the number of days after the Effective Date specified in the **SCC**.

14. Expiration of Contract

14.1. Unless terminated earlier pursuant to Clause GCC 19 hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the **SCC**.

15. Entire Agreement

15.1. This Contract contains all covenants, stipulations and provisions agreed by the Parties. No agent or representative of either Party has authority to make, and the Parties shall not be bound by or be liable for, any statement, representation, promise or agreement not set forth herein.

16. Modifications or Variations

16.1. Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any proposals for modification or variation made by the other Party.

16.2. In cases of substantial modifications or variations, the prior written consent of the Bank is required.

17. Force Majeure

a. Definition

17.1. For the purposes of this Contract, "Force Majeure" means an event which is beyond the reasonable control of a Party, is not foreseeable, is unavoidable, and makes a Party's performance of its obligations hereunder impossible or so impractical as reasonably to be considered impossible under the circumstances, and subject to those requirements, includes, but is not limited to, war, riots, civil disorder, earthquake, fire, explosion, storm, flood or other adverse weather conditions, strikes, lockouts or other industrial action confiscation or any other action by Government agencies.

17.2. Force Majeure shall not include (i) any event which is caused by the negligence or intentional action of a Party or such Party's Experts, Sub-consultants or agents or employees, nor (ii) any event which a diligent Party could reasonably have been expected to both take into account at the time of the conclusion of this Contract, and avoid or overcome in the carrying out of its obligations hereunder.

17.3. Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

b. No Breach of Contract

17.4. The failure of a Party to fulfill any of its obligations hereunder shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event has taken all reasonable precautions, due care and reasonable alternative measures, all with the objective of carrying out the terms and conditions of this Contract.

c. Measures to be Taken

17.5. A Party affected by an event of Force Majeure shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall take all reasonable measures to minimize the consequences of any event of Force Majeure.

17.6. A Party affected by an event of Force Majeure shall notify the other Party of such event as soon as possible, and in any case not later than fourteen (14) calendar days following the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give written notice of the restoration of normal conditions as soon as possible.

17.7. Any period within which a Party shall, pursuant to this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure.

17.8. During the period of their inability to perform the Services as a result of an event of Force Majeure, the Consultant, upon instructions by the Client, shall either:

(a) demobilize, in which case the Consultant shall be reimbursed for additional costs they reasonably and necessarily incurred, and, if required by the Client, in reactivating the Services; or

(b) continue with the Services to the extent reasonably possible, in which case the Consultant shall continue to be paid under the terms of this Contract and be reimbursed for additional costs reasonably and necessarily incurred.

17.9. In the case of disagreement between the Parties as to the existence or extent of Force Majeure, the matter shall be settled according to Clauses GCC 44 & 45.

18. Suspension

18.1. The Client may, by written notice of suspension to the Consultant, suspend all payments to the Consultant hereunder if the Consultant fails to perform any of its obligations under this Contract, including the carrying out of the Services, provided that such notice of suspension (i) shall specify the nature of the failure, and (ii) shall request the Consultant to remedy such failure within a period not exceeding thirty (30) calendar days after receipt by the Consultant of such notice of suspension.

RN

19. Termination

19.1. This Contract may be terminated by either Party as per provisions set up below:

a. By the Client

19.1.1. The Client may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (f) of this Clause. In such an occurrence the Client shall give at least thirty (30) calendar days' written notice of termination to the Consultant in case of the events referred to in (a) through (d); at least sixty (60) calendar days' written notice in case of the event referred to in (e); and at least five (5) calendar days' written notice in case of the event referred to in (f):

(a) If the Consultant fails to remedy a failure in the performance of its obligations hereunder, as specified in a notice of suspension pursuant to Clause GCC 18;

(b) If the Consultant becomes (or, if the Consultant consists of more than one entity, if any of its members becomes) insolvent or bankrupt or enter into any agreements with their creditors for relief of debt or take advantage of any law for the benefit of debtors or go into liquidation or receivership whether compulsory or voluntary;

(c) If the Consultant fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause GCC 45.1;

(d) If, as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days;

(e) If the Client, in its sole discretion and for any reason whatsoever, decides to terminate this Contract;

(f) If the Consultant fails to confirm availability of Key Experts as required in Clause GCC 13.

19.1.2. Furthermore, if the Client determines that the Consultant has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Client may, after giving fourteen (14) calendar days written notice to the Consultant, terminate the Consultant's employment under the Contract.

b. By the Consultant

19.1.3. The Consultant may terminate this Contract, by not less than thirty (30) calendar days' written notice to the Client, in case of the occurrence of any of the events specified in paragraphs (a) through (d) of this Clause.

(a) If the Client fails to pay any money due to the Consultant pursuant to this Contract and not subject to dispute pursuant to Clause GCC 45.1 within forty-five (45) calendar days

after receiving written notice from the Consultant that such payment is overdue.

(b) If, as the result of Force Majeure, the Consultant is unable to perform a material portion of the Services for a period of not less than sixty (60) calendar days.

(c) If the Client fails to comply with any final decision reached as a result of arbitration pursuant to Clause GCC 45.1.

(d) If the Client is in material breach of its obligations pursuant to this Contract and has not remedied the same within forty-five (45) days (or such longer period as the Consultant may have subsequently approved in writing) following the receipt by the Client of the Consultant's notice specifying such breach.

c. **Cessation of Rights and Obligations**

19.1.4. Upon termination of this Contract pursuant to Clauses GCC 12 or GCC 19 hereof, or upon expiration of this Contract pursuant to Clause GCC 14, all rights and obligations of the Parties hereunder shall cease, except (i) such rights and obligations as may have accrued on the date of termination or expiration, (ii) the obligation of confidentiality set forth in Clause GCC 22, (iii) the Consultant's obligation to permit inspection, copying and auditing of their accounts and records set forth in Clause GCC 25, and (iv) any right which a Party may have under the Applicable Law.

d. **Cessation of Services**

19.1.5. Upon termination of this Contract by notice of either Party to the other pursuant to Clauses GCC 19a or GCC 19b, the Consultant shall, immediately upon dispatch or receipt of such notice, take all necessary steps to bring the Services to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum. With respect to documents prepared by the Consultant and equipment and materials furnished by the Client, the Consultant shall proceed as provided, respectively, by Clauses GCC 27 or GCC 28.

e. **Payment upon Termination**

19.1.6. Upon termination of this Contract, the Client shall make the following payments to the Consultant:

(a) payment for Services satisfactorily performed prior to the effective date of termination; and

(b) in the case of termination pursuant to paragraphs (d) and (e) of Clause GCC 19.1.1, reimbursement of any reasonable cost incidental to the prompt and orderly termination of this Contract, including the cost of the return travel of the Experts.

C. OBLIGATIONS OF THE CONSULTANT

20. General

a. Standard of Performance

20.1 The Consultant shall perform the Services and carry out the Services with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Consultant shall always act, in respect of any matter relating to this Contract or to the Services, as a faithful adviser to the Client, and shall at all times support and safeguard the Client's legitimate interests in any dealings with the third parties.

20.2. The Consultant shall employ and provide such qualified and experienced Experts and Sub-consultants as are required to carry out the Services.

20.3. The Consultant may subcontract part of the Services to an extent and with such Key Experts and Sub-consultants as may be approved in advance by the Client. Notwithstanding such approval, the Consultant shall retain full responsibility for the Services.

b. Law Applicable to Services

20.4. The Consultant shall perform the Services in accordance with the Contract and the Applicable Law and shall take all practicable steps to ensure that any of its Experts and Sub-consultants, comply with the Applicable Law.

20.5. Throughout the execution of the Contract, the Consultant shall comply with the import of goods and services prohibitions in the Client's country when

(a) as a matter of law or official regulations, the Borrower's country prohibits commercial relations with that country; or

(b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's Country prohibits any import of goods from that country or any payments to any country, person, or entity in that country.

20.6. The Client shall notify the Consultant in writing of relevant local customs, and the Consultant shall, after such notification, respect such customs.

21. Conflict of Interests

21.1. The Consultant shall hold the Client's interests paramount, without any consideration for future work, and strictly avoid conflict with other assignments or their own corporate interests.

a. Consultant Not to Benefit from

21.1.1 The payment of the Consultant pursuant to GCC F (Clauses GCC 38 through 42) shall constitute the Consultant's only payment in connection with this Contract and, subject to

Commissions, Discounts, etc.

Clause GCC 21.1.3, the Consultant shall not accept for its own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Contract or in the discharge of its obligations hereunder, and the Consultant shall use its best efforts to ensure that any Sub-consultants, as well as the Experts and agents of either of them, similarly shall not receive any such additional payment.

21.1.2 Furthermore, if the Consultant, as part of the Services, has the responsibility of advising the Client on the procurement of goods, works or services, the Consultant shall comply with the Bank's Applicable Guidelines, and shall at all times exercise such responsibility in the best interest of the Client. Any discounts or commissions obtained by the Consultant in the exercise of such procurement responsibility shall be for the account of the Client.

b. **Consultant and Affiliates Not to Engage in Certain Activities**

21.1.3 The Consultant agrees that, during the term of this Contract and after its termination, the Consultant and any entity affiliated with the Consultant, as well as any Sub-consultants and any entity affiliated with such Sub-consultants, shall be disqualified from providing goods, works or non-consulting services resulting from or directly related to the Consultant's Services for the preparation or implementation of the project, unless otherwise indicated in the **SCC**.

c. **Prohibition of Conflicting Activities**

21.1.4 The Consultant shall not engage, and shall cause its Experts as well as its Sub-consultants not to engage, either directly or indirectly, in any business or professional activities that would conflict with the activities assigned to them under this Contract.

d. **Strict Duty to Disclose Conflicting Activities**

21.1.5 The Consultant has an obligation and shall ensure that its Experts and Sub-consultants shall have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of their Client, or that may reasonably be perceived as having this effect. Failure to disclose said situations may lead to the disqualification of the Consultant or the termination of its Contract.

22. Confidentiality

22.1 Except with the prior written consent of the Client, the Consultant and the Experts shall not at any time communicate to any person or entity any confidential information acquired in the course of the Services, nor shall the Consultant and the Experts make public the recommendations formulated in the course of, or as a result of, the Services.

23. Liability of the Consultant

23.1 Subject to additional provisions, if any, set forth in the **SCC**, the Consultant's liability under this Contract shall be provided by the Applicable Law.

24. Insurance to be Taken out by the Consultant

24.1 The Consultant (i) shall take out and maintain, and shall cause any Sub-consultants to take out and maintain, at its (or the Sub-consultants', as the case may be) own cost but on terms and conditions approved by the Client, insurance against the risks, and for the coverage specified in the **SCC,** and (ii) at the Client's request, shall provide evidence to the Client showing that such insurance has been taken out and maintained and that the current premiums therefore have been paid. The Consultant shall ensure that such insurance is in place prior to commencing the Services as stated in Clause GCC 13.

25. Accounting, Inspection and Auditing

25.1 The Consultant shall keep, and shall make all reasonable efforts to cause its Sub-consultants to keep, accurate and systematic accounts and records in respect of the Services and in such form and detail as will clearly identify relevant time changes and costs.

25.2 The Consultant shall permit and shall cause its Sub-consultants to permit, the Bank and/or persons appointed by the Bank to inspect the Site and/or all accounts and records relating to the performance of the Contract and the submission of the Proposal to provide the Services, and to have such accounts and records audited by auditors appointed by the Bank if requested by the Bank. The Consultant's attention is drawn to Clause GCC 10 which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under this Clause GCC25.2 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility under the Bank's prevailing sanctions procedures.)

26. Reporting Obligations

26.1 The Consultant shall submit to the Client the reports and documents specified in **Appendix A**, in the form, in the numbers and within the time periods set forth in the said Appendix.

27. Proprietary Rights of the Client in Reports and Records

27.1 Unless otherwise indicated in the **SCC**, all reports and relevant data and information such as maps, diagrams, plans, databases, other documents and software, supporting records or material compiled or prepared by the Consultant for the Client in the course of the Services shall be confidential and become and remain the absolute property of the Client. The Consultant shall, not later than upon termination or expiration of this Contract, deliver all such documents to the Client, together with a detailed inventory thereof. The Consultant may retain a copy of such documents, data and/or software but shall not use the same for purposes unrelated to this Contract without prior written approval of the Client.

27.2 If license agreements are necessary or appropriate between the Consultant and third parties for purposes of development of the plans, drawings, specifications, designs, databases, other documents and software, the Consultant shall obtain the Client's prior written approval to such agreements, and the Client shall be entitled at its discretion to require recovering the expenses related to the development of the

program(s) concerned. Other restrictions about the future use of these documents and software, if any, shall be specified in the **SCC**.

28. Equipment, Vehicles and Materials

28.1 Equipment, vehicles and materials made available to the Consultant by the Client, or purchased by the Consultant wholly or partly with funds provided by the Client, shall be the property of the Client and shall be marked accordingly. Upon termination or expiration of this Contract, the Consultant shall make available to the Client an inventory of such equipment, vehicles and materials and shall dispose of such equipment, vehicles and materials in accordance with the Client's instructions. While in possession of such equipment, vehicles and materials, the Consultant, unless otherwise instructed by the Client in writing, shall insure them at the expense of the Client in an amount equal to their full replacement value.

28.2 Any equipment or materials brought by the Consultant or its Experts into the Client's country for the use either for the project or personal use shall remain the property of the Consultant or the Experts concerned, as applicable.

D. CONSULTANT'S EXPERTS AND SUB-CONSULTANTS

29. Description of Key Experts

29.1 The title, agreed job description, minimum qualification and estimated period of engagement to carry out the Services of each of the Consultant's Key Experts are described in **Appendix B.**

30. Replacement of Key Experts

30.1 Except as the Client may otherwise agree in writing, no changes shall be made in the Key Experts.

30.2 Notwithstanding the above, the substitution of Key Experts during Contract execution may be considered only based on the Consultant's written request and due to circumstances outside the reasonable control of the Consultant, including but not limited to death or medical incapacity. In such case, the Consultant shall forthwith provide as a replacement, a person of equivalent or better qualifications and experience, and at the same rate of remuneration.

31. Removal of Experts or Sub-consultants

31.1 If the Client finds that any of the Experts or Sub-consultant has committed serious misconduct or has been charged with having committed a criminal action, or shall the Client determine that Consultant's Expert of Sub-consultant have engaged in corrupt, fraudulent, collusive, coercive or obstructive practice while performing the Services, the Consultant shall, at the Client's written request, provide a replacement.

31.2 In the event that any of Key Experts, Non-Key Experts or Sub-consultants is found by the Client to be incompetent or incapable in discharging assigned duties, the Client, specifying the grounds therefore, may request the Consultant to provide a replacement.

RN

31.3 Any replacement of the removed Experts or Sub-consultants shall possess better qualifications and experience and shall be acceptable to the Client.

31.4 The Consultant shall bear all costs arising out of or incidental to any removal and/or replacement of such Experts.

E. OBLIGATIONS OF THE CLIENT

32. Assistance and Exemptions

32.1 Unless otherwise specified in the **SCC**, the Client shall use its best efforts to:

(a) Assist the Consultant with obtaining work permits and such other documents as shall be necessary to enable the Consultant to perform the Services.

(b) Assist the Consultant with promptly obtaining, for the Experts and, if appropriate, their eligible dependents, all necessary entry and exit visas, residence permits, exchange permits and any other documents required for their stay in the Client's country while carrying out the Services under the Contract.

(c) Facilitate prompt clearance through customs of any property required for the Services and of the personal effects of the Experts and their eligible dependents.

(c) Issue to officials, agents and representatives of the Government all such instructions and information as may be necessary or appropriate for the prompt and effective implementation of the Services.

(d) Assist the Consultant and the Experts and any Sub-consultants employed by the Consultant for the Services with obtaining exemption from any requirement to register or obtain any permit to practice their profession or to establish themselves either individually or as a corporate entity in the Client's country according to the applicable law in the Client's country.

(e) Assist the Consultant, any Sub-consultants and the Experts of either of them with obtaining the privilege, pursuant to the applicable law in the Client's country, of bringing into the Client's country reasonable amounts of foreign currency for the purposes of the Services or for the personal use of the Experts and of withdrawing any such amounts as may be earned therein by the Experts in the execution of the Services.

(f) Provide to the Consultant any such other assistance as may be specified in the **SCC**.

33. Access to Project Site

33.1 The Client warrants that the Consultant shall have, free of charge, unimpeded access to the project site in respect of which access is required for the performance of the Services. The Client will be

responsible for any damage to the project site or any property thereon resulting from such access and will indemnify the Consultant and each of the experts in respect of liability for any such damage, unless such damage is caused by the willful default or negligence of the Consultant or any Sub-consultants or the Experts of either of them.

34. Change in the Applicable Law Related to Taxes and Duties

34.1 If, after the date of this Contract, there is any change in the applicable law in the Client's country with respect to taxes and duties which increases or decreases the cost incurred by the Consultant in performing the Services, then the remuneration and reimbursable expenses otherwise payable to the Consultant under this Contract shall be increased or decreased accordingly by agreement between the Parties hereto, and corresponding adjustments shall be made to the Contract price amount specified in Clause GCC 38.1

35. Services, Facilities and Property of the Client

35.1 The Client shall make available to the Consultant and the Experts, for the purposes of the Services and free of any charge, the services, facilities and property described in the Terms of Reference (**Appendix A**) at the times and in the manner specified in said **Appendix A.**

36. Counterpart Personnel

36.1 The Client shall make available to the Consultant free of charge such professional and support counterpart personnel, to be nominated by the Client with the Consultant's advice, if specified in **Appendix A**.

36.2 Professional and support counterpart personnel, excluding Client's liaison personnel, shall work under the exclusive direction of the Consultant. If any member of the counterpart personnel fails to perform adequately any work assigned to such member by the Consultant that is consistent with the position occupied by such member, the Consultant may request the replacement of such member, and the Client shall not unreasonably refuse to act upon such request.

37. Payment Obligation

37.1 In consideration of the Services performed by the Consultant under this Contract, the Client shall make such payments to the Consultant for the deliverables specified in **Appendix A** and in such manner as is provided by GCC F below.

F. PAYMENTS TO THE CONSULTANT

38. Contract Price

38.1 The Contract price is fixed and is set forth in the **SCC.** The Contract price breakdown is provided in **Appendix C**.

38.2 Any change to the Contract price specified in Clause 38.1 can be made only if the Parties have agreed to the revised scope of Services pursuant to Clause GCC 16 and have amended in writing the Terms of Reference in **Appendix A.**

RN

39. Taxes and Duties

39.1 The Consultant, Sub-consultants and Experts are responsible for meeting any and all tax liabilities arising out of the Contract unless it is stated otherwise in the **SCC**.

39.2 As an exception to the above and as stated in the **SCC**, all local identifiable indirect taxes (itemized and finalized at Contract negotiations) are reimbursed to the Consultant or are paid by the Client on behalf of the Consultant.

40. Currency of Payment

40.1 Any payment under this Contract shall be made in the currency(ies) of the Contract.

41. Mode of Billing and Payment

41.1 The total payments under this Contract shall not exceed the Contract price set forth in Clause GCC 38.1.

41.2 The payments under this Contract shall be made in lump-sum installments against deliverables specified in **Appendix A**. The payments will be made according to the payment schedule stated in the **SCC**.

41.2.1 *Advance payment:* Unless otherwise indicated in the **SCC**, an advance payment shall be made against an advance payment bank guarantee acceptable to the Client in an amount (or amounts) and in a currency (or currencies) specified in the **SCC**. Such guarantee (i) is to remain effective until the advance payment has been fully set off, and (ii) is to be in the form set forth in **Appendix D**, or in such other form as the Client shall have approved in writing. The advance payments will be set off by the Client in equal portions against the lump-sum installments specified in the **SCC** until said advance payments have been fully set off.

41.2.2 *The Lump-Sum Installment Payments.* The Client shall pay the Consultant within sixty (60) days after the receipt by the Client of the deliverable(s) and the cover invoice for the related lump-sum installment payment. The payment can be withheld if the Client does not approve the submitted deliverable(s) as satisfactory in which case the Client shall provide comments to the Consultant within the same sixty (60) days period. The Consultant shall thereupon promptly make any necessary corrections, and thereafter the foregoing process shall be repeated.

41.2.3 *The Final Payment* .The final payment under this Clause shall be made only after the final report I have been submitted by the Consultant and approved as satisfactory by the Client. The Services shall then be deemed completed and finally accepted by the Client. The last lump-sum installment shall be deemed approved for payment by the Client within ninety (90) calendar days after receipt of the final report by the Client unless the Client, within such ninety (90) calendar day period, gives written notice to the Consultant specifying in detail deficiencies in the Services, the

final report. The Consultant shall thereupon promptly make any necessary corrections, and thereafter the foregoing process shall be repeated. 41.2.4 All payments under this Contract shall be made to the accounts of the Consultant specified in the **SCC**.

41.2.4 With the exception of the final payment under 41.2.3 above, payments do not constitute acceptance of the whole Services nor relieve the Consultant of any obligations hereunder.

42. Interest on Delayed Payments

42.1 If the Client had delayed payments beyond fifteen (15) days after the due date stated in Clause GCC 41.2.2 , interest shall be paid to the Consultant on any amount due by, not paid on, such due date for each day of delay at the annual rate stated in the **SCC.**

G. Fairness and Good Faith

43. Good Faith

43.1 The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.

H. Settlement of Disputes

44. Amicable Settlement

44.1 The Parties shall seek to resolve any dispute amicably by mutual consultation.

44.2 If either Party objects to any action or inaction of the other Party, the objecting Party may file a written Notice of Dispute to the other Party providing in detail the basis of the dispute. The Party receiving the Notice of Dispute will consider it and respond in writing within fourteen (14) days after receipt. If that Party fails to respond within fourteen (14) days, or the dispute cannot be amicably settled within fourteen (14) days following the response of that Party, Clause GCC 49.1 shall apply.

45. Dispute Resolution

45.1 Any dispute between the Parties arising under or related to this Contract that cannot be settled amicably may be referred to by either Party to the adjudication/arbitration in accordance with the provisions specified in the **SCC**.

IF

RN

II. General Conditions

Attachment 1: Bank's Policy – Corrupt and Fraudulent Practices

(the text in this Attachment 1 shall not be modified)

Guidelines for Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011:

"Fraud and Corruption

1.23 It is the Bank's policy to require that Borrowers (including beneficiaries of Bank loans), consultants, and their agents (whether declared or not), sub-contractors, sub-consultants, service providers, or suppliers, and any personnel thereof, observe the highest standard of ethics during the selection and execution of Bank-financed contracts [footnote: In this context, any action taken by a consultant or any of its personnel, or its agents, or its sub-consultants, sub-contractors, services providers, suppliers, and/or their employees, to influence the selection process or contract execution for undue advantage is improper.]. In pursuance of this policy, the Bank:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party[1];

(ii) "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation[2];

(iii) "collusive practices" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party[3];

[1] For the purpose of this sub-paragraph, "another party" refers to a public official acting in relation to the selection process or contract execution. In this context "public official" includes World Bank staff and employees of other organizations taking or reviewing selection decisions.

[2] For the purpose of this sub-paragraph, "party" refers to a public official; the terms "benefit" and "obligation" relate to the selection process or contract execution; and the "act or omission" is intended to influence the selection process or contract execution.

[3] For the purpose of this sub-paragraph, "parties" refers to participants in the procurement or selection process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish prices at artificial, non-competitive levels, or are privy to each other's bid prices or other conditions.

RN

(iv) "coercive practices" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party[4];

(v) "obstructive practice" is

(aa) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(bb) acts intended to materially impede the exercise of the Bank's inspection and audit rights;

(b) will reject a proposal for award if it determines that the consultant recommended for award or any of its personnel, or its agents, or its sub-consultants, sub-contractors, services providers, suppliers, and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

(c) will declare misprocurement and cancel the portion of the Loan allocated to a contract if it determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the Loan were engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the selection process or the implementation of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner they knew of the practices;

(d) will sanction a firm or an individual at any time, in accordance with prevailing Bank's sanctions procedures[5], including by publicly declaring such firm or an ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract, and (ii) to be a nominated[6] sub-consultant, supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract.

[4] For the purpose of this sub-paragraph, "party" refers to a participant in the selection process or contract execution.

[5] A firm or an individual may be declared ineligible to be awarded a Bank-financed contract upon (i) completion of the Bank's sanctions proceedings as per its sanctions procedures, including inter alia: cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application of the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceedings. See footnote 12 and paragraph 8 of Appendix 1 of these Guidelines.

[6] A nominated sub-consultant, supplier, or service provider is one which has been either (i) included by the consultant in its proposal because it brings specific and critical experience and know-how that are accounted for in the technical evaluation of the consultant's proposal for the particular services; or (ii) appointed by the Borrower.

TE

RN

III. Special Conditions of Contract

[Notes in brackets are for guidance purposes only and should be deleted in the final text of the signed contract]

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
1.1(b) and 3.1	**The Contract shall be construed in accordance with the law of Uganda**
4.1	**The language is English**
6.1 and 6.2	**The addresses are:** Client : National Water and Sewerage Corporation Plot 39 Jinja Rd. P.O Box 7053 Kampala Attention : The Managing Director Facsimile : N/A E-mail: **silver.mugisha@nwsc.co.ug** Consultant : Air Water Earth (AWE) Ltd 27 Binayomba Road, Bugolobi, Kampala P.O.Box 22428, Kampala, Uganda Email: ceo@awe-engineers.com Website: www.awe-engineers.com Attention : Eng. Lammeck Kajubi Facsimile : N/A E-mail (where permitted) : L.kajubi@awe-engineers.com
8.1	*N/A*
9.1	**The Authorized Representatives are:** **For the Client:** *Dr. Adolf Spitzer, The Project Manager* **For the Consultant:** *Eng. Lammeck Kajubi, President and CEO, AWE Ltd*
11.1	**The effectiveness conditions are the following:** *Contract Signature*
12.1	**Termination of Contract for Failure to Become Effective:** **The time period shall be two (02) months**
13.1	**Commencement of Services:** **The number of days shall be ten (10) days.**

RN

	Confirmation of Key Experts' availability to start the Assignment shall be submitted to the Client in writing as a written statement signed by each Key Expert.
14.1	**Expiration of Contract:** **The time period shall be: <u>7 months</u>**
21 b.	**The Client reserves the right to determine on a case-by-case basis whether the Consultant should be disqualified from providing goods, works or non-consulting services due to a conflict of a nature described in Clause GCC 21.1.3** Yes

LE

RN

23.1	**No additional provisions.**
24.1	**The insurance coverage against the risks shall be as follows:** **(a) Professional liability insurance, with a minimum coverage of 110% of the contract value $423,913.82** *[Four Hundred and Twenty Three Thousand, Nine Hundred and Thirteen United States Dollars and Eighty Two cents]* (b) Third Party motor vehicle liability insurance in respect of motor vehicles operated in the Client's country by the Consultant or its Experts or Sub-consultants, with a minimum coverage of *in accordance with the applicable law in Uganda;* (c) Third Party liability insurance, with a minimum coverage *in accordance with the applicable law in Uganda*; (d) employer's liability and workers' compensation insurance in respect of the experts and Sub-consultants in accordance with the relevant provisions of the applicable law in the Client's country, as well as, with respect to such Experts, any such life, health, accident, travel or other insurance as may be appropriate; and (e) insurance against loss of or damage to (i) equipment purchased in whole or in part with funds provided under this Contract, (ii) the Consultant's property used in the performance of the Services, and (iii) any documents prepared by the Consultant in the performance of the Services.
27.1	***No exceptions***
27.2	**The Consultant shall not use these** ***documents and software*** **for purposes unrelated to this Contract without the prior written approval of the Client.**
32.1 (a) through (e)	**Not applicable**
32.1(f)	***The client will provide services to the consultant for execution of services as indicated in Terms of Reference***
38.1	**The Contract price is: $326,590***[Three Hundred and Twenty Six Thousand, Five Hundred and Ninety United States Dollars]* **exclusive of local indirect taxes.** **Any indirect local taxes chargeable in respect of this Contract for the Services provided by the Consultant shall reimbursed by the Client to the Consultant.**

RN

	The amount of such taxes is $58,786 *[Fifty Eight Thousand, Seven Hundred and Eighty Six United States Dollars].*
39.1 and 39.2	**The Client warrants that the Client shall reimburse the Consultant, the Sub-consultants and the Experts any indirect taxes, duties, fees, levies and other impositions imposed, under the applicable law in the Client's country, on the Consultant, the Sub-consultants and the Experts in respect of:** **(a) any payments whatsoever made to the Consultant, Sub-consultants and the Experts (other than nationals or permanent residents of the Client's country), in connection with the carrying out of the Services;** **(b) any equipment, materials and supplies brought into the Client's country by the Consultant or Sub-consultants for the purpose of carrying out the Services and which, after having been brought into such territories, will be subsequently withdrawn by them;** **(c) any equipment imported for the purpose of carrying out the Services and paid for out of funds provided by the Client and which is treated as property of the Client;** **(d) any property brought into the Client's country by the Consultant, any Sub-consultants or the Experts (other than nationals or permanent residents of the Client's country), or the eligible dependents of such experts for their personal use and which will subsequently be withdrawn by them upon their respective departure from the Client's country, provided that:** **(i) the Consultant, Sub-consultants and experts shall follow the usual customs procedures of the Client's country in importing property into the Client's country; and** **(ii) if the Consultant, Sub-consultants or Experts do not withdraw but dispose of any property in the Client's country upon which customs duties and taxes have been exempted, the Consultant, Sub-consultants or Experts, as the case may be, (a) shall bear such customs duties and taxes in conformity with the regulations of the Client's country, or (b) shall reimburse them to the Client if they were paid by the Client at the time the property in question was brought into the Client's country.**
41.2	**The payment schedule for ESIA and RAP for Arua Water supply and sanitation project:** **1st payment:**

	First payment is an advance payment of 20% of the total contract sum, shall be made against the bank guarantee for the same amount as per GCC 41.2.1. This amount being: **$23,516.22** *(Twenty Three Thousand, Five Hundred and Sixteen United States Dollars and Twenty Two Cents)* including taxes. **Final payment:** The Final payment of 80% of the total contract sum shall be on submission of an acceptable Final Resettlement Action Plan (RAP) and ESIA report. This amount being: **$94,064.88** *(Ninety Thousand, Sixty Four United States Dollars and Eighty Eight Cents)* including taxes. **The payment schedule for ESIA and RAP for Gulu Water supply and sanitation project:** **1st payment:** First payment is an advance payment of 20% of the total contract sum, shall be made against the bank guarantee for the same amount as per GCC 41.2.1. This amount being: **$15,108.48** *(Fifteen Thousand, One Hundred and Eight United States Dollars and Forty Eight Cents)* including taxes. **2nd payment:** Second payment of 40% of the total contract sum shall be made 03 months into the project and on submission of an acceptable draft ESIA report. This amount being: **$30,216.97** *(Thirty Thousand, Two Hundred and Sixteen United States Dollars and Ninety Seven Cents)* including taxes. **Final payment:** The Final payment of 40% of the total contract sum shall be made 05 months into the project and on submission of an acceptable Final Resettlement Action Plan (RAP) report. This amount being: **$30,216.97** *(Thirty Thousand, Two Hundred and Sixteen United States Dollars and Ninety Seven Cents)* including taxes. **The payment schedule for ESIA and RAP for Mbale Water supply and sanitation project:** **1st payment:** First payment is an advance payment of 20% of the total contract sum, shall be made against the bank guarantee for the same amount as per GCC 41.2.1. This amount being: **$15,024.94** *(Fifteen Thousand, Twenty Four United States Dollars and Ninety Four Cents)* including taxes. **2nd payment:**

RN

	Second payment of 40% of the total contract sum shall be made 03 months into the project and on submission of an acceptable draft ESIA report. This amount being: **$30,049.88** *(Thirty Thousand, Forty Nine United States Dollars and Eighty Eight Cents)* including taxes. **Final payment:** The Final payment of 40% of the total contract sum shall be made 05 months into the project and on submission of an acceptable Final Resettlement Action Plan (RAP) report. This amount being: **$30,049.88** *(Thirty Thousand, Forty Nine United States Dollars and Eighty Eight Cents)* including taxes. **The payment schedule for ESIA and RAP for Bushenyi Water supply and sanitation project:** **1st payment:** First payment is an advance payment of 20% of the total contract sum, shall be made against the bank guarantee for the same amount as per GCC 41.2.1. This amount being: **$23,425.60** *(Twenty Three Thousand, Four Hundred and Twenty Five United States Dollars and Sixty Cents)* including taxes. **2nd payment:** Second payment of 40% of the total contract sum shall be made 03 months into the project and on submission of an acceptable draft ESIA report. This amount being: **$46,851.19** *(Forty Six Thousand, Eight Hundred and Fifty One United States Dollars and Nineteen Cents)* including taxes. **Final payment:** The Final payment of 40% of the total contract sum shall be made 05 months into the project and on submission of an acceptable Final Resettlement Action Plan (RAP) report. This amount being: **$46,851.19** *(Forty Six Thousand, Eight Hundred and Fifty One United States Dollars and Nineteen Cents)* including taxes.
41.2.1	The following provisions shall apply to the advance payment and the advance bank payment guarantee: (1) An advance payment shall be made within *30* days after the receipt of an advance bank payment guarantee by the Client. The advance payment will be set off by the Client in equal portions against the 2nd payment. (2) The advance bank payment guarantee shall be in the amount and in the currency of the currency(ies) of the advance payment.

	(3) The bank guarantee will be released when the advance payment has been fully set off.
41.2.4	**The accounts are:** for foreign currency: Account Name: **AIR WATER EARTH (AWE) LIMITED** Account No.: **US Dollar A/C. 8702030553400** Bank: STANDARD CHARTERED BANK UGANDA LIMITED LUGOGO BRANCH P.O. BOX 7111 KAMPALA SWIFT Code: SCBLUGKA
	The interest rate is: Equal to the Consultant's bank lending rate at the time the interest becomes applicable.
45.1	**Disputes shall be settled by arbitration in accordance with the following provisions:** 1. Selection of Arbitrators. Each dispute submitted by a Party to arbitration shall be heard by a sole arbitrator or an arbitration panel composed of three (3) arbitrators, in accordance with the following provisions: (a) Where the Parties agree that the dispute concerns a technical matter, they may agree to appoint a sole arbitrator or, failing agreement on the identity of such sole arbitrator within thirty (30) days after receipt by the other Party of the proposal of a name for such an appointment by the Party who initiated the proceedings, either Party may apply to *the Association of Uganda Impact Assessors* for a list of not fewer than five (5) nominees and, on receipt of such list, the Parties shall alternately strike names therefrom, and the last remaining nominee on the list shall be the sole arbitrator for the matter in dispute. If the last remaining nominee has not been determined in this manner within sixty (60) days of the date of the list, *the Association of Uganda Impact Assessors* shall appoint, upon the request of either Party and from such list or otherwise, a sole arbitrator for the matter in dispute. (b) Where the Parties do not agree that the dispute concerns a technical matter, the Client and the Consultant shall each appoint one (1) arbitrator, and these two arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel. If the arbitrators named by the Parties do not succeed in appointing a third arbitrator within thirty (30) days after the latter of the two (2) arbitrators named by the

	Parties has been appointed, the third arbitrator shall, at the request of either Party, be appointed by *CADER, Uganda* (c) If, in a dispute subject to paragraph (b) above, one Party fails to appoint its arbitrator within thirty (30) days after the other Party has appointed its arbitrator, the Party which has named an arbitrator may apply to the *CADER, Uganda* to appoint a sole arbitrator for the matter in dispute, and the arbitrator appointed pursuant to such application shall be the sole arbitrator for that dispute.
	2. Rules of Procedure. Except as otherwise stated herein, arbitration proceedings shall be conducted in accordance with the rules of procedure for arbitration of the United Nations Commission on International Trade Law (UNCITRAL) as in force on the date of this Contract. 3. Substitute Arbitrators. If for any reason an arbitrator is unable to perform his/her function, a substitute shall be appointed in the same manner as the original arbitrator. 4. Nationality and Qualifications of Arbitrators. The sole arbitrator or the third arbitrator appointed pursuant to paragraphs 1(a) through 1(c) above shall be an internationally recognized legal or technical expert with extensive experience in relation to the matter in dispute and shall not be a national of the Consultant's home country. For the purposes of this Clause, "home country" means any of: (a) the country of incorporation of the Consultant; or (b) the country in which the Consultant's principal place of business is located; or (c) the country of nationality of a majority of the Consultant's shareholders; or (d) the country of nationality of the Sub-consultants concerned, where the dispute involves a subcontract.
	5. Miscellaneous. In any arbitration proceeding hereunder: (a) proceedings shall, unless otherwise agreed by the Parties, be held in *Kenya*; (b) the *English* language shall be the official language for all purposes; and (c) the decision of the sole arbitrator or of a majority of the arbitrators (or of the third arbitrator if there is no such

		majority) shall be final and binding and shall be enforceable in any court of competent jurisdiction, and the Parties hereby waive any objections to or claims of immunity in respect of such enforcement.

RN

RN

IV. Appendices

LE

RN

APPENDIX A – TERMS OF REFERENCE

LE RN

NATIONAL WATER AND SEWERAGE CORPORATION

TERMS OF REFERENCE FOR

1. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
2. RESETTLEMENT ACTION PLAN

GULU WATER SUPPLY AND SANITATION PROJECT

CE

RN

LG

RW

Acronyms and Abbreviations

BoQ	Bills of Quantities
CGV	Chief Government Valuer
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GoU	Government of Uganda
IDA	International Development Agency
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)
MIS	Management Information System
MWE	Ministry of Water And Environment
NEMA	National Environment and Management Authority
NGO	Non-Governmental Organisation
NWSC	National Water and Sewerage Corporation
PAP	Project Affected Person
PC	Performance Contract
PIU	Project Implementation Unit
PSP	Public Stand Post
RAP	Resettlement Action Plan
ToR	Terms of Reference
WSPs	Waste Stabilization Ponds
WTW	Water Treatment Works

1. INTRODUCTION

1.1 Overview of National Water and Sewerage Corporation (NWSC)

The NWSC was established as a government parastatal organisation in 1972 to develop, operate, and maintain water supply and sewerage services in urban areas of Uganda. NWSC operates under the Ministry of Water and Environment (MWE), and currently covers thirty four towns.

1.2 Project Background

The Gulu water supply and sanitation project is funded by a loan from the World Bank towards the Uganda Water Management and Development Project (WMDP). The WMDP was developed under the MWE as an integrated water resource management and development project. The project development objectives are to improve integrated water resources planning, management and development; and access to water and sanitation services in priority urban areas. It is believed that the project will contribute to higher level goals of sustaining natural resources, improving service delivery, and increasing economic productivity. The ESIA will contribute to achieving the above objectives.

Gulu town, the location of the proposed project is the administrative and commercial centre of Gulu district and the most populous town in Northern Uganda. The road distance to Gulu from Kampala is approximately 340 kilometres. Water and sanitary services for Gulu town have been under NWSC management since 1992.

The source of raw water for the Gulu water supply is Oyitino dam, located 7km northwest of Gulu town on river Oyitino. Raw water is pumped from the dam to the Gulu water treatment plant (WTP), located in the senior quarters of the town. The treatment plant, with a design capacity 5,500 m^3/day, is a conventional water treatment system comprising of clarification, filtration and disinfection processes. The treated water is pumped to three reservoir sites located at Boma, Customer Corner and Pece. The total reservoir capacity in Gulu currently stands at about 6,000 m^3. Of this, the 2010 inaugurated Customer Corner reservoir has a capacity of 5,300 m^3 and was funded by GoU national budget and NWSC internal resources. From the reservoirs, water is supplied by gravity to currently just over 4,500 connections that serve a target population of about 200,000 people.

The sewerage system for Gulu town covers the central business district and parts of the senior quarters and, currently, there are 565 connections. The sewage treatment plant consists of a set of stabilisation ponds.

Gulu town is water stressed during the entire year and the supply situation worsens during dry seasons, necessitating the development of alternative and additional raw water sources. A study into additional raw water sources is currently underway, financed by KfW. This study will have its own ESIA and RAP and not be s scope of the current RfP.

Funds allocated from the World Bank portfolio will be allocated for improvements of water supply infrastructure downstream of the water treatment works, rehabilitation and expansion of Oyitino dam, and rehabilitation and expansion of the sewerage system. The scope of the current RfP is referring to that scope of project activities.

1.3 Project description

The bulk of works under Gulu Water supply and sanitation project will be carried out in Gulu Municipality and works to extend to the surrounding peri-urban settlements will be limited to pipe works. Through the project, the current raw water source at Oyitino will be

rehabilitated; the current water treatment plant will be rehabilitated and expanded; the water supply network will be rehabilitated and expanded; and the current waste water collection system and treatment ponds will be rehabilitated.

All project works will be confined to the existing supply area and asset sites. However, the planned raising of the weir at the impoundment at the current raw water source will increase the submerged area along its current shorelines. In addition, extension of sewerage services to un-sewered high density areas will involve creation of networks and new waste water stabilization ponds discharging effluent to watercourses.

A design consultant will develop a project design and elaborate on the construction methods, processes and actual locations of the project activities. The ESIA will inform the project feasibility study and designs on potential environmental impacts and also assist in developing alternatives with lesser impacts, wherever possible and necessary. The ESIA consultant is thus expected to closely work with the design consultant and provide an independent evaluation of all design proposals in respect of environmental and social aspects.

The detailed description of the proposed project works, for which an ESIA and RAP are required, is shown in sections 1.3.1 to 1.3.6.

1.3.1 Rehabilitation of Gulu Raw Water Source

The estimated safe yield of the current source is 2,000m^3/day which is insufficient for the current water needs of Gulu town. It is proposed to rehabilitate Oyitino dam with the aim of increasing its storage capacity. The works under rehabilitation will include but not limited to raising the current spillway with about 0.5m and, with it, the maximum reservoir water level and construction of a new raw water intake.

The existing raw water intake is located downstream of the Oyitino dam as shown in Figure 1. The space available at the current location is enough to accommodate any new structure for a raw water intake. This site is owned by NWSC.

Figure 1: Proposed and existing raw water intake at Oyitino dam.

The raising of the current spillway level by about 0.5m and the resulting water level will lead to impoundment of areas surrounding the current Oyitino reservoir at the current raw water source which may submerge surrounding areas.

1.3.2 Rehabilitation and expansion of the current Water Treatment Plant

It is intended to rehabilitate the WTP to restore its design capacity. In addition, depending on extra raw water mobilised from rehabilitation of the Oyitino water source, the treatment plant may be expanded to handle the extra volume. The land at the current water treatment plant, as shown in Figure 2, is large enough to accommodate any expansions to the WTP. Treated water from the plant will follow the same routing as is currently the case.

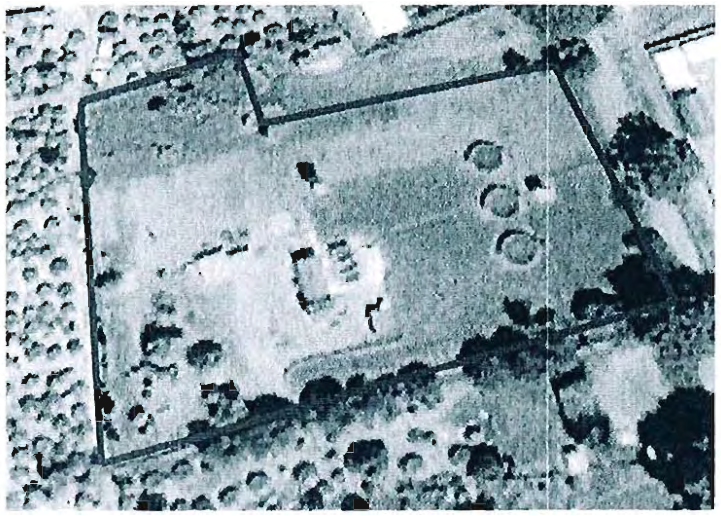


Figure 2: The proposed and current site for Water Treatment Plant

1.3.3 Water Supply and Distribution System

The entire network of Gulu water supply system totals to about 76km. The biggest size of pipes in the distribution network is 160mm OD, leading to bottlenecks in the supply network. It is proposed to replace parts of the network with larger pipe sizes, following detailed investigations supported by hydraulic modelling. Extensions within the existing service area to locations that are currently not served with water supply infrastructure will be made. The current supply and distribution networks can be found on the NWSC Gulu block map availed in the soft copy sent along with this document.

1.3.4 Sewer Network and Waste Water Treatment Plant

Existing sewerage system

Gulu's central business district and parts of senior quarters are the only sewered areas in town, discharging sewage to a set of lagoons. The sewer network serving these areas, together with the lagoons, can be found on the NWSC Gulu block map availed in the soft copy sent along with this document. It is proposed that both the lagoons and the existing sewer networks are rehabilitated. In addition, sewer network extensions into areas that are currently not served will be made.

The northern and the army barracks catchments

The northern and the army barracks catchments are indicated in Annex 1. It is proposed that sewer networks and sewage stabilisation ponds be constructed for each of these catchments.

1.3.5 Water and Sanitation Facilities in Informal Settlements

A large proportion of Gulu's population is classified as poor. These live in informal settlement clusters scattered all-over the municipality. It is proposed that the project provides water and sanitation services through construction of public water service points and shared sanitation facilities.

1.3.6 Catchment Management and Source Protection

The project will include interventions supporting sustainable management of the Oyitino raw water catchment. Interventions will include measures such as sustainable land use,

restoration and re-vegetation of river banks, implementation of river bank protection regulations, implementation of wetland regulations, etc. The interventions will be guided by the source protection guidelines of the Directorate of Water Resources Management (DWRM).

2. ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT

The Environmental and Social Impact Assessment (ESIA) is to be carried out in line with the requirements of the legal, policy and regulatory framework of Uganda, as well as World Bank policy OP4.01: "Environmental Assessment," World Bank policy on Involuntary Resettlement (OP 4.12) and other applicable World Bank safeguard and information disclosure policies. Should the requirements of the Government of Uganda and World Bank differ, the higher of the two standards shall be followed.

2.1 ESIA objectives and principles

The assignment is commissioned to undertake an ESIA for the Gulu water and sanitation project. The assignment is to determine the project's potential environmental and social impacts and propose measures to mitigate them. The ESIA and the project feasibility / design will be carried out in parallel, so that all designs proposed can be assessed and informed by the ESIA and options with minimal adverse impacts can be developed.

2.2 Specific objectives

The main aim of this consultancy is to improve water and sanitation services in Gulu town and its peripheral settlements with minimal impact to the environment and minimum social disruption.

The specific objectives are:

1. To establish the potential environmental and social impacts of a proposed design and propose measures to mitigate them.
2. To assess the impacts of alternatives to the proposed design and advise the design consultant accordingly.
3. To determine the actions required by NWSC and other stakeholders to satisfactorily address all potential impacts.

2.3 Scope of Work

The work for this consultancy is expected to include (i) review of policy and legal frameworks, (ii) description of potentially affected areas, (iii) analysis and description of a project's potential impacts, (iv) analysis of potential impacts of design alternatives, (v) public consultation and disclosure (vi) development of an environmental and social management plan (ESMP), and (vii) inter-agency coordination. Sections 2.3.1 to 2.3.8 outline the scope in detail.

2.3.1 Policy and Legal Framework

The consultant will identify policies, laws, regulations and guidelines that are applicable to the proposed project. The work should cover the following:

1) National laws and/or regulations on environmental and social impact assessments.
2) Regional, provincial or communal environmental and social assessment regulations.
3) Legal, policy and regulatory framework for involuntary resettlement of Uganda
4) Environmental and social assessment policies of the World Bank.
5) Identify design or operating standards that project components must meet to be in compliance with environmental safeguards, such as effluent standards, extraction limits, receiving water quality standards, noise standards, road safety standards, etc.
6) Any legal steps necessary to ensure the effective implementation of the identified environmental and social protection and impact mitigation measures.

Respective Government of Uganda policies, laws and regulations, as well as World Bank Operational Policy 4.01: "Environmental Assessment," World Bank policy on Involuntary Resettlement (OP 4.12), other safeguards policies, and the World Bank Policy on Access to Information (July 1, 2010) too shall serve as a guidance for this work.

2.3.2 Description of Potentially Affected Areas

The consultant shall provide a baseline description of the project's social and physical environment, and identify all peoples and areas that are potentially affected by the project, collect population data, document topography, current land use status and physical land conditions, and identify environmentally sensitive areas. As a minimum, the consultant shall assess the following:

1) The locations where the feasibility study recommends the development of project infrastructure.
2) Locations where cumulative environmental impacts of water extraction and effluent discharge on the affected water bodies will potentially be experienced and their socio-economic consequences.
3) The route of the transmission lines from the water sources to their point of discharge. The point of discharge is the Water Treatment works
4) The service area of the existing and new water network, focusing on locations where the network is to be rehabilitated, or intensified.
5) All areas into which the water network is to be expanded.
6) The service area for the new wastewater collection system.

7) The locations that are potentially affected by the rehabilitation and improvement works in the WTW.

8) The locations that are potentially affected by the rehabilitation and improvement works on the raw water source at River Oyitino. Particular focus shall be on raising the water level by about 0.5m and adjusting the spillway to accommodate the same and allowing for an adequate free board requiring increasing the dam crest which would subsequently result in a larger submerged area.

9) The areas that are proposed as locations for the waste stabilization ponds (WSPs). During the feasibility study, several potential locations may be identified and all of them shall be assessed on their potential environmental and social impacts.

10) The effluent disposal route from the WSPs and the impact of effluents on the receiving water body and the surrounding communities.

11) All location of routes and infrastructure that is necessary for operating the planned WSPs (e.g. roads, electric power).

12) Locations in informal settlements where water and sanitation facilities are planned.

The work shall include both, desk and field studies. The extent of field studies shall be for the Gulu Water Supply and Sanitation Project and may include interviews with residents of affected areas, government officials, and NGOs. The consultant shall propose the scale of field work and request approval from NWSC and the World Bank prior to commencement of the studies. The consultant shall summarize the outcome of this work in which a broad assessment will have been made of the major biophysical and social impacts likely to be generated by the project

2.3.3 Description of potential project impacts

The potential project impacts are classified as (i) impacts of the construction phase and (ii) impacts of the project operational phase. Details of potential impacts are described in sections 2.3.3.1 to 2.3.3.2

2.3.3.1 Potential impacts during project construction phase

The consultant shall assess the potential construction methods and point out any potential impacts on the environment that are construction related. For example, but not limited to:

1) Temporary drainage of wetlands to allow access.

2) Impacts on the environment due to extraction of raw materials (quarrying).

3) Temporary changes to flow regimes of watercourses due to construction of coffer dams.

4) Possible impacts on flow volumes in watercourses due to water extraction for building activities.

5) Potential impacts on livelihoods, land uses, and community / social aspects.

For all issues identified, measures for mitigation and reinstatement shall be proposed in the Environmental and Social Management Plan (ESMP) (e.g. removal of temporary access, restoration of wetlands, site control to prevent encroaching, etc.).

2.3.3.2 Potential impacts of project operational phase

The consultant should summarise the project process and point out their potential impacts on society and environment. This part of the assignment shall concentrate on operational processes and include, for example:

1) Impact of raw water abstraction on source.
2) Anticipated wastewater volumes and quality.
3) Anticipated effluent quality.
4) Impact of WSPs' effluent on receiving water body.
5) Chemicals used in processes and their potential impacts on the environment when disposed.
6) Impact of general waste disposal.
7) Impact of operations related traffic.
8) Potential impacts on livelihoods, land uses, and community / social aspects.

Handling of chemicals and other potentially harmful materials as part of the project operations that form part of the works manual will be summarised in a separate chapter in the ESIA. The consultant shall also summarise all issues related to pest management, to ensure compliance with OP4.09 on Pest Management.

2.3.4 Analysis of the Potential Impacts of the Project

Based on the work undertaken in sections 2.3.1 to 2.3.3, produce an environmental and social analysis of the following:

1) Significant positive and negative impacts.
2) Direct and indirect impacts.
3) Immediate, long-term and cumulative impacts.
4) Identify impacts that are unavoidable or irreversible (residual impacts).

Wherever possible, describe impacts quantitatively, in terms of environmental and social costs and benefits. Assign economic values where feasible. Characterise the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. If found necessary, provide TORs for studies to obtain the missing information. Special attention should be given to:

1) The extent to which the water source will be impacted by the abstraction of water. For watercourse abstraction, the length that will be significantly impacted shall be stated. For groundwater abstraction, the impact on the aquifer in terms of water table and reservoir medium (e.g. compaction) shall be stated.
2) The extent to which receiving water quality standards and / or beneficial use objectives will be achieved with the proposed type and level of treatment in the WSPs.
3) The length of watercourse that will be positively or negatively affected by the discharge from the WSPs, and the magnitude of the changes in water quality parameters.

4) Projected quantitative changes in beneficial uses, such as fisheries (species composition, productivity), recreation and tourism (visitor-days, overnights, expenditures), and waters available for portable supply, irrigation, and industrial use.

5) Sanitation and public health benefits anticipated.

2.3.5 Analysis of Alternatives

The consultant shall briefly describe and evaluate alternatives that were examined during the feasibility of the proposed project and identify other alternatives that would achieve the same objectives. The concept of alternatives extends to the following:

1) Siting and design.

2) Technology selection.

3) Operation and maintenance procedures for the proposed systems.

The consultant should compare the alternatives in terms of:

1) Potential environmental and social impacts, including land and energy requirements.

2) Estimated capital and operating costs.

3) Reliability and suitability under local conditions.

4) Institutional, training, and monitoring requirements.

The description should indicate which impacts are irreversible or unavoidable and which may be mitigated. To the extent possible, costs and benefits of each alternative shall be quantified, incorporating the estimated costs of any associated mitigating measures. The alternative of not constructing the project should be included to demonstrate environmental and social conditions without the project being implemented.

2.3.6 Public Consultation and Disclosure

The Consultant shall undertake a stakeholder analysis at the initiation phase, and ensure an engagement plan is developed to address all stakeholders with interest or influence in the project, and those to be affected by the project.

2.3.7 Development of an Environmental and Social Management Plan (ESMP)

The consultant shall propose mitigation measures to manage the potential impacts, and discuss costs, timing, monitoring, and institutional responsibilities for the mitigation measures as well as the institutional enhancement and training requirements to implement them. The ESMP for this project shall include among others the following issues:

1) Proposed work programs, timing and budget estimates.

2) Staffing and training requirements.

3) Monitoring and evaluation.

4) Other necessary support services to implement the mitigating measures.

5) The ESMP should also consider measures for emergency response to accidental events as appropriate.

6) Location, type and scope of catchment management and source protection measures as well as identifying stakeholders to be involved in the implementation of each action.

The consultant shall prepare a detailed plan to monitor the implementation of mitigation measures and the impacts of the project during rehabilitation / construction and operation. The plan should include an estimate of capital and operating costs and a description of other inputs needed to implement the plan, such as training and institutional strengthening. The plan shall also address social and environmental monitoring of the disposal sites for sludge and screenings, and include a regular schedule of monitoring and reporting on the quality of potentially affected population, surface and ground waters.

The consultant shall review the authority and capability of institutions at local, regional, and national levels and, if appropriate, recommend steps to strengthen or expand them so that the ESMP may be implemented effectively. The recommendations may extend to inter-sectorial arrangements, management procedures, training, staffing, and financial support.

An outline of the contents of the ESMP will be included in the project's operational manual and should be included along with environmental and social protection clauses for contracts and specifications in the BOQs and construction and operating contracts.

Offset-based mitigation measures (both land for land and enhanced management or ecological stability of remaining areas) will be considered to offset the residual impacts, especially regarding taking of forests or wetlands for the project.

2.3.8 Inter-Agency Coordination and Public / NGO Participation and consultations

The consultant shall assist the client in coordinating the ESIA with relevant agencies, consult with groups likely to be affected by the proposed project, and with local NGOs on the environmental and social aspects of the proposed project. The ESIA consultant shall work closely with the design team who will give data on the proposed project and in turn address environmental concerns that would arise out of the ESIA consultancy

Consultations shall be organised for all issues identified as being of material interest to the public. In particular, the consultant shall organise stakeholder consultations concerning the shared use of water resources and their associated catchments. Here, the consultant shall identify key stakeholders, provide ample notice and information prior to consultations, identify meeting locations that all stakeholders can reach with reasonable effort, and otherwise reasonably facilitate the public consultations and participation that are free and informed.

The client, with the assistance of the consultant, shall provide relevant information to affected groups in a timely manner prior to consultation. The material shall be in a form and language that is understandable and accessible to the groups being consulted. The consultant shall maintain a record of the public consultations and the records should indicate the following:

1) Means other than consultations used to seek the views of affected stakeholders (e.g. surveys).

2) Date and location of the consultation meetings.

3) List of attendees, their affiliation, and contact address.

4) Summary minutes.

3. RESETTLEMENT ACTION PLAN

The consultant is expected to develop a Resettlement Action Plan (RAP). The RAP will aim at (i) establishing the project social and economic impacts resulting from acquisition of land as well as disturbance through work processes on individuals or groups of people; and (ii) mitigating these impacts.

3.1 Specific Objectives of RAP

The objectives of a RAP will include the following:

1) Determining the scope and magnitude of social and economic impacts resulting in the permanent or temporary acquisition of land and displacement of people.
2) Avoiding or minimizing adverse social and economic impacts.
3) Providing people with opportunities to participate in the design and implementation of the resettlement program.
4) Assisting displaced people in their efforts to improve their livelihood and standards of living or at least to restore them to the previous situation.

The RAP will determine the extent of involuntary resettlement impacts associated with the project and put in place measures to mitigate those impacts. The impacts are mainly to do with interruption of livelihoods of people affected by the project due to the land acquisition, taking or changing the use of the affected land related to the proposed expansion of the Oyitino impoundment, rehabilitation and expansion of water supply and distribution lines, rehabilitation and expansion of sewer networks and rehabilitation of existing and construction of new waste water lagoons. In addition, it will involve carrying out consultations with relevant stakeholders, including potentially affected persons, to obtain their views and suggestions regarding the social impacts of the proposed project and agree on the measures to cover the losses. The outcome of the consultations will be reflected in the RAP report and incorporated into the project design as appropriate. The results of the consultations will be made available to all relevant stakeholders, including the potentially project affected persons.

The RAP will capture the following key aspects:

1) The extent of the planned project land acquisition or displacement of the persons.
2) Social and economic baseline information and project impacts detailing the project affected people by household and their losses.
3) Documentation of views and concerns raised by stakeholders and potentially affected persons regarding the development and implementation of the RAP and action points for concerns raised.
4) The proposed compensation measures with options identified and discussed with the affected people.
5) The agreements reached and the way forward.
6) A review of existing grievance measures, gaps and recommendations for project grievance mechanism.

7) RAP implementation arrangements, citing agencies and their responsibilities and detailed roles and responsibilities while making recommendations where some agencies have been and specific capacities of staff.
8) Monitoring and Reporting arrangements both during the project and post project implementation in order to assess the efficiency and effectiveness of the RAP process.
9) Implementation Schedule in relation to overall project implementation.
10) Costs and Budget including costs compensation, livelihood restoration activities, community development plan, monitoring activities (as may be applicable).

3.2 Scope of Work

The RAP will include the methodology to be used in valuing losses to determine their replacement value and a description of the proposed types and levels of compensation. It will present a definition of affected persons and criteria for determining their eligibility for compensation and resettlement assistance. It will also present an entitlement matrix, defining compensation packages and other resettlement measures that will assist each category of eligible persons. Resettlement measures should be prepared in consultation with the affected population and should be framed in the overall approach of livelihood restoration and development. In addition, the RAP will clearly explain the process of how compensation and resettlement measures will be implemented. This includes details of information flows, money transfer to affected people, paperwork and sign off for compensation package approval. An important part of this process is establishment and dissemination of a cut-off date after which people moving into the project area will not be eligible to receive benefits under the project. The cut-off date must be communicated in writing to the affected people

The key tasks to be covered in the RAP include (i) Socio-economic studies of project impacts; (ii) policy and legal frameworks; (iii) scope of land / property survey and valuation; and (iv) resettlement measures. Sections 3.2.1 to 3.2.4 indicate in detail the expected works.

3.2.1 Socio-Economic Studies and Project Impacts

The socio-economic studies should be conducted with the involvement of project affected people (PAPs). The mainstay of the report will be based on the census survey and socio-economic studies that include:

1. The current occupants and an inventory of the assets they are likely to lose, or that are affected by the project, to establish a basis for the design of the resettlement program.
2. The PAPs identified by categories, the inventory of their losses in terms of the physical assets lost, such as farms, grazing land, forest or woodlots, etc., using the number of PAPs negatively affected. For example:
    a) Nos. who will lose residential or commercial land with structures.
    b) Nos. who will lose residential or commercial land only.
    c) Nos. who will lose part of their structure.
    d) Nos. who are tenants in the affected structure.
    e) Nos. who have leases on certain buildings or structures.
    f) Nos. who will lose standing crops and trees.

IE RN

g) Nos. of inhabitants in townships who will lose structures, both permanent and temporary.
h) Nos. of industries, e.g. milk cooling plants, cotton or coffee stores, ginneries, and mines affected (if any).
i) Loss of public infrastructure and other community or shared assets.
j) Nos. of PAPs with permanent land use rights, marginally and severely affected.
k) Others, e.g. the vulnerable, etc.

The consultant will define persons to be affected based on specified criteria for determining their eligibility for compensation and other assistance, including relevant cut-off dates, disaggregated data on PAPs by categories of loss, with specific reference of loss. These should be guided by the relevant policy and legal frameworks.

Tables may be used for presentation of data. The consultant shall also identify the project component or activities that will give rise to resettlement, as well as the alternatives and the mechanisms considered to avoid or minimise resettlement prior to project final design and/or implementation.

The socio-economic studies shall be confined to the project activities with the aim of recommending appropriate livelihood restoration strategies and community development action plans for the PAPs. The consultant may use data collected during the feasibility by the design consultant and collect additional data on social-economic characteristics of the project affected people together with the census and inventory of assets. To provide for the socio-economic environment of the area, secondary data may also be included.

The socio-economic studies should document standard characteristics of the households affected, including descriptions of production systems, labour, and household organisation, and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the population to be affected by the project activities, the magnitude of the expected loss of assets (total or partial), and the extent of the effect (physical or economic) with respect to the different income streams.

The study shall contain detailed information on vulnerable groups or persons, for whom special provisions may have to be made, especially in the event that relocation is required. In the report, the consultant should outline the criteria used to identify vulnerable persons.

The consultant shall make provisions to update information on the affected people's livelihoods and standards of living at regular intervals.

In addition, studies need to be conducted that describe the following:

1. Land tenure and transfer systems, including an inventory of common property, natural resources from which people derive their livelihoods and sustenance, non-title-based systems (including grazing ,use of forest and swamp areas) governed by locally recognised land allocation mechanisms, and any issues raised by different tenure systems in the project area.
2. Patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the project. For example specific community groups like SACCOS or farmer groups that could be disrupted as a result of project implementation?
3. Public infrastructure and social services that will be affected. Based on the findings of the socio-economic survey, the consultant should conclude whether the project will have a significant impact on access to social services like water sources and health centres.

4. Social and cultural characteristics of communities to be affected, including a description of formal and informal institutions (e.g., community organizations, ritual groups, non-governmental organisations) that may be relevant in the consultation or to the design of the resettlement activities, or offer opportunities for synergies in implementation. These should be particularly considered for livelihood restoration activities in areas where similar undertakings by districts and other development partners exist.

3.2.2 Policy and Legal Framework

The consultant shall analyse the legal framework and document the findings. The work should cover the following:

1. The scope of the power of eminent domain and the nature of compensation associated with it, in terms of the valuation methodology and the timing of payment.
2. Applicable legal and administrative procedures, including a description of the remedies available to displaced persons in the judicial process and the normal time frame for such procedures and any available alternative dispute resolution mechanism that may be relevant to resettlement under the project.
3. Relevant law (including customary and traditional law) governing land tenure, valuation of assets and losses, compensation and natural resource usage rights, customary personal law related to displacement and environmental laws and social welfare legislation.
4. Laws and regulations relating to the agencies responsible for implementing resettlement activities.
5. Gaps, if any, between local laws covering eminent domain and resettlement and the World Bank's resettlement policy and the mechanisms to bridge such gaps.
6. Any legal steps necessary to ensure the effective implementation of resettlement activities under the project including, as appropriate, a process for recognising claims to legal rights to land – including claims that derive from customary law and traditional usage.

3.2.3 Scope of Land / Property Survey and Valuation

The methodology used in valuing losses to determine their replacement cost, and a description of the proposed types and levels of compensation shall address the requirements of Ugandan law and the requirements set out in World Bank document OP 4.12. Details of what ought to be done as a minimum are outlined in sections 3.2.3.1 and 3.2.3.2.

3.2.3.1 Property Survey

The property survey shall:

1. Establish the names and particulars of the affected persons, size of land and ownership status, sizes of other properties, such as houses, to assist the valuation team in computing the values of affected properties. The PAPs should be located on strip maps.
2. Obtain cadastral and other relevant information to identify property owners and other persons that are likely to be affected by the project.

RN

3. Document the damage to crops of PAPs, including photographic evidence.
4. The data obtained should be clearly cross-referenced in the valuation roll and strip maps.

3.2.3.2 Valuation

Valuation shall be in accordance with the set out scope of work and should address the following points:

1. Identify the project affected persons using procedures approved by the Chief Government Valuer (CGV) and in line with the World Bank document OP 4.12 to carry out detailed valuation of all land, properties, and livelihoods affected by the project. This will provide the basis for compensation/resettlement.
2. Compile land acquisition and resettlement costs for areas that PAPs are to be resettled, if any.
3. Ensure the data collection during valuation is done on forms acceptable to the CGV and the process is properly witnessed by the client.
4. Ensure that all PAPs and their affected property are photo documented. This is for easy identification during disclosure and payments.
5. Ensure that valuation for loss of assets will be done at current replacement value.
6. The valuation exercise shall be witnessed by staff of the project implementing agency or its appointed agent. The project implementing agency, or its appointed agent will sign the valuation exercise, together with the consultant and a representative of the local council.

The valuation data base is to be supplied as an electronic document in software determined by the NWSC. One hard copy each for the client and the consultant shall also be produced.

3.2.4 Resettlement measures

A description shall be produced of the packages of compensation and other resettlement measures tailored to each category of eligible PAPs. It must be ensured that resources are allocated efficiently and effectively and, in addition to being technically and economically feasible, the resettlement packages should be compatible with the cultural preferences of the PAPs and prepared in consultation with them. Particular interest shall be paid to components sections 3.2.4.1 to 3.2.4.9.

3.2.4.1 Site Selection, Site Preparation, and Relocation

If found necessary, suggest relocation sites while clearly stating the site selection criteria. As a minimum, this should address:

1. Institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban.
2. The combination of productive potential, location specific advantages and other factors shall at least be comparable to the advantages of the old sites.
3. An estimate of the time needed to acquire and transfer land and ancillary resources.

4. Any measures necessary, for example adequate sensitisation and information dissemination, to prevent land speculation or influx of ineligible persons at the selected sites.
5. Procedures for physical relocation under the project, including timetables for site preparation and transfer.
6. Legal arrangements for regularising tenure and transferring titles to re-settlers.

3.2.4.2 Community Participation

To ensure that the RAP is efficient and effective, consultations with stakeholders and project affected persons is of utmost importance and the RAP should include:

1. A description of the strategy for consultation with and participation of re-settlers and hosts in the design and implementation of resettlement activities, if any, to develop a stakeholder engagement plan.
2. A summary of the views expressed and how these views were taken into account in preparing RAP.
3. If applicable, a review of the resettlement alternatives presented and the choices made by affected persons regarding options available to them, including choices concerning compensation and resettlement assistance. This, for example, concerns choices on relocating as individual families versus relocating as parts of pre-existing communities or kinship groups in order to sustain existing patterns of group organisation as well as retaining access to cultural property (e.g. places of worship, pilgrimage centres, and cemeteries).
4. Institutionalised arrangements through which affected people can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that vulnerable groups such as indigenous people, ethnic minorities, the landless, and women are adequately represented.

3.2.4.3 Integration with host populations

Depending on the project impacts, if there are persons to be relocated, the consultant should recommend measures to mitigate the impact of resettlement on any host communities, including:

1. Undertake consultations with host communities and local governments to capture their concerns and fears concerning the relocation process.
2. Arrangements for promptly tendering any payment due to the hosts for land or other assets provided to re-settlers.
3. Arrangements for addressing any conflict that may arise between re-settlers and host communities.
4. Any measures necessary to augment services (e.g., education, water, health, and production services) in host communities to make them at least comparable to services available to re-settlers.

3.2.4.4 Grievance Procedures

Depending on the project impacts, affordable and accessible procedures for settlement of disputes arising from resettlement measures, including compensation, should be developed. The grievance mechanisms should take into account the availability of judicial

recourse, community and traditional as well as other existing dispute settlement mechanisms. The assignment will include identification of affordable and accessible procedures for settlement of complaints related to the planning and implementation of resettlement activities. This includes establishing procedures for recording grievances and response times for resolution of problems. The consultant shall identify agencies responsible for implementing these procedures and take into account community and traditional dispute settlement mechanisms as well as the availability of judicial recourse.

3.2.4.5 Organisational Responsibilities

The organisational framework for implementing resettlement should be clearly outlined. This includes:

1. Identification of agencies responsible for delivery of resettlement measures and provision of services.
2. Arrangements to ensure appropriate coordination between agencies and jurisdictions involved in implementation.
3. Any measures needed to strengthen the implementing agencies' capacity to design and carry out resettlement activities, including technical assistance.
4. Provisions for the transfer of responsibility for managing facilities and services provided under the project to local authorities or the re-settlers.

3.2.4.6 Implementation Schedule

An implementation schedule shall be prepared. The schedule is to cover all resettlement activities, from preparation to implementation, and should state target dates for the achievement of expected benefits to the re-settlers and hosts. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.

3.2.4.7 Costs and Budget

Tables shall be produced that show itemized cost estimates for all resettlement activities, including allowances for inflation, implementation and monitoring of the RAP and other contingencies and timetables for expenditures. Further sources of funds and arrangements for timely flow of funds should be indicated.

3.2.4.8 Monitoring and Evaluation

The purpose of monitoring and evaluation is to report on the effectiveness of the implementation of the RAP, covering physical resettlement, disbursement of compensation and effectiveness of public consultation, amongst others. Monitoring and purposeful evaluation will be key factors for the successful resettlement activities.

Monitoring and evaluation will be undertaken by independent monitors as part of the project implementation works. The monitors will be selected on criteria that are considered appropriate by the funding agency and, therefore, the consultant shall prepare a proposed monitoring and evaluation framework for RAP implementation, including:

1. A Management Information System (MIS) for capturing compensation data (baseline and post resettlement) for monitoring and evaluation purposes.
2. A plan for monitoring and evaluation of the compensation package with indicators for measuring implementation performance, impacts and outcomes.

3. Involvement of the affected persons in the monitoring process.
4. The period monitoring and evaluation shall cover after completion of activities.
5. A review of the baseline survey results.
6. The compensation complaints / grievance redress committee.
7. Identification of alternative land for resettlement and farming.
8. Adherence to compensation payment schedule.
9. Movement and support of the PAPs and, in particular, the situation of small and marginal landholders, unskilled labourers, mobile vendors, migrant populations, ethnic minorities, women, children, and the elderly and disabled persons.
10. Reporting requirements for making the results of the monitoring work useful for subsequent projects.
11. The plan shall provide for reviews of the regular progress reports to the implementing agency by stake holders at national level, including the World Bank, and at local levels.

3.2.4.9 Rap Implementation

The Client will implement the RAP as a separate assignment once the scope has been defined in the RAP.

4. CAPACITY BUILDING AND TRANSFER OF KNOWLEDGE

The Consultant shall train designated staff at NWSC with the aim of developing capacity and knowledge transfer. The consultants should include in their proposal a training approach and plan.

The consultant is further advised that all the services described in these Terms of Reference shall be performed in close co-operation with the NWSC Staff and representatives of key stakeholders.

5. QUALITY MANAGEMENT

The Consultant will be required to demonstrate in their proposal, evidence of adoption of use of a Quality Assurance System (ISO 9001 or equivalent) as well as to describe how quality control will be implemented in the course of the assignment.

6. ORGANISATION OF THE ASSIGNMENT

6.1 Contractual Arrangements

The contract for this assignment shall be lump sum and the consultant shall show the costs of his proposed services in accordance with these contractual arrangements.

6.2 Logistical Setup and Staffing

Within the technical proposal, the consultant shall elaborate on the envisaged logistical setup and deployment of appropriate skills for the execution of the assignment. The consultant shall present the staffing schedule in a manner that clearly shows the stage, activity and duration where each of the proposed team members is planned to be involved

on the project. An organogram reflecting the responsibilities of each staff member and line management setup of the proposed team shall be part of the proposal.

To enhance skills and experience in the client country, it is recommended that the consultant integrates local expertise into the project execution team.

The consultant's team is expected to provide key expertise as stated in Table 4-1 and Table 4- 2.

The consultant will be expected to name the overall team leader to carry out day to day management of the two project teams. The consultant is free to propose additional skills as are deemed necessary to execute the assignment within their stated methodology.

Table 4-1: Key personnel for ESIA with estimated time inputs

Expert	Minimum relevant experience (years)	Indicative staff input (month)
Environmental specialist / team leader	10	02
Sociologist	05	02
Hydrologist	05	01
Water and wastewater specialist	05	01
Surveyor	05	01

Table 4- 2: Key personnel for RAP with estimated time inputs

Expert	Minimum relevant experience (years)	Indicative staff input (month)
RAP specialist / team leader	07	02
Valuer	05	02
Legal expert	05	01

6.2.1 Key Personnel for the consultancy

The consultancy shall provide all personnel necessary for the completion of the study. The following key personnel shall be included as a minimum requirement for the consultant's personnel:

1. **Environmental Specialist**: A graduate degree in environmental engineering, or equivalent, with 10 years of relevant experience in EIA preparation for infrastructure projects. The person shall be a NEMA-accredited environmental practitioner, have familiarity with World Bank's environmental safeguards policies from similar works financed by the World Bank. The person must be conversant with environmental engineering and environmental planning relevant to the proposed project.
2. **RAP Specialist**: A Bachelor's degree in surveying / land economics, or sociology, or equivalent, with 7 years of relevant experience in RAP preparation

and implementation for infrastructure projects. The person shall have significant experience with World Bank's social safeguard policies, as will be evidenced from similar works carried out and financed by the World Bank.

3. **Sociologist**: A University Degree in Sociology with 5 years' experience in resettlement/mitigation or social impact assessment issues related to development schemes on projects financed by the World Bank.
4. **Hydrologist:** A university degree in hydrology, or equivalent, with 5 years of experience in assessing impacts from water storage by watercourse impoundments, ground-and surface water abstraction, and effluent discharges from water and sanitation projects, on the water source / receiving water.
5. **Water and Wastewater Specialist:** A university degree with 5 years of hands on experience in the management of water supply and wastewater projects
6. **Valuer**: A university degree in land economics or its equivalent with 5 years of experience in property valuation. The person must be registered by the Surveyors Registration Board (SRB) with a valid practicing certificate.
7. **Surveyor**: A university degree in surveying with 5 years of experience in survey of infrastructure projects. The person must be registered by the Surveyors Registration Board (SRB) with a valid practicing certificate.
8. **Legal Expert:** A University Degree in Law and a Post Graduate Diploma in Legal practice, with 5 years significant experience in handling issues of involuntary resettlement as evidenced from similar works carried out and financed by the World Bank.

7. DURATION OF THE ASSIGNMENT

The assignment is expected to be completed in five months. The consultant shall establish a detailed work program within the above time period. The estimated staff time inputs should be provided in accordance with the consultant's professional judgment and knowledge of the local conditions and needs.

8. PRICING

In accordance with World Bank rules, the consultancy services shall be priced in any fully convertible currency, singly or in combination of up to three foreign currencies.

9. REPORTING AND MEETING REQUIREMENTS

The Consultant will report to:

The Senior Manager-Projects (WMDP)
Telephone: 0414315100
E-mail: info@nwsc.co.ug
NWSC Head Office
Plot 39 Jinja Road. P.O. Box 7053, Kampala

A copy of each report will be submitted to
IDA TTL
Berina Uwimbambazi
The world Bank
Plot 1 Lumumba Avenue

Rwenzori House,
Kampala, Uganda

The consultant will be required to produce and submit the following principal reports and documents in the quantities and timing indicated in Table 7-1. At each reporting stage, the consultant shall also be required to submit to NWSC and World Bank an electronic copy, using software specified by the client in Table 7-1. In addition all data collected during the assignment shall be availed on request by the client at any stage of the project.

Table 7-1: Summary of reporting requirements

Description	Timing in months from starting date	No. of hard copies to		Electronic copies to NWSC contact
		World Bank	NWSC	
Inception report	0.5	1	3	Word; Excel (all tables)
Draft ESIA report	3	1	3	Word; Excel (all tables); CAD (all drawings);
Draft RAP report	4	1	3	Word; Excel (all tables); CAD (all drawings); ArcViewGIS (location of extents of environmental and social impacts etc); Access (Management Information System for monitoring and evaluation)
Final ESIA report	4[7]	1	3	Word; Excel (all tables); CAD (all drawings); ArcViewGIS (location of extents of environmental and social impacts etc);
Final RAP report	5[8]	1	3	Word; Excel (all tables); CAD (all drawings); ArcViewGIS (location of extents of environmental and social impacts etc); Access (Management Information System for monitoring and evaluation)

The consultant shall prepare and submit an inception report, followed by a draft ESIA and RAP report to the client. The client together with the World Bank shall review the draft reports to issue a 'no objection' before the consultant submits the draft final ESIA report to NEMA and draft final RAP report to the Chief Government Valuer for approval. The ESIA report and RAP (without the list of entitlements) shall then be disclosed both in-country and at the World Bank's info shop.

[7] The time includes review and inputs by both NWSC and the World Bank which will be limited to two weeks

[8] The time includes review and inputs by both NWSC and the World Bank which will be limited to two weeks

9.1 Reporting format for Environmental and Social Impact Assessment (ESIA) report

The consultant will prepare an environmental and social impact assessment report and design mitigation measures as well as cost estimates for ESMP. The report should be organized in formats suggested in the World Bank Document OP 4.01 and should include the following as a minimum:

1) Executive Summary
2) Policy, Legal and Administrative Framework.
3) Description of the Proposed Project.
4) Description of the Environment.
5) Significant Environmental Impacts.
6) Analysis of Alternatives.
7) Environmental Management Plan, including mitigation, monitoring, capacity development and training and implementation schedule and costs; include environmental protection clauses for incorporation in contract agreements.
8) Inter-Agency and Public/NGO Consultation.
9) List of References.
10) Appendices:
    i. The Environmental and Social Impact Assessment team.
    ii. Records stakeholder meetings
    iii. Data and Unpublished Reference Documents.
    iv. Map, drawing and pictorial complement, especially to convey information on the project affected area and proposed project activities

9.2 Reporting format for a Resettlement Action Plan

A Resettlement Action Plan (RAP) shall have as the following as a minimum

1) Executive Summary
2) Property census and surveying
3) Property valuation
4) Socio-economic surveys
5) Analysis of alternatives to minimize displacement
6) Analysis of institutional and legal framework
7) Entitlement options and income restoration recommendations
8) RAP implementation institutional framework
9) RAP implementation schedule
10) Record of stakeholder consultations
11) Grievance redress framework
12) Monitoring and evaluation framework
13) RAP costs and budgets
14) List of References.
15) Appendices:
    i. The strip map
    ii. Valuation roll

RN

The consultant will in addition submit a Management Information System (MIS) to be used in monitoring and evaluation.

9.3 Meeting Requirements

Following the submission of the inception report, the consultant will avail appropriate personnel for review meetings with the client and the design consultant during the entire project period. The review shall be for the purposes of:

1) Assessing progress.

2) Obtaining signoffs on proposals made to the design consultant in respect of minimising project impacts on the environment

3) Exchanging information and data relevant for the successful accomplishment of the entire assignment.

The nature of the meetings, locations (e.g. site, NWSC offices, and consultant's offices) and agenda shall be agreed upon by the consultant's and the client's project managers in agreement with the design consultant.

For ensuring organisational and stakeholder wide appreciation and ownership of the proposed recommendations, the consultant shall be required to organise coordination workshops for presentation of key reports after each project milestone to a representative group of stakeholders that is to be agreed with the client. A minimum of three workshops is proposed and shall include project inception and presentation of draft reports each for ESIA and RAP. These will be organised and paid for by the Client while the consultant will facilitate.

10. DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT

To the extent possible, the client will provide free of charge all existing information, data, reports and maps in the custody of the client and will assist the consultant in obtaining other relevant information and materials from governmental institutions and state authorities as far as possible. In addition, the EISA consultant shall have full access to information and draft reports produced by the design consultant for purposes of the project.

The data shall include (but not be limited to) the following:

1) Feasibility studies for Rehabilitation and Expansion of Gulu Water and Sewerage Systems. Feasibility study / preliminary design report (1999) by COWI in association with ACE.

2) Detailed design report "Consultancy for Gulu Water Supply and Sanitation Project" (2005) by Gauff Consultants (U) Ltd in association with M & E Associates Ltd.

3) Block maps of the current Gulu water supply and distribution system.

The information, data, reports, etc., will be available for the consultant's unlimited use during execution of the proposed services. The Client will procure additional maps, aerial photographs, meteorological and geological data for use on the project if identified by the consultant and deemed necessary.by the client.

11. SERVICES AND FACILITIES TO BE PROVIDED BY THE CONSULTANT

In carrying out this assignment, the consultant shall provide the following services, among others, which should be duly provided for in the consultant's proposal:

1) Suitable office space and furnished for the consultant's team engaged on the assignment.

2) Office supplies, as required for the period of services.

3) Utility services and costs.

4) Long term accommodation for the consultant's staff while in Uganda and hotel accommodation for short term experts.

5) Subsistence (or per diem) payments for official travel for consultant's staff.

6) Secretarial and administrative support staff.

7) International and local telephone services for official communication only.

8) Transport for the period of the assignment

Terms of Reference for Mbale & Small Towns

NATIONAL WATER AND SEWERAGE CORPORATION

TERMS OF REFERENCE FOR

1. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
2. RESETTLEMENT ACTION PLAN

MBALE & SMALL TOWNS WATER SUPPLY AND SANITATION PROJECT

RN

RN

RN

Acronyms and Abbreviations

CGV	Chief Government Valuer
DEA	Directorate of Environmental Affairs
DWD	Directorate of Water Development
DWRM	Directorate of Water Resources Management
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
FIDIC	Fédération Internationale Des Ingénieurs-Conseils (International Federation of Consulting Engineers)
GoU	Government of Uganda
IDA	International Development Agency
IDAMC	Internally Delegated Area Management Contracts
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MGLSD	Ministry of Gender, Labour and Social Development
MoES	Ministry of Education and Sports
MoFPED	Ministry of Finance, Planning and Economic Development
MoH	Ministry of Health
MWE	Ministry of Water And Environment
NEMA	National Environment and Management Authority
NGO	Non-Governmental Organisation
NWSC	National Water and Sewerage Corporation
PACE	Performance, Autonomy and Creativity Enhancement
PAP	Project Affected Person
PC	Performance Contract
PIU	Project Implementation Unit
PSP	Public Stand Post
RAP	Resettlement Action Plan

UWASNET	Uganda Water and Sanitation NGO Network
UWSSS	Urban Water Supply and Sanitation Sector
WATSAN	Water and Sanitation
WSPs	Waste Stabilization Ponds
WMDP	Water management and Development Project

1. INTRODUCTION

1.1 Overview of National Water and Sewerage Corporation (NWSC)

The NWSC was established as a government parastatal organisation in 1972 to develop, operate, and maintain water supply and sewerage services in urban areas of Uganda. NWSC operates under the Ministry of Water and Environment (MWE), and currently covers thirty four towns.

1.2 Project Background

The Mbale and small towns water supply and sanitation project is funded by a loan from the World Bank towards the Uganda Water Management and Development Project (WMDP). The WMDP was developed under the MWE as an integrated water resource management and development project. The project development objectives are to improve integrated water resources planning, management and development; and access to water and sanitation services in priority urban areas. It is believed that the project will contribute to higher level goals of sustaining natural resources, improving service delivery, and increasing economic productivity. The ESIA will contribute to achieving the above objectives.

Mbale town is located in Eastern Uganda, approximately 245 kilometres by road from Kampala. It is the main municipal, administrative and commercial centre of the Mbale district and the sub-region. The coordinates of the town are 01004'N, 34010'E. The water supply system in Mbale was constructed in the 1950's. The town relies on two treatment plants, Bunkokho and Manafwa water treatment plants. Since construction of the WTPs, minor investments were have been undertaken to improve their water treatment and production capacities but little has been done in the distribution network which is in a poor state. As a result, frequent bursts and leakages occur in the already inadequate and incapacitated network. Furthermore, development within the town over the last few years has taken place at a fast rate, overwhelming NWSC's capacity to provide constant water supply.

Currently, the town has a population of around 170,000 people, yet the system was originally constructed for a population of 45,000. With the town's boundaries having grown, it is now imperative that the water supply system be expanded to address the low per capita production which currently stands at about 15 litres per day. As part of the long term planning strategy, the Ministry of Water and Environment through the Directorate of Water Development intends to extend piped water from the NWSC Mbale service area to neighbouring small towns and rural growth centres (during this investment phase, Busolwe, Kadama, Tirinyi, Kibuku, Butaleja and Budaka are planned for connection to the Mbale supply system). This can only be achieved after the production, transmission and distribution inadequacies currently facing the Mbale water supply services have been addressed.

The scope of works to be undertaken under this project will encompass improving water production, rehabilitation and restructuring of the water distribution network and rehabilitation and expansion of the sewerage system in Mbale town. This is aimed at developing the capacity of the Mbale water system to supply the towns of Busolwe, Kadama, Tirinyi, Kibuku, Butaleja and Budaka. In addition, the water distribution and sanitary infrastructure of the forementioned small towns will be improved.

RN

1.3 Project description

The scope of work under this project will need to address (i) Catchment management measures for protecting the current water sources at Nabijjo and Nabiyonga Dam; (ii) Rehabilitation and expansion of the WTP at Bungokho and Manafwa WTPs; (iii) investigations into possible new raw water sources; (iv) rehabilitation and expansion of the water supply and distribution system; (v) extension of water supply services to neighbouring small towns and rural growth centres; (vi) rehabilitation and expansion of the sewer network and construction of new waste water treatment facilities for new drainage areas; (vii) water and sanitation facilities in informal settlements; (viii) environmental and social impact assessment and resettlement action plan for the entire project. More details on the proposed work are shown in sections 1.3.1 to 1.3.9.

1.3.1 Catchment management and sources Protection

The project will include interventions supporting sustainable management of the raw water catchment and protection of the current and proposed water sources, including restoration and re-vegetation of river banks, implementation of river bank protection regulations, implementation of wetland regulations, etc. The interventions will be guided by the source protection guidelines of the Directorate of Water Resources Management (DWRM). Based on the environmental impact assessment and management plan, the consultant shall produce designs for all structurally engineered protection measures required.

1.3.2 Raw water sources

The cost of water treatment at Manafwa WTP is continuously increasing, owing to the deterioration of raw water quality in the river Manafwa. This cost is in addition to high costs for pumping treated water to the distribution reservoir at the Bungokho WTP.

To address the problems of raw water quality deterioration in the river Manafwa and the high pumping cost of treated water to the distribution point at the Bungokho WTP, It is proposed to increase the abstraction capacity at Nabiyonga and Nabijjo dams. Other potential sources upstream of the two dams where water can be delivered by gravity will be developed under the project.

1.3.3 Water Treatment Plant in Bungokho

The deteriorating raw water quality has had an impact on the operational costs and reduced the capacity of the treatment facilities. This, in addition to the proposed extension of water to rural growth centres and small towns will necessitate the refurbishment, upgrading and expansion of the current WTP at Bungokho. It is also proposed that abstraction mains for the Bungokho WTP be upgraded.

1.3.4 Water Treatment Plant at Manafwa

Caused by activities upstream, the sediment load in the river Manafwa has continuously increased and the quality of water at the extraction point to the WTP has deteriorated. This has resulted in the current treatment train failing to deliver the required quality and quantity of water at a reasonable cost. There are also high costs associated with pumping water to the distribution reservoir at Bungokho. Under this project, the Water Treatment Plant at Manafwa will be refurbished and / or expanded depending on the findings of the feasibility study and the need quantified for small towns.

1.3.5 Water supply and transmission system

The increased demand for water services combined with frequent pipe busts, especially of asbestos cement pipes, result in pressures that do not guarantee continuous water supply to all areas of Mbale town. To address the pressure problems, as an immediate measure, a number of supply areas have been tapped directly from the pumping main that transport water from Manafwa WTP to the distribution point at the Bungokho WTP. This has greatly reduced the amount of treated water reaching the main reservoirs. It has also negatively impacted on performance of the electro-mechanical equipment at Manafwa WTP. Furthermore, for addressing inadequate network pressures, several booster stations were

RN

commissioned, thereby increasing energy expenses. It is proposed that the water supply and transmission system be rehabilitated, upgraded, re-zoned, and expanded.

1.3.6 Water Distribution

Developments within Mbale over the last few years have taken place at a faster rate than the pace at which the water supply and sanitation infrastructure was developed, overwhelming the utility's capacity to provide a continuous water supply. With the town's boundaries having grown, it is now imperative that the water distribution system be expanded in order to address the low per capita water availability which currently stands at about 15 litres per day.

To address the high water demand issues, the following will be done under the project;

1. Intensification of the existing distribution networks in Mbale and all the small towns, including public water points for the urban poor.

2. Extension of the existing distribution systems in Mbale and all the small towns to facilitate new connections, including public water points for the urban poor.

1.3.7 Mbale sewerage system

Interventions aimed at improvement in the adequacy and efficiency of the existing waste stabilization ponds will be made under the project. It is also proposed that the existing sewer network be rehabilitated, upgraded, and expanded to serve properties that are currently not served. Depending on the findings of the feasibility study, additional catchments will be provided with sewerage services as well as new stabilization ponds for wastewater treatment.

1.3.8 Water supply and sanitation services to the urban poor

There are currently 235 public stand posts (PSPs) in the Mbale water supply area and these are mostly used by the town's urban poor. Drawing from NWSC's experiences in Kampala as well as experience by other organisations in Uganda, it is intended to assess the current water supply and sanitation situation in the informal settlements and, based on the assessment, options for improvement will be developed. For sanitation, both communal and household facilities, whatever is more appropriate under the particular circumstances at site will be developed.

1.3.9 Extension of water supply services to neighbouring small towns and rural growth centres

Under partnership with the DWD, it is proposed to extend water supply to the towns of Busolwe / Butaleja, Budaka, Kadama Tirinyi and Kibuku. It is also proposed to develop sanitation options for these towns.

2. ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT

The Environmental and Social Impact Assessment (ESIA) is to be carried out in line with the requirements of the legal, policy and regulatory framework of Uganda, as well as World Bank policy OP4.01: "Environmental Assessment," World Bank policy on Involuntary Resettlement (OP 4.12) and other applicable World Bank safeguard and information disclosure policies. Should the requirements of the Government of Uganda and World Bank differ, the higher of the two standards shall be followed.

2.1 ESIA objectives and principles

The assignment is commissioned to undertake an ESIA for the Mbale and small towns water and sanitation project. The assignment is to determine the project's potential environmental and social impacts and propose measures to mitigate them. The ESIA and the project feasibility / design will be carried out in parallel, so that all designs proposed can be assessed and informed by the ESIA and options with minimal adverse impacts can be developed.

2.2 Specific objectives

The aim of the project is to improve water and sanitation services in Mbale town, its peripheral settlements and the rural growth centres of Busolwe, Butaleja, Budaka, Kadama, Tirinyi and Kibuku with minimal negative social and environmental impacts.

The specific objectives are therefore:

1. To establish the potential environmental and social impacts of a proposed design and propose measures to mitigate them.
2. To assess the impacts of alternatives to the proposed design and advise the design consultant accordingly.
3. To determine the actions required by NWSC and other stakeholders to satisfactorily address the impacts.

2.3 Scope of Work

The consultancy is expected to include (i) review of policy and legal frameworks, (ii) description of potentially affected areas, (iii) analysis and description of a project's potential impacts, (iv) analysis of potential impacts of design alternatives, (v) public consultation and disclosure (vi) development of an environmental and social management plan (ESMP), and (vii) inter-agency coordination. Sections **Error! Reference source not found.** to 2.3.8 outline the scope in detail.

2.3.1 Policy and Legal Framework

The consultant will identify policies, laws, regulations and guidelines that are applicable to the project. The work should cover the following:

1) National laws and/or regulations on environmental and social impact assessments.

2) Regional, provincial or communal environmental and social assessment regulations.

3) Legal, policy and regulatory framework for involuntary resettlement of Uganda

4) Environmental assessment policies of the World Bank.

5) Identify design or operating standards which project components must meet to be in compliance with environmental safeguards, such as effluent standards, extraction limits, receiving water quality standards, noise standards, road safety standards, etc.

6) Any legal steps necessary to ensure the effective implementation of the identified environmental protection and impact mitigation measures.

World Bank Operational Policy 4.01: "Environmental Assessment," World Bank policy on Involuntary Resettlement (OP 4.12), other safeguards policies, and the World Bank Policy on Access to Information (July 1, 2010) too shall serve as a guidance for this work.

2.3.2 Description of Potentially Affected Areas

The consultant shall provide a baseline description of the project social and physical environment, and identify all peoples and areas that are potentially affected by the project, collect population data, document topography, current land use status and physical land conditions, and identify environmentally sensitive areas. As a minimum, the consultant shall assess the following:

1) The locations where the feasibility study recommends the development of project infrastructure.
2) Locations where cumulative environmental impacts of water extraction and effluent discharge on the affected water bodies will potentially be experienced and their socio-economic consequences.
3) The route of the transmission lines from the water sources to their point of discharge. The point of discharge is the Water Treatment works.
4) The service area of the existing and new water network, focusing on locations where the network is to be rehabilitated, or intensified.
5) All areas into which the water network is to be expanded.
6) The service area for the new wastewater collection system.
7) The locations that are potentially affected by the rehabilitation and improvement works in the WTW.
8) The locations that are potentially affected by the rehabilitation and improvement works on the raw water sources at Nabijjo and Nabuyonga.
9) The areas that are proposed as locations for the waste stabilization ponds (WSPs). During the feasibility study, several potential locations may be identified and all of them shall be assessed on their potential environmental and social impacts.
10) The effluent disposal route from the WSPs and the impact of effluents on the receiving water body and the surrounding communities.
11) All location of routes and infrastructure that is necessary for operating the planned WSPs (e.g. roads, electric power).
12) Locations in informal settlements where water and sanitation facilities are planned.

The work shall include both, desk- and field studies. The extent of field studies shall be for the Mbale Water Supply and Sanitation Project and may include interviews with residents of affected areas, government officials, and NGOs. The consultant shall propose the scale of field work and request approval from NWSC and the World Bank prior to commencement of the studies. The consultant shall summarize the outcome of this work in which a broad assessment will have been made of the major biophysical and social impacts likely to be generated by the project.

2.3.3 Description of project potential impacts

The project potential impacts are classified as (i) impacts of the construction phase, and (ii) impacts of the project operational phase. Details of potential impacts are described in sections **Error! Reference source not found.** to **Error! Reference source not found.**.

2.3.3.1 Potential impacts during project construction phase

The consultant shall assess the potential construction methods and point out any potential impacts on the environment that are construction related. For example, but not limited to:

1) Temporary drainage of wetlands to allow access.
2) Impacts on the environment due to extraction of raw materials (quarrying).
3) Temporary changes to flow regimes of watercourses due to construction of coffer dams.
4) Possible impacts on flow volumes in watercourses due to water extraction for building activities.
5) Potential impacts on livelihoods, land uses, and community / social aspects.

For all issues identified, measures for mitigation and reinstatement shall be proposed in the environmental and social management plan (ESMP) (e.g. removal of temporary access, restoration of wetlands, site control to prevent encroaching, etc.).

2.3.3.2 Potential impacts of project operational phase

The consultant should summarise the project process and point out their potential impacts on the environment. This part of the assignment shall concentrate on operational processes and include, for example:

1) Impact of raw water abstraction on source.
2) Anticipated wastewater volumes and quality.
3) Anticipated effluent quality.
4) Impact of WSPs' effluent on receiving water body.
5) Chemicals used in processes and their potential impacts on the environment when disposed.
6) Impact of general waste disposal.
7) Impact of operations related traffic.
8) Potential impacts on livelihoods, land uses, and community / social aspects.

Some of these impacts may be cumulative in nature and thus the consultant needs to identify and elaborate mitigation measures for them. Handling of chemicals and other potentially harmful materials as part of the project operations that form part of the works manual will be summarised in a separate chapter in the ESIA. The consultant shall also summarise all issues related to pest management, to ensure compliance with OP4.09 on Pest Management.

2.3.4 Analysis of the Potential Impacts of the Project

Based on the work undertaken in sections **Error! Reference source not found.** and 2.3.3, produce an environmental analysis of the following:

1) Significant positive and negative impacts.
2) Direct and indirect impacts.
3) Immediate long-term and cumulative impacts.
4) Identify impacts that are unavoidable or irreversible (residual impacts).

Wherever possible, describe impacts quantitatively, in terms of environmental and social costs and benefits. Assign economic values where feasible. Characterise the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. If found necessary, provide TORs for studies to obtain the missing information. Special attention should be given to:

1) The extent to which the water source will be impacted by the abstraction of water. For watercourse abstraction, the length that will be significantly impacted shall be stated. For groundwater abstraction, the impact on the aquifer in terms of water table and reservoir medium (e.g. compaction) shall be stated.
2) The extent to which receiving water quality standards and / or beneficial use objectives will be achieved with the proposed type and level of treatment in the WSPs.
3) The length of watercourse that will be positively or negatively affected by the discharge from the WSPs, and the magnitude of the changes in water quality parameters.
4) Projected quantitative changes in beneficial uses, such as fisheries (species composition, productivity), recreation and tourism (visitor-days, overnights, expenditures), and waters available for portable supply, irrigation, and industrial use.
5) Sanitation and public health benefits anticipated.

2.3.5 Analysis of Alternatives

The consultant shall briefly describe and evaluate alternatives that were examined during the feasibility of the proposed project and identify other alternatives that would achieve the same objectives. The concept of alternatives extends to the following:

1) Siting and design.
2) Technology selection.
3) Operation and maintenance procedures for the proposed systems.

The consultant should compare the alternatives in terms of:

1) Potential environmental and social impacts, including land and energy requirements.
2) Estimated capital and operating costs.

3) Reliability and suitability under local conditions.

4) Institutional, training, and monitoring requirements.

The description should indicate which impacts are irreversible or unavoidable and which may be mitigated. To the extent possible, costs and benefits of each alternative shall be quantified, incorporating the estimated costs of any associated mitigating measures. The alternative of not constructing the project should be included to demonstrate environmental conditions without the project being implemented.

2.3.6 Public Consultation and Disclosure

The Consultant shall undertake a stakeholder analysis at the initiation phase, and ensure an engagement plan is developed to address all stakeholders with interest or influence in the project, and those to be affected by the project.

2.3.7 Development of an Environmental and Social Management Plan (ESMP)

The consultant shall propose mitigation measures to manage the potential impacts, and discuss costs, timing, monitoring, and institutional responsibilities for the mitigation measures as well as the institutional enhancement and training requirements to implement them. The ESMP for this project shall include among others the following issues:

1) Proposed work programs, timing and budget estimates.

2) Staffing and training requirements.

3) Monitoring and evaluation.

4) Other necessary support services to implement the mitigating measures.

5) The ESMP should also consider measures for emergency response to accidental events as appropriate.

6) Location, type and scope of catchment management and source protection measures as well as identifying stakeholders to be involved in the implementation of each action.

The consultant shall prepare a detailed plan to monitor the implementation of mitigation measures and the impacts of the project during rehabilitation / construction and operation. The plan should include an estimate of capital and operating costs and a description of other inputs needed to implement the plan, such as training and institutional strengthening. The plan shall also address social and environmental monitoring of the disposal sites for sludge and screenings, and include a regular schedule of monitoring and reporting on the quality of potentially affected population, surface and ground waters.

The consultant shall review the authority and capability of institutions at local, regional, and national levels and, if appropriate, recommend steps to strengthen or expand them so that the ESMP may be implemented effectively. The recommendations may extend to inter-sectorial arrangements, management procedures, training, staffing, and financial support.

An outline of the contents of the ESMP will be included in the project's operational manual and should be included along with environmental and social protection clauses for contracts and specifications in the BOQs and construction and operating contracts.

Offset-based mitigation measures (both land for land and enhanced management or ecological stability of remaining areas) will be considered to offset the residual impacts, especially regarding taking of forests or wetlands for the project.

2.3.8 Inter-Agency Coordination and Public / NGO Participation and consultations

The consultant shall assist the client in coordinating the ESIA with relevant agencies, consult with groups likely to be affected by the proposed project, and with local NGOs on the environmental and social aspects of the proposed project. The ESIA consultant shall work closely with the design team who will give data on the proposed project and in turn address environmental concerns that would arise out of the ESIA consultancy

Consultations shall be organised for all issues identified as being of material interest to the public. In particular, the consultant shall organise stakeholder consultations concerning the shared use of water resources and their associated catchments. Here, the consultant shall identify key stakeholders, provide ample notice and information prior to consultations, identify meeting locations that all stakeholders can reach with reasonable effort, and otherwise reasonably facilitate the public consultations and participation that are free and informed.

The client, with the assistance of the consultant, shall provide relevant information to affected groups in a timely manner prior to consultation. The material shall be in a form and language that is understandable and accessible to the groups being consulted. The consultant shall maintain a record of the public consultations and the records should indicate the following:

1) Means other than consultations used to seek the views of affected stakeholders (e.g. surveys).
2) Date and location of the consultation meetings.
3) List of attendees, their affiliation, and contact address.
4) Summary minutes.

3. RESETTLEMENT ACTION PLAN

The consultant is expected to develop a Resettlement Action Plan (RAP). The RAP will aim at (i) establishing the project social and economic impacts resulting from acquisition of land as well as disturbance through work processes on individuals or groups of people; and (ii) mitigating these impacts.

3.1 Specific Objectives of RAP

The specific objectives of the RAP will include the following:

1) Determining the scope and magnitude of social and economic impacts resulting in the permanent or temporary acquisition of land and displacement of people.
2) Avoiding or minimizing adverse social and economic impacts.
3) Providing people with opportunities to participate in the design and implementation of the resettlement program.
4) Assisting the displaced people in their efforts to improve their livelihood and standards of living or at least to restore them to the previous situation.

The RAP will also determine the extent of involuntary resettlement impacts associated with the project and put in place measures to mitigate those impacts. The impacts are mainly to do with interruption of livelihoods of people affected by the project due to the land acquisition, taking or changing the use of the affected land related to the proposed distribution line. In addition, it will involve carrying out consultations with relevant stakeholders, including potentially affected persons, to obtain their views and suggestions regarding the social impacts of the proposed project and agree on the measures to cover the losses. The outcome of the consultations will be reflected in the RAP report and incorporated into the project design as appropriate. The results of the consultations will be made available to all relevant stakeholders, including the potentially project affected persons

The RAP will capture the following key aspects:

1) The extent of the planned project land acquisition or displacement of the persons.
2) Social economic baseline information and project impacts detailing the project affected people by household and their losses.
3) Documentation of views and concerns raised by stakeholders and potentially affected persons regarding the development and implementation of the RAP and action points for concerns raised.
4) The proposed compensation measures with options identified and discussed with the affected people.
5) The agreements reached and the way forward.
6) A review of existing grievance measures, gaps and recommendations for project grievance mechanism.
7) RAP implementation arrangements, citing agencies and their responsibilities and detailed roles and responsibilities while making recommendations where some agencies have been and specific capacities of staff.
8) Monitoring and Reporting arrangements both during the project and post project implementation in order to assess the efficiency and effectiveness of the RAP process.
9) Implementation Schedule in relation to overall project implementation.
10) Costs and Budget including costs compensation, livelihood restoration activities, community development plan, monitoring activities (as may be applicable).

3.2 Scope of Work

The RAP will include the methodology to be used in valuing losses to determine their replacement value and a description of the proposed types and levels of compensation. It will present a definition of affected persons and criteria for determining their eligibility for compensation and resettlement assistance. It will also present an entitlement matrix, defining compensation packages and other resettlement measures that will assist each category of eligible persons. Resettlement measures should be prepared in consultation with the affected population and should be framed in the overall approach of livelihood restoration and development. In addition, the RAP will clearly explain the process of how compensation and resettlement measures will be implemented. This includes details of information flows, money transfer to affected people, paperwork and sign off for compensation package approval. An important part of this process is establishment and dissemination of a cut-off date after which people moving into the project area will not be eligible to receive benefits under the project. The cut-off date must be communicated in writing to the affected people

The key tasks to be covered in the RAP include (i) Socio-economic studies of project impacts; (ii) policy and legal frameworks; (iii) scope of land / property survey and valuation; and (iv) resettlement measures. Sections **Error! Reference source not found.** to **Error! Reference source not found.** indicate in detail the expected works.

3.2.1 Socio-Economic Studies and Project Impacts

The socio-economic studies should be conducted with the involvement of potentially affected people (PAPs). The mainstay of the report will base on the census survey and socio-economic studies that include:

1) The current occupants and an inventory of the assets they are likely to lose, or that are affected by the project, to establish a basis for the design of the resettlement program;
2) The PAPs identified by categories, the inventory of their losses in terms of the physical assets lost, such as farms, grazing land, forest or woodlots, etc., using the number of PAPs negatively affected. For example:
    a) Nos. who will lose residential or commercial land with structures.
    b) Nos. who will lose residential or commercial land only.
    c) Nos. who will lose part of their structure.
    d) Nos. who are tenants in the affected structure.
    e) Nos. who have leases on certain buildings or structures.
    f) Nos. who will lose standing crops and trees.
    g) Nos. of inhabitants in townships who will lose structures, both permanent and temporary.
    h) Nos. of industries, e.g. milk cooling plants, cotton or coffee stores, ginneries, and mines affected (if any).
    i) Loss of public infrastructure and other community or shared assets.
    j) Nos. of PAPs with permanent land use rights, marginally and severely affected.
    k) Others, e.g. the vulnerable, etc.

The consultant will define persons to be affected based on specified criteria for determining their eligibility for compensation and other assistance, including relevant cut-off dates, disaggregated data on PAPs by categories of loss, with specific reference of loss. These should be guided by the relevant policy and legal frameworks.

Tables may be used for presentation of data. The consultant shall also identify the project component or activities that will give rise to resettlement, as well as the alternatives and the mechanisms considered to avoid or minimise resettlement prior to project final design and/or implementation.

The socio-economic studies shall be confined to the project activities with the aim of recommending appropriate livelihood restoration strategies and community development action plans for the PAPs. The consultant may use data collected during the feasibility by the design consultant and collect additional data on social-economic characteristics of the project affected people together with the census and inventory of assets. To provide for the socio-economic environment of the area, secondary data may also be included.

The socio-economic studies should document standard characteristics of the households affected, including descriptions of production systems, labour, and household organisation, and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the population to be affected by the project activities, the magnitude of the expected loss of assets (total or partial), and the extent of the effect (physical or economic) with respect to the different income streams.

The study shall contain detailed information on vulnerable groups or persons, for whom special provisions may have to be made, especially in the event that relocation is required. In the report, the consultant should outline the criteria used to identify vulnerable persons. The consultant shall make provisions to update information on the affected people's livelihoods and standards of living at regular intervals.

In addition, studies need to be conducted that describe the following:

1. Land tenure and transfer systems, including an inventory of common property, natural resources from which people derive their livelihoods and sustenance, non-title-based systems (including grazing ,use of forest and swamp areas) governed by locally recognised land allocation mechanisms, and any issues raised by different tenure systems in the project area.
2. Patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the project. For example specific community groups like SACCOS or farmer groups that could be disrupted as a result of project implementation?
3. Public infrastructure and social services that will be affected. Based on the findings of the socio-economic survey, the consultant should conclude whether the project will have a significant impact on access to social services like water sources and health centres.
4. Social and cultural characteristics of communities to be affected, including a description of formal and informal institutions (e.g., community organizations, ritual groups, non-governmental organisations) that may be relevant in the consultation or to the design of the resettlement activities, or offer opportunities for synergies in implementation. These should be particularly considered for livelihood restoration activities in areas where similar undertakings by districts and other development partners exist.

3.2.2 Policy and Legal Framework

The consultant shall analyse the legal framework and document the findings. The work should cover the following:

1. The scope of the power of eminent domain and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment.
2. Applicable legal and administrative procedures, including a description of the remedies available to displaced persons in the judicial process and the normal time frame for such procedures and any available alternative dispute resolution mechanism that may be relevant to resettlement under the project.
3. Relevant law (including customary and traditional law) governing land tenure, valuation of assets and losses, compensation and natural resource usage rights, customary personal law related to displacement and environmental laws and social welfare legislation.
4. Laws and regulations relating to the agencies responsible for implementing resettlement activities.
5. Gaps, if any, between local laws covering eminent domain and resettlement and the World Bank's resettlement policy and the mechanisms to bridge such gaps.
6. Any legal steps necessary to ensure the effective implementation of resettlement activities under the project including, as appropriate, a process for

recognising claims to legal rights to land – including claims that derive from customary law and traditional usage.

3.2.3 Scope of Land / Property Survey and Valuation

The methodology to be used in valuing losses to determine their replacement cost, and a description of the proposed types and levels of compensation shall address the requirements of Ugandan law and the requirements set out in World Bank document OP 4.12. Details of what ought to be done among others in (a) property survey and (b) valuation are outlined in sections 3.2.3.1 to 3.2.3.2.

3.2.3.1 Property Survey

The property survey shall:

1. Establish the names and particulars of the affected persons, size of land and ownership status, sizes of other properties, such as houses, to assist the valuation team in computing the values of affected properties. The PAPS should be located on strip maps.
2. Obtain cadastral and other relevant information to identify property owners and other persons that are likely to be affected by the project.
3. Document the damage to crops of PAPs, including photographic evidence.
4. The data obtained should be clearly cross-referenced in the valuation roll and strip maps.

3.2.3.2 Valuation

Valuation shall be in accordance with the set out scope of work and should address the following points:

1. Identify the project affected persons using procedures approved by the Chief Government Valuer (CGV) and in line with the World Bank document OP 4.12 to carry out detailed valuation of all land, properties, and livelihoods affected by the project. This will provide the basis for compensation/resettlement.
2. Compile land acquisition and resettlement costs for areas that PAPs are to be resettled, if any.
3. Ensure the data collection during valuation is done on forms acceptable to the CGV and the process is properly witnessed by the client.
4. Ensure that all PAPs and their affected property are photo documented. This is for easy identification during disclosure and payments.
5. Ensure that valuation for loss of assets will be done at current replacement value.
6. The valuation exercise shall be witnessed by staff of the project implementing agency or its appointed agent. The project implementing agency, or its appointed agent will sign the valuation exercise, together with the consultant and a representative of the local council.

The valuation data base is to be supplied as an electronic document in software determined by the NWSC. One hard copy each for the client and the consultant shall also be produced.

3.2.4 Resettlement measures

A description shall be produced of the packages of compensation and other resettlement measures tailored to each category of eligible PAPs. It must be ensured that resources are allocated efficiently and effectively and, in addition to being technically and economically feasible, the resettlement packages should be compatible with the cultural preferences of the PAPs and prepared in consultation with them. Particular interest shall be paid to components in sections **Error! Reference source not found.** to **Error! Reference source not found.**.

3.2.4.1 Site Selection, Site Preparation, and Relocation

If found necessary, suggest alternative relocation sites while clearly stating the site selection criteria. As a minimum, this should address:

1. Institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban.
2. The combination of productive potential, location specific advantages and other factors shall at least be comparable to the advantages of the old sites.
3. An estimate of the time needed to acquire and transfer land and ancillary resources.
4. Any measures necessary, for example adequate sensitisation and information dissemination, to prevent land speculation or influx of ineligible persons at the selected sites.
5. Procedures for physical relocation under the project, including timetables for site preparation and transfer.
6. Legal arrangements for regularising tenure and transferring titles to re-settlers.

3.2.4.2 Community Participation

To ensure that the RAP is efficient and effective, consultations with stakeholders and project affected persons is of utmost importance and the RAP should include:

1. A description of the strategy for consultation with and participation of re-settlers and hosts in the design and implementation of resettlement activities, if any, to develop a stakeholder engagement plan.
2. A summary of the views expressed and how these views were taken into account in preparing RAP.
3. If applicable, a review of the resettlement alternatives presented and the choices made by affected persons regarding options available to them, including choices concerning compensation and resettlement assistance. This, for example, concerns choices on relocating as individual families versus relocating as parts of pre-existing communities or kinship groups in order to sustain existing patterns of group organisation as well as retaining access to cultural property (e.g. places of worship, pilgrimage centres, and cemeteries).
4. Institutionalised arrangements through which affected people can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that vulnerable groups such as indigenous people, ethnic minorities, the landless, and women are adequately represented.

3.2.4.3 Integration with host populations

Depending on the project impacts, if there are persons to be relocated, the consultant should recommend measures to mitigate the impact of resettlement on any host communities, including:

1. Undertake consultations with host communities and local governments to capture their concerns and fears concerning the relocation process.
2. Arrangements for promptly tendering any payment due to the hosts for land or other assets provided to re-settlers.
3. Arrangements for addressing any conflict that may arise between re-settlers and host communities.
4. Any measures necessary to augment services (e.g., education, water, health, and production services) in host communities to make them at least comparable to services available to re-settlers.

3.2.4.4 Grievance Procedures

Depending on the project impacts, affordable and accessible procedures for settlement of disputes arising from resettlement measures, including compensation, should be developed. The grievance mechanisms should take into account the availability of judicial recourse, community and traditional as well as other existing dispute settlement mechanisms. The assignment will include identification of affordable and accessible procedures for settlement of complaints related to the planning and implementation of resettlement activities. This includes establishing procedures for recording grievances and response times for resolution of problems. The consultant shall identify agencies responsible for implementing these procedures and take into account community and traditional dispute settlement mechanisms as well as the availability of judicial recourse.

3.2.4.5 Organizational Responsibilities

The organisational framework for implementing resettlement should be clearly outlined. This includes:

1. Identification of agencies responsible for delivery of resettlement measures and provision of services.
2. Arrangements to ensure appropriate coordination between agencies and jurisdictions involved in implementation.
3. Any measures needed to strengthen the implementing agencies' capacity to design and carry out resettlement activities, including technical assistance.
4. Provisions for the transfer of responsibility for managing facilities and services provided under the project to local authorities or the re-settlers.

3.2.4.6 Implementation Schedule

An implementation schedule shall be prepared. The schedule is to cover all resettlement activities, from preparation to implementation, and should state target dates for the achievement of expected benefits to the re-settlers and hosts. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.

3.2.4.7 Costs and Budget

Tables shall be produced that show itemized cost estimates for all resettlement activities, including allowances for inflation, implementation and monitoring of the RAP and other

contingencies and timetables for expenditures. Further sources of funds and arrangements for timely flow of funds should be indicated.

3.2.4.8 Monitoring and Evaluation

The purpose of monitoring and evaluation is to report on the effectiveness of the implementation of the RAP, covering physical resettlement, disbursement of compensation and effectiveness of public consultation, amongst others. Monitoring and purposeful evaluation will be key factors for the successful resettlement activities.

Monitoring and evaluation will be undertaken by independent monitors as part of the project implementation works. The monitors will be selected on criteria that are considered appropriate by the funding agency and, therefore, the consultant shall prepare a proposed monitoring and evaluation framework for RAP implementation, including:

1. A Management Information System (MIS) for capturing compensation data (baseline and post resettlement) for monitoring and evaluation purposes.
2. A plan for monitoring and evaluation of the compensation package with indicators for measuring implementation performance, impacts and outcomes.
3. Involvement of the affected persons in the monitoring process.
4. The period monitoring and evaluation shall cover after completion of activities.
5. A review of the baseline survey results.
6. The compensation complaints / grievance redress committee.
7. Identification of alternative land for resettlement and farming.
8. Adherence to compensation payment schedule.
9. Movement and support of the PAPs and, in particular, the situation of small and marginal landholders, unskilled labourers, mobile vendors, migrant populations, ethnic minorities, women, children, and the elderly and disabled persons.
10. Reporting requirements for making the results of the monitoring work useful for subsequent projects.
11. The plan shall provide for reviews of the regular progress reports to the implementing agency by stake holders at national level, including the World Bank, and at local levels.

3.2.4.9 Rap Implementation

The Client will implement the RAP as a separate assignment once the scope has been defined in the RAP.

4. CAPACITY BUILDING AND TRANSFER OF KNOWLEDGE

The Consultant shall train designated staff at NWSC with the aim of developing capacity and knowledge transfer. The consultants should include in their proposal a training approach and plan.

The consultant is further advised that all the services described in these Terms of Reference shall be performed in close co-operation with the NWSC Staff and representatives of key stakeholders.

5. QUALITY MANAGEMENT

The Consultant will be required to demonstrate in their proposal, evidence of adoption of use of a Quality Assurance System (ISO 9001 or equivalent) as well as to describe how quality control will be implemented in the course of the assignment.

6. ORGANISATION OF THE ASSIGNMENT

6.1 Contractual Arrangements

The contract for this assignment shall be lump sum and the consultant shall show the costs of his proposed services in accordance with these contractual arrangements.

6.2 Logistical Setup and Staffing

Within the technical proposal, the consultant shall elaborate on the envisaged logistical setup and deployment of appropriate skills for the execution of the assignment. The consultant shall present the staffing schedule in a manner that clearly shows the stage, activity and duration where each of the proposed team members is planned to be involved on the project. An organogram reflecting the responsibilities of each staff member and line management setup of the proposed team shall be part of the proposal.

To enhance skills and experience in the client country, it is recommended that the consultant integrates local expertise into the project execution team.

The consultant's team is expected to provide key expertise as stated in **Error! Reference source not found.** and Table 4-2.

The consultant will be expected to name the overall team leader to carry out day to day management of the two project teams. The consultant is free to propose additional skills as are deemed necessary to execute the assignment within their stated methodology.

Table 4-1: Key personnel for ESIA with estimated time inputs

Expert	Minimum relevant experience (years)	Indicative staff input (month)
Environmental Specialist	10	02
Sociologist	05	02
Hydrologist	05	01
Water and Wastewater Specialist	05	01
Surveyor	05	01

Table 4-2: Key personnel for RAP with estimated time inputs

Expert	Minimum relevant experience (years)	Indicative staff input (month)
RAP Specialist	07	02
Valuer	05	02
Legal Expert	05	01

6.2.1 Key Personnel for the consultancy

The consultancy shall provide all personnel necessary for the completion of the study. The following key personnel shall be included as a minimum requirement for the consultant's personnel:

1. **Environmental Specialist**: A graduate degree in environmental engineering, or equivalent, with 10 years of relevant experience in EIA preparation for infrastructure projects. The person shall be a NEMA-accredited environmental practitioner, have familiarity with World Bank's environmental safeguards policies from similar works financed by the World Bank. The person must be conversant with environmental engineering and environmental planning relevant to the proposed project.
2. **RAP Specialist**: A Bachelor's degree in surveying / land economics, or sociology, or equivalent, with 7 years of relevant experience in RAP preparation and implementation for infrastructure projects. The person shall have significant experience with World Bank's social safeguard policies, as will be evidenced from similar works carried out and financed by the World Bank.
3. **Sociologist**: A University Degree in Sociology with 5 years' experience in resettlement/mitigation or social impact assessment issues related to development schemes on projects financed by the World Bank.
4. **Hydrologist:** A university degree in hydrology, or equivalent, with 5 years of experience in assessing impacts from water storage by watercourse impoundments, ground-and surface water abstraction, and effluent discharges from water and sanitation projects, on the water source / receiving water.
5. **Water and Wastewater Specialist:** A university degree with 5 years of hands on experience in the management of water supply and wastewater projects
6. **Valuer**: A university degree in land economics or its equivalent with 5 years of experience in property valuation. The person must be registered by the Surveyors Registration Board (SRB) with a valid practicing certificate.
7. **Surveyor**: A university degree in surveying with 5 years of experience in survey of infrastructure projects. The person must be registered by the Surveyors Registration Board (SRB) with a valid practicing certificate.
8. **Legal Expert:** A University Degree in Law and a Post Graduate Diploma in Legal practice, with 5 years significant experience in handling issues of involuntary resettlement as evidenced from similar works carried out and financed by the World Bank.

7. DURATION OF THE ASSIGNMENT

The assignment is expected to be completed in five months. The consultant shall establish a detailed work program within the above time period. The estimated staff time inputs should be provided in accordance with the consultant's professional judgment and knowledge of the local conditions and needs.

8. PRICING

In accordance with World Bank rules, the consultancy services shall be priced in any fully convertible currency, singly or in combination of up to three foreign currencies.

9. REPORTING AND MEETING REQUIREMENTS

The Consultant will report to:

The Senior Manager-Projects (WMDP)
Telephone: 0414315100
E-mail: info@nwsc.co.ug
NWSC Head Office
Plot 39 Jinja Road. P.O. Box 7053, Kampala

A copy of each report will be submitted to
IDA TTL
Berina Uwimbambazi
The world Bank
Plot 1 Lumumba Avenue
Rwenzori House,
Kampala, Uganda

The consultant will be required to produce and submit the following principal reports and documents in the quantities and timing indicated in **Error! Reference source not found.**7-1. At each reporting stage, the consultant shall also be required to submit to NWSC and World Bank an electronic copy, using software specified by the client in Table 7-1. In addition all data collected during the assignment shall be availed on request by the client at any stage of the project.

Table 7-1: Summary of reporting requirements

Description	Timing in months from starting date	No. of hard copies to		Electronic copies to NWSC contact
		World Bank	NWSC	
Inception report	0.5	1	3	Word; Excel (all tables)
Draft ESIA report	3	1	3	Word; Excel (all tables); CAD (all drawings);
Draft RAP report	4	1	3	Word; Excel (all tables); CAD (all drawings); ArcViewGIS (location of extents of environmental and social impacts etc); Access (Management Information System for monitoring and evaluation)

Description	Timing in months from starting date	No. of hard copies to		Electronic copies to NWSC contact
		World Bank	NWSC	
Final ESIA report	4[1]	1	3	Word; Excel (all tables); CAD (all drawings); ArcViewGIS (location of extents of environmental and social impacts etc);
Final RAP report	5[2]	1	3	Word; Excel (all tables); CAD (all drawings); ArcViewGIS (location of extents of environmental and social impacts etc); Access (Management Information System for monitoring and evaluation)

The consultant shall prepare and submit an inception report, followed by a draft EIA and RAP report to the client. The client together with the World Bank shall review the draft reports to issue a 'no objection' before the consultant submits the draft final EIA report to NEMA and draft final RAP report to the Chief Government Valuer for approval. The EIA report and RAP (without the list of entitlements) shall then be disclosed both in-country and at the World Bank's info shop.

9.1 Reporting format for Environmental and social impact assessment report

The consultant will prepare an environmental and social impact assessment report and design mitigation measures as well as cost estimates for ESMP. The report should be organized in formats suggested in the World Bank Document OP 4.01 and should include the following as a minimum:

1) Executive Summary.
2) Policy, Legal and Administrative Framework.
3) Description of the Proposed Project.
4) Description of the Environment.
5) Significant Environmental Impacts.
6) Analysis of Alternatives.
7) Environmental Management Plan, including mitigation, monitoring, capacity development and training and implementation schedule and costs; include environmental protection clauses for incorporation in contract agreements.
8) Inter-Agency and Public / NGO Consultation.
9) List of References.
10) Appendices:
    i. The Environmental and Social Impact Assessment team.
    ii. Records of stakeholder meetings.

[1] The time includes review and inputs by both NWSC and the World Bank which will be limited to two weeks

[2] The time includes review and inputs by both NWSC and the World Bank which will be limited to two weeks

iii. Data and Unpublished Reference Documents.
iv. Map, drawing and pictorial complement, especially to convey information on the project affected area and proposed project activities.

9.2 Reporting format for a Resettlement Action Plan

A Resettlement Action Plan (RAP) shall have as the following as a minimum

1) Executive Summary
2) Property census and surveying
3) Property valuation
4) Socio-economic surveys
5) Analysis of alternatives to minimize displacement
6) Analysis of institutional and legal framework
7) Entitlement options and income restoration recommendations
8) RAP implementation institutional framework
9) RAP implementation schedule
10) Record of stakeholder consultations
11) Grievance redress framework
12) Monitoring and evaluation framework
13) RAP costs and budgets
14) List of References.
15) Appendices:
    i. The strip map
    ii. Valuation roll

The consultant will in addition submit a Management Information System (MIS) to be used in monitoring and evaluation.

9.3 Meeting Requirements

Following the submission of the inception report, the consultant will avail appropriate personnel for review meetings with the client and the design consultant during the entire project period. The review shall be for the purposes of:

1) Assessing progress.

2) Obtaining signoffs on proposals made to the design consultant in respect of minimising project impacts on the environment

3) Exchanging information and data relevant for the successful accomplishment of the entire assignment.

The nature of the meetings, locations (e.g. site, NWSC offices, and consultant's offices) and agenda shall be agreed upon by the consultant's and the client's project managers in agreement with the design consultant.
For ensuring organisational and stakeholder wide appreciation and ownership of the proposed recommendations, the consultant shall be required to organise coordination workshops for presentation of key reports after each project milestone to a representative group of stakeholders that is to be agreed with the client. A minimum of three workshops

is proposed and shall include project inception and presentation of draft reports each for ESIA and RAP. These will be organised and paid for by the Client while the consultant will facilitate.

10. DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT

To the extent possible, the client will provide free of charge all existing information, data, reports and maps in the custody of the client and will assist the consultant in obtaining other relevant information and materials from governmental institutions and state authorities as far as possible. In addition, the ESIA consultant shall have full access to information and draft reports produced by the design consultant for purposes of the project.
The data shall include (but not be limited to) the following:

1) Block maps of the current Mbale water supply and distribution system.

The information, data, reports, etc., will be available for the consultant's unlimited use during execution of the proposed services. The Client will procure additional maps, aerial photographs, meteorological and geological data for use on the project if identified by the consultant and deemed necessary.by the client.

11. SERVICES AND FACILITIES TO BE PROVIDED BY THE CONSULTANT

In carrying out this assignment, the consultant shall provide the following services, among others, which should be duly provided for in the consultant's proposal:

1) Suitable office space and furnished for the consultant's team engaged on the assignment.

2) Office supplies, as required for the period of services.

3) Utility services and costs.

4) Long term accommodation for the consultant's staff while in Uganda and hotel accommodation for short term experts.

5) Subsistence (or per diem) payments for official travel for consultant's staff.

6) Secretarial and administrative support staff.

7) International and local telephone services for official communication only.

8) Transport for the period of the assignment

RN

Terms of Reference for ESIA and RAP for Arua water supply and sanitation project

IE

RN

RN

NATIONAL WATER AND SEWERAGE CORPORATION

ARUA WATER SUPPLY AND SANITATION PROJECT

TERMS OF REFERENCE FOR SUPPLEMENTARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND RESETTLEMENT ACTION PLAN

RN

RN

Table of Contents

Acronyms and Abbreviations

BoQ	Bills of Quantities
CGV	Chief Government Valuer
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GoU	Government of Uganda
IDA	International Development Agency
MIS	Management Information System
MWE	Ministry of Water And Environment
NEMA	National Environment and Management Authority
NGO	Non-Governmental Organisation
NWSC	National Water and Sewerage Corporation
PAP	Project Affected Person
PC	Performance Contract
PIU	Project Implementation Unit
PSP	Public Stand Post
RAP	Resettlement Action Plan
ToR	Terms of Reference
WSPs	Waste Stabilization Ponds
WTW	Water Treatment Works

1 INTRODUCTION

1.1 Overview of National Water and Sewerage Corporation (NWSC)

The NWSC was established as a government parastatal organisation in 1972 to develop, operate, and maintain water supply and sewerage services in urban areas of Uganda. NWSC operates under the Ministry of Water and Environment, and currently covers Sixty Six towns.

1.2 Project Background

The Arua water supply system covers the entire Arua municipality and part of its surrounding peri-urban communities. The system was constructed in the 1950's and, currently serves an estimated population of about 188,000 through approximately 5,000 accounts. The demand for new connections is high but the supply system is already severely overstretched which inhibits addition of new customers.

Arua town does not have a centralised sewerage system. With the towns' population increasing, it is becoming increasingly difficult to maintain adequate sanitation without a centralised sewerage system.

In addition, the current raw water source is insufficient and during the dry period there is a stretch of approximately 2 months were the source dries up almost completely.

To bridge the water supply gap during the dry season, it is planned to augment the current raw water source with water from boreholes. It is envisaged to drill 13 exploratory wells and incorporate the 7 highest yielding ones into the Arua water supply.

To address the inadequate sanitation issues in Arua, it is planned to build a sewage collection and treatment system.

A summary of the scope proposed for the Arua municipality and surrounding areas is as shown below.

1. Rehabilitation of the current water source at the river Enyau.
2. Development of boreholes to augment the current water source.
3. Refurbishment and upgrading of the current water treatment plant.
4. Rehabilitation, upgrading and expansion of the water supply and distribution system.
5. Increasing storage capacity for treated water.
6. Construction of a sewerage network for central Arua and waste stabilisation ponds.
7. Water supply and sanitation provision in informal settlements
8. Assisting in catchment management and source protection.

1.3 Project Description

The scope of work under this project includes (i) Rehabilitation of the current water source at the river Enyau; (ii) Development of boreholes to augment the current water source; (iii) Refurbishment and upgrading of the current water treatment plant; (iv) Rehabilitation, upgrading and expansion of the water supply and distribution system; (v) Increasing storage capacity for treated water; (vi) Construction of a sewerage network for central Arua and waste stabilization ponds (vii) Water supply and sanitation provision in informal settlements; (viii) catchment management and source protection.

In 2011, a Consultant (Gauff Consultants (U) Ltd) was engaged to review previous feasibility studies and to undertake detailed designs for adequate water supply and sanitary systems. In parallel, a consultant carried out an Environmental and Social Impact Assessment (ESIA) and developed a Resettlement Action Plan (RAP) for the proposed design.

On 30th July 2014, NWSC signed a contract with a consultant (FICHTNER Water & Transportation in Association with M&E Associates) for the supervision of the works under the project. This Consultant was also tasked with a design review of the designs that were done by the previous consultant (Gauff Consultants (U) Ltd), and the amendment of the existing sewer system design. This amended design was aimed at increasing the sewerage service area and reducing the operational costs of the design that had been proposed by Gauff Consultants (U) ltd.

The following are the amendments to the original sewerage design and, hence, the need to have an ESIA and RAP:

1. Construction of a new waste water treatment facility at Ociba as opposed to where it was proposed in Onduparaka.
2. A second lifting station was proposed at the inlet of Ociba waste water treatment pond site.
3. An overall increase in the length of sewers to 10km is now likely. This is inclusive of the 6km trunk sewer from the Wadriff lifting station to the new waste water treatment facility in Ociba which came up as a result of network re-routing.

In addition, there are parts of the original design where no ESIA and RAP was undertaken. These include:

1. The thirteen (13) bore hole sites:

   Seven (7) of these have already been identified and these are located in places detailed in **Table 1**, while six (6) are yet to be identified by the design consultant.

Table 1: Borehole sites

Bore Hole No.	Location
VES 41	Ombachi
VES 44	Angufea B
VES 45	Kenya
VES 55	Ozuvu
VES 57	Ambeko
VES 58	Giligili
VES 37	Nyio

2. Public toilets
   Ten (10) public toilets will be constructed in designated areas within the municipality.

NWSC is now looking for a consultant to carry out a supplementary ESIA and RAP for the amendments made to the original sewerage design, and the components whose ESIA and RAP was not done, as mentioned above.

2.0 ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT

The ESIA shall, be carried out in line with requirements of the legal, policy and regulatory framework of Uganda as well as the World Bank policy OP4.01: "Environmental Assessment," and other World Bank safeguard and information disclosure policies. Items where World Bank policy requirements are more comprehensive must be addressed over and above the requirements of the regulatory framework of Uganda.

2.1 ESIA objectives and principles

The assignment is commissioned to undertake a supplementary ESIA for the Arua Water and Sanitation Project covering the proposed amendments made to the original sewerage design and the components of the original design whose ESIA was not done, as mentioned in section 1.3. The work is to determine the potential environmental and social impacts of these project components and propose measures to mitigate these.

2.2 Specific Objectives

The main objective of the project is to carry out a comprehensive environmental and social impact assessment for the proposed Arua Water and Sanitation Project, covering the items stated in section 1.3, and to propose measures to mitigate potentially adverse impacts while reinforcing the positive ones.

The specific objectives are:

1. To establish the project's potential environmental and social impacts and propose measures to mitigate them.
2. To assess the impacts of alternatives and advise the design consultant accordingly.
3. To determine the actions required by NWSC and other stakeholders to satisfactorily address the impacts.

2.3 Scope of Work

The consultancy is expected to include;

1. Policy and legal frameworks
2. Description of potentially affected areas
3. Analysis of the potential impacts of the project.
4. Analysis of alternatives
5. Development of an Environmental and Social Management Plan (ESMP)
6. Inter-Agency Coordination and stakeholder consultations

Sections 2.3.1 to 2.3.8 outline the scope in detail.

2.3.1 Policy and Legal Framework

The consultant will identify policies, laws, regulations and guidelines that are applicable to the proposed project. The work should cover the following:

1. National laws and/or regulations on environmental assessments.
2. Regional, provincial or communal environmental assessment regulations.

3. Legal, policy and regulatory framework for involuntary resettlement of Uganda.
4. Environmental assessment policies of the World Bank.
5. Identify design or operating standards which project components must meet to be in compliance with environmental safeguards, such as effluent standards, extraction limits, receiving water quality standards, noise standards, road safety standards, etc.
6. Any legal steps necessary to ensure the effective implementation of the identified environmental protection and impact mitigation measures.

World Bank Operational Policy 4.01: "Environmental Assessment," World Bank policy on Involuntary Resettlement (OP 4.12), other safeguards policies, and the World Bank Policy on Access to Information (July 1, 2010) too shall serve as a guidance for this work.

2.3.2 Description of the Potentially Affected Areas

The consultant shall provide a baseline description of the social and physical environment, and identify all peoples and areas that are potentially affected by the project, collect population data, document topography, current land use status and physical land conditions, and identify environmentally sensitive areas. As a minimum, the consultant shall assess the following:

1) The locations where the design review recommended the development of project infrastructure.
2) The route of the transmission lines from the boreholes to their point of discharge. The point of discharge is the Water Treatment works/Sumps.
3) The service area for the wastewater collection system that is in addition to the original design.
4) The locations that are potentially affected by the borehole developments.
5) The areas that are proposed as locations for the Ociba waste stabilization ponds (WSPs).
6) The effluent disposal route from the Ociba WSPs and the impact of effluents on the receiving water body and the surrounding communities.
7) All locations of infrastructure that is necessary for operating the planned WSPs at Ociba (e.g. roads, electric power).
8) Locations in informal settlements where the ten (10) public toilets are planned.
9) All potential impacts from routine operations of the boreholes, public toilets, and the wastewater facilities draining to the planned Ociba WSPs (e.g. sludge disposal, screenings disposal, odour, noise, dust, additional traffic, etc.)

The work shall include both, desk and field studies. The field studies shall be for the items outlined under section 1.3 and may include interviews with residents of affected areas,

government officials, and NGOs. At inception the consultant shall propose the scale of field work and request approval from NWSC and no objections from the World Bank prior to commencement of the studies. The consultant shall summarize the outcome of this work in which a broad assessment will have been made of the major biophysical and social impacts likely to be generated by the project.

2.3.3 Description of Project Potential Impacts

The project potential impacts are classified as (i) impacts of the construction phase and (ii) impacts of the project operational phase. Details of potential impacts are described in sections **Error! Reference source not found.** to **Error! Reference source not found.**

2.3.3.1 Potential Impacts of the Project Construction Phase

The consultant shall assess the potential construction methods and point out any potential impacts on the environment that are construction related. For example, but not limited to:

1. Temporary drainage of wetlands to allow access.
2. Impacts on the environment due to extraction of raw materials (quarrying).
3. Temporary changes to flow regimes of watercourses if any due to sewers construction.
4. Potential impacts on livelihoods, land uses, and community/social aspects.

For all issues identified, measures for mitigation and reinstatement shall be proposed in the environmental and social management plan (ESMP) (e.g. removal of temporary access, restoration of wetlands, site control to prevent encroaching, etc.).

Potential environmental impacts that can reasonably be expected to be part of construction e.g. minimisation of noise, dust, odour, prevention of pollution spills, shall constitute part of the ESIA assignment.

2.3.3.2 Potential Impacts of the Project Operational Phase

The consultant should summarise the project process and point out their potential impacts on the environment. This part of the assignment shall concentrate on operational processes and include, for example:

1. Impact of raw water abstraction on source (boreholes).
2. Anticipated wastewater volumes and quality.
3. Anticipated effluent quality.
4. Impact of WSPs' effluent on receiving water body.
5. Chemicals used in processes and their potential impacts on the environment when disposed.
6. Impact of general waste disposal.
7. Impact of operations related traffic.
8. Potential impacts on livelihoods, land uses, and community/social aspects.

Handling of chemicals and other potentially harmful materials as part of the project operations that form part of the works manual will be summarised in a separate chapter in the ESIA. The consultant shall also summarise all issues related to pest management, to ensure compliance with OP4.09 on Pest Management.

2.3.4 Analysis of the Potential Impacts of the Project

Based on the work undertaken in sections **Error! Reference source not found.** to **Error! Reference source not found.**, produce an environmental analysis of the following:

1) Significant positive and negative impacts.
2) Direct and indirect impacts.
3) Immediate, long-term and cumulative impacts.
4) Identify impacts that are unavoidable or irreversible (residual impacts).

Wherever possible, describe impacts quantitatively, in terms of environmental costs and benefits. Assign economic values when feasible. Characterise the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. If found necessary, provide TORs for studies to obtain the missing information. Special attention should be given to:

1) The extent to which the water source will be impacted by the abstraction of water. For groundwater abstraction, the impact on the aquifer in terms of water table and reservoir medium (e.g. compaction) shall be stated.
2) The extent to which receiving water quality standards and/or beneficial use objectives will be achieved with the proposed type and level of treatment in the WSPs.
3) The cumulative environmental impacts of water extraction and effluent discharge on the affected water bodies and their socio-economic consequences.
4) The length of watercourse that will be positively or negatively affected by the discharge from the WSPs, and the magnitude of the changes in water quality parameters.
5) Projected quantitative changes in beneficial uses, such as fisheries (species composition, productivity), recreation and tourism (visitor-days, overnights, expenditures), and waters available for portable supply, irrigation, and industrial use.
6) Sanitation and public health benefits anticipated.

2.3.5 Analysis of Alternatives

The consultant shall briefly describe and evaluate alternatives that were examined during the feasibility of the proposed project and identify other alternatives that would achieve the same objectives. The concept of alternatives extends to the following:

1. Siting and design.
2. Technology selection.
3. Operation and maintenance procedures for the proposed systems.

The consultant should compare the alternatives in terms of:

1. Potential environmental impacts, including land and energy requirements.
2. Estimated capital and operating costs.
3. Reliability and suitability under local conditions.
4. Institutional, training, and monitoring requirements.

The description should indicate which impacts are irreversible or unavoidable and which may be mitigated. To the extent possible, costs and benefits of each alternative shall be quantified, incorporating the estimated costs of any associated mitigating measures. The alternative of not constructing the project should be included to demonstrate environmental conditions without the project being implemented.

2.3.6 Public Consultation and Disclosure

The Consultant shall undertake a stakeholder analysis at the initiation phase, and ensure an engagement plan is developed to address all stakeholders with interest or influence in the project, and those to be affected by the project.

2.3.7 Development of an Environmental and Social Management Plan (ESMP)

The consultant shall propose mitigation measures to manage the potential impacts, and discuss costs, timing, monitoring, and institutional responsibilities for the mitigation measures as well as the institutional enhancement and training requirements to implement them. The ESMP for this project shall include among others the following issues:

1. Proposed work programs, timing and budget estimates.
2. Staffing and training requirements.
3. Monitoring and evaluation.
4. Other necessary support services to implement the mitigating measures.
5. The ESMP should also consider measures for emergency response to accidental events as appropriate.
6. Location, type and scope of catchment management and source protection measures as well as identifying stakeholders to be involved in the implementation of each action.

RN

The consultant shall prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during rehabilitation / construction and operation. The plan should include an estimate of capital and operating costs and a description of other inputs needed to implement the plan, such as training and institutional strengthening. The plan shall also address environmental monitoring of the disposal sites for sludge and screenings, and include a regular schedule of monitoring and reporting on the quality of potentially affected surface and ground waters.

The consultant shall review the authority and capability of institutions at local, regional, and national levels and, if appropriate, recommend steps to strengthen or expand them so that the ESMP may be implemented effectively. The recommendations may extend to inter-sectorial arrangements, management procedures, training, staffing, and financial support.

An outline of the contents of the ESMP will be included in the project's operational manual and should be included along with environmental protection clauses for contracts and specifications in the BoQs and construction and operating contracts.

Offset-based mitigation measures (both land for land and enhanced management or ecological stability of remaining areas) will be considered to offset the residual impacts, especially regarding taking of forests or wetlands for the project.

2.3.8 Inter-Agency Coordination and Public/NGO Participation and consultations

The consultant shall assist the client in coordinating the ESIA with relevant agencies, consult with groups likely to be affected by the proposed project, and with local NGOs on the environmental and social aspects of the proposed project. The ESIA consultant shall work closely with the design team who will give data on the proposed project and in turn address environmental concerns that would arise out of the ESIA consultancy

Consultations shall be organised for all issues identified as being of material interest to the public. In particular, the consultant shall organise stakeholder consultations concerning the shared use of water resources and their associated catchments. Here, the consultant shall identify key stakeholders, provide ample notice and information prior to consultations, identify meeting locations that all stakeholders can reach with reasonable effort, and otherwise reasonably facilitate the public consultations and participation that are free and informed.

The client, with the assistance of the consultant, shall provide relevant information to affected groups in a timely manner prior to consultation. The material shall be in a form and language that is understandable and accessible to the groups being consulted. The consultant shall maintain a record of the public consultations and the records should indicate the following:

1. Means other than consultations used to seek the views of affected stakeholders (e.g. surveys).
2. Date and location of the consultation meetings.
3. List of attendees, their affiliation, and contact address.
4. Summary minutes.

3.0 RESETTLEMENT ACTION PLAN (RAP)

The consultant is expected to develop a Resettlement Action Plan (RAP). The RAP will mainly aim at establishing the project social and economic impacts, resulting from acquisition of land for the project, on individuals or groups of people and minimising land acquisition as well as its impacts.

3.1 Specific Objectives of RAP

The objectives of RAP will include the following:

1. Determining the scope and magnitude of social impacts resulting in the permanent or temporary acquisition of land and displacement of people.
2. Avoiding or minimizing adverse social impacts
3. Providing people with opportunities to participate in the design and implementation of the resettlement program.
4. Assisting displaced people in their efforts to improve their livelihood and standards of living or at least to restore them to a standard as good as prior to the project.

The RAP will also determine the extent of involuntary resettlement impacts associated with the project and put in place measures to mitigate those impacts. The impacts are mainly to do with interruption of livelihoods of people affected by the project due to the land acquisition, taking or changing the use of the affected land related to the proposed distribution line. In addition, it will involve carrying out consultations with relevant stakeholders, including potentially affected persons, to obtain their views and suggestions regarding the social impacts of the proposed project and agree on the measures to cover the losses. The outcome of the consultations will be reflected in the RAP report and incorporated into the project design as appropriate. The results of the consultations will be made available to all relevant stakeholders, including the potentially project affected persons.

The RAP will capture the following key aspects:

1. The extent of planned project land acquisition or displacement of the persons.
2. Social economic baseline information and project impacts detailing the project affected people by household and their losses;
3. Documentation of views and concerns raised by stakeholders and potentially affected persons regarding the development and implementation of the RAP and action points for concerns raised;
4. The proposed compensation measures with options identified and discussed with the affected people;
5. The agreements reached and the way forward;
6. A review of existing grievance measures, gaps and recommendations for project grievance mechanism;
7. RAP implementation arrangements, citing agencies and their responsibilities and detailed roles and responsibilities while making recommendations where some agencies have lean and specific capacities of staff;
8. Monitoring and Reporting arrangements both during the project and post project implementation in order to assess the efficiency and effectiveness of the RAP process;

9. Implementation Schedule in relation to overall project implementation;
10. Costs and Budget including costs compensation, livelihood restoration activities, community development plan, monitoring activities (as may be applicable).

3.2 Scope of Work

The RAP will include the methodology to be used in valuing losses to determine their replacement value and a description of the proposed types and levels of compensation. It will present a definition of affected persons and criteria for determining their eligibility for compensation and resettlement assistance. It will further include an entitlement matrix, defining compensation packages and other resettlement measures that will assist each category of eligible persons. Resettlement measures should be prepared in consultation with the affected population and should be framed in the overall approach of livelihood restoration and development. In addition, the RAP will clearly explain the process of how compensation and resettlement measures will be implemented. This includes details of information flows, money transfer to affected people, paperwork and sign off for compensation package approval. An important part of this process is establishment and dissemination of a cut-off date after which people moving into the project area will not be eligible to receive benefits under the project. The cut-off date must be communicated in writing to the affected people.

It is important to note that a RAP for the WMDP Arua exists. This RAP has been approved by the World Bank and all work under the scope of this, supplementary RAP, must be based on the frameworks developed for the existing RAP.

The key tasks to be covered in the RAP include;

1. Socio-Economic studies and project impacts
2. Policy and legal frameworks
3. Scope of Land/Property Survey and Valuation
4. Resettlement measures.

The areas this supplementary RAP is required for are detailed in section 1.3 and the client will provide detailed maps of the affected areas. Sections **Error! Reference source not found.** to **Error! Reference source not found.** indicate in detail the expected works.

3.2.1 Socio-Economic Studies and Project Impacts

The socio-economic studies should be conducted with the involvement of potentially affected people (PAPs). The mainstay of the report will base on the census survey and socio-economic studies that include:

1. The current occupants and an inventory of the assets they are likely to lose, or that are affected by the project, to establish a basis for the design of the resettlement program;
2. The PAPs identified by categories, the inventory of their losses in terms of the physical assets lost, such as farms, grazing land, forest or woodlots, etc., using the number of PAPs negatively affected. For example:
   a) Nos. who will lose residential or commercial land with structures.
   b) Nos. who will lose residential or commercial land only.
   c) Nos. who will lose part of their structure.
   d) Nos. who are tenants in the affected structure.

e) Nos. who have leases on certain buildings or structures.
f) Nos. who will lose standing crops and trees.
g) Nos. of inhabitants in townships who will lose structures, both permanent and temporary.
h) Nos. of industries, e.g. milk cooling plants, cotton or coffee stores, ginneries, and mines affected (if any).
i) Loss of public infrastructure and other community or shared assets.
j) Nos. of PAPs with permanent land use rights, marginally and severely affected.
k) Others, e.g. the vulnerable, etc.

As stated earlier, the consultant is expected to accommodate his findings within the frameworks and methodologies of the already existing RAP for the Arua WMDP.

The consultant will define persons to be affected based on specified criteria for determining their eligibility for compensation and other assistance, including relevant cut-off dates. These should be guided by the relevant policy and legal frameworks. Disaggregated data on PAPs should be included by categories of loss and with specific reference to loss.
Tables may be used for presentation of data. The consultant shall also identify the project component or activities that will give rise to resettlement, as well as the alternatives and the mechanisms considered to avoid or minimise resettlement prior to project final design and/or implementation.
The socio-economic studies shall be confined to the project activities with the aim of recommending appropriate livelihood restoration strategies and community development action plans for the PAPs. The consultant may use data collected during the feasibility by the design consultant and collect additional data on social-economic characteristics of the project affected people together with the census and inventory of assets. To provide for the socio-economic environment of the area, secondary data may also be included.
The socio-economic studies should document standard characteristics of the households affected, including descriptions of production systems, labour, and household organisation, and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the population to be affected by the project activities, the magnitude of the expected loss of assets (total or partial), and the extent of the effect (physical or economic) with respect to the different income streams.
The study shall contain detailed information on vulnerable groups or persons, for whom special provisions may have to be made, especially in the event that relocation is required. In the report, the consultant should outline the criteria used to identify vulnerable persons.
The consultant shall make provisions to update information on the affected people's livelihoods and standards of living at regular intervals.
In addition, studies need to be conducted that describe the following:

1. Land tenure and transfer systems, including an inventory of common property, natural resources from which people derive their livelihoods and sustenance, non-title-based systems (including grazing ,use of forest and swamp areas)

governed by locally recognised land allocation mechanisms, and any issues raised by different tenure systems in the project area.

2. Patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the project. For example specific community groups like SACCOS or farmer groups that could be disrupted as a result of project implementation?
3. Public infrastructure and social services that will be affected. Based on the findings of the socio-economic survey, the consultant should conclude whether the project will have a significant impact on access to social services like water sources and health centres.
4. Social and cultural characteristics of communities to be affected, including a description of formal and informal institutions (e.g., community organizations, ritual groups, non-governmental organisations) that may be relevant in the consultation or to the design of the resettlement activities, or offer opportunities for synergies in implementation. These should be particularly considered for livelihood restoration activities in areas where similar undertakings by districts and other development partners exist.

3.2.2 Policy and Legal Framework

The consultant shall analyse the legal framework and document the findings. The work should cover the following:

1. The scope of the power of eminent domain and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment.
2. Applicable legal and administrative procedures, including a description of the remedies available to displaced persons in the judicial process and the normal time frame for such procedures and any available alternative dispute resolution mechanism that may be relevant to resettlement under the project.
3. Relevant law (including customary and traditional law) governing land tenure, valuation of assets and losses, compensation and natural resource usage rights, customary personal law related to displacement and environmental laws and social welfare legislation.
4. Laws and regulations relating to the agencies responsible for implementing resettlement activities.
5. Gaps, if any, between local laws covering eminent domain and resettlement and the World Bank's resettlement policy and the mechanisms to bridge such gaps.
6. Any legal steps necessary to ensure the effective implementation of resettlement activities under the project including, as appropriate, a process for recognising claims to legal rights to land – including claims that derive from customary law and traditional usage.

3.2.3 Scope of Land/Property Survey and Valuation

The methodology to be used in valuing losses to determine their replacement cost, and a description of the proposed types and levels of compensation shall address the requirements of Ugandan law and the requirements set out in World Bank document OP 4.12. Details of what ought to be done among others in (a) property survey and (b) valuation are outlined in sections below.

3.2.3.1 Property Survey

The property survey shall:

1. Establish the names and particulars of the affected persons, size of land and ownership status, sizes of other properties, such as houses, to assist the valuation team in computing the values of affected properties. The PAPS should be located on strip maps.
2. Obtain cadastral and other relevant information to identify property owners and other persons that are likely to be affected by the project.
3. Document the damage to crops of PAPs, including photographic evidence.
4. The data obtained should be clearly cross-referenced in the valuation roll and strip maps.

3.2.3.2 Valuation

Valuation of assets lost will be done at current replacement value. The valuation shall be in accordance with the set out scope of work and should address the following points:

1. Identify the project affected persons using procedures approved by the Chief Government Valuer (CGV) and in line with the World Bank document OP 4.12 to carry out detailed valuation of all land, properties, and livelihoods affected by the project. This will provide the basis for compensation/resettlement.
2. Compile land acquisition and resettlement costs for areas that PAPs are to be resettled, if any.
3. Ensure the data collection during valuation is done on forms acceptable to the CGV and the process is properly witnessed by the client.
4. Ensure that all PAPs and their affected property are photo documented. This is for easy identification during disclosure and payments.
5. The valuation exercise shall be witnessed by staff of the project implementing agency or its appointed agent. The project implementing agency, or its appointed agent will sign the valuation exercise, together with the consultant and a representative of the local council.

The valuation data base is to be supplied as an electronic document in software determined by the NWSC. One hard copy for World Bank and Three for the client (NWSC) shall also be produced.

3.2.4 Resettlement Measures

A description shall be produced of the packages of compensation and other resettlement measures tailored to each category of eligible PAPs. It must be ensured that resources are allocated efficiently and effectively and, in addition to being technically and economically feasible, the resettlement packages should be compatible with the cultural preferences of

the PAPs and prepared in consultation with them. Particular interest shall be paid to components in the following sections.

3.2.4.1 Site Selection, Site Preparation, and Relocation

If found necessary, suggest alternative relocation sites while clearly stating the site selection criteria. As a minimum, this should address:

1. Institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban.
2. The combination of productive potential, location specific advantages and other factors shall at least be comparable to the advantages of the old sites.
3. An estimate of the time needed to acquire and transfer land and ancillary resources.
4. Any measures necessary, for example adequate sensitisation and information dissemination, to prevent land speculation or influx of ineligible persons at the selected sites.
5. Procedures for physical relocation under the project, including timetables for site preparation and transfer.
6. Legal arrangements for regularising tenure and transferring titles to re-settlers.

3.2.4.2 Community Participation

To ensure that the RAP is efficient and effective, consultations with stakeholders and project affected persons is of utmost importance and the RAP should include:

1. A description of the strategy for consultation with and participation of re-settlers and hosts in the design and implementation of resettlement activities, if any, to develop a stakeholder engagement plan.
2. A summary of the views expressed and how these views were taken into account in preparing RAP.
3. If applicable, a review of the resettlement alternatives presented and the choices made by affected persons regarding options available to them, including choices concerning compensation and resettlement assistance. This, for example, concerns choices on relocating as individual families versus relocating as parts of pre-existing communities or kinship groups in order to sustain existing patterns of group organisation as well as retaining access to cultural property (e.g. places of worship, pilgrimage centres, and cemeteries).
4. Institutionalised arrangements through which affected people can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that vulnerable groups such as indigenous people, ethnic minorities, the landless, and women are adequately represented.

3.2.4.3 Integration with Host Populations

Depending on the project impacts, if there are persons to be relocated, the consultant should recommend measures to mitigate the impact of resettlement on any host communities, including:

1. Undertake consultations with host communities and local governments to capture their concerns and fears concerning the relocation process.
2. Arrangements for promptly tendering any payment due to the hosts for land or other assets provided to re-settlers.
3. Arrangements for addressing any conflict that may arise between re-settlers and host communities.
4. Any measures necessary to augment services (e.g., education, water, health, and production services) in host communities to make them at least comparable to services available to re-settlers.

3.2.4.4 Grievance Procedures

This will detail the Identification of affordable and accessible procedures for settlement of complaints related to the planning and implementation of resettlement activities. This includes establishing procedures for recording grievances and response times for resolution of problems. The consultant shall identify agencies responsible for implementing these procedures and take into account community and traditional dispute settlement mechanisms as well as the availability of judicial recourse.

It is important to note that the existing RAP for the Arua WMDP comprehensively details grievance procedures and this work should fit into the already accepted procedures of the existing RAP.

3.2.4.5 Organizational Responsibilities

The organisational framework for implementing resettlement should be clearly outlined. This includes:

1. Identification of agencies responsible for delivery of resettlement measures and provision of services.
2. Arrangements to ensure appropriate coordination between agencies and jurisdictions involved in implementation.
3. Any measures needed to strengthen the implementing agencies' capacity to design and carry out resettlement activities, including technical assistance.
4. Provisions for the transfer of responsibility for managing facilities and services provided under the project to local authorities or the re-settlers.

3.2.4.6 Implementation Schedule

An implementation schedule shall be prepared. The schedule is to cover all resettlement activities, from preparation to implementation, and should state target dates for the achievement of expected benefits to the re-settlers and hosts. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.

3.2.4.7 Costs and Budget

Tables shall be produced that show itemized cost estimates for all resettlement activities, including allowances for inflation, implementation and monitoring of the RAP and other contingencies and timetables for expenditures. Further sources of funds and arrangements for timely flow of funds should be indicated.

3.2.4.8 Monitoring and Evaluation

The purpose of monitoring and evaluation is to report on the effectiveness of the implementation of the RAP, covering physical resettlement, disbursement of compensation and effectiveness of public consultation, amongst others. Monitoring and purposeful evaluation will be key factors for the successful resettlement activities.

Monitoring and evaluation will be undertaken by independent monitors as part of the project implementation works. The monitors will be selected on criteria that are considered appropriate by the funding agency and, therefore, the consultant shall prepare a proposed monitoring and evaluation framework for RAP implementation. The monitoring and evaluation framework shall be in line with the framework developed in the existing Arua WMDP RAP document, which has been approved by World Bank, and include the following:

1. A plan for monitoring and evaluation of the compensation package with indicators for measuring implementation performance, impacts and outcomes.
2. Involvement of the affected persons in the monitoring process.
3. The period monitoring and evaluation shall cover after completion of activities.
4. A review of the baseline survey results.
5. The compensation complaints / grievance redress committee.
6. Identification of alternative land for resettlement and farming.
7. Adherence to compensation payment schedule.
8. Movement and support of the PAPs and, in particular, the situation of small and marginal landholders, unskilled labourers, mobile vendors, migrant populations, ethnic minorities, women, children, and the elderly and disabled persons.
9. Reporting requirements for making the results of the monitoring work useful for subsequent projects.
10. The plan shall provide for reviews of the regular progress reports to the implementing agency by stake holders at national level, including the World Bank, and at local levels.

3.2.4.9 Rap Implementation

The Client will implement the RAP as a separate assignment once the scope has been defined in the RAP.

4.0 ORGANISATION OF THE ASSIGNMENT

4.1 Contractual Arrangements

The contract for this assignment shall be lump sum and the consultant shall show the costs of his proposed services in accordance with these contractual arrangements.

4.2 Logistical Setup and Staffing

Within the technical proposal, the consultant shall elaborate on the envisaged logistical setup and deployment of appropriate skills for the execution of the assignment. The consultant shall present the staffing schedule in a manner that clearly shows the stage and duration where each of the proposed team members is planned to be involved on the project. An organogram reflecting the responsibilities of each staff member and line management setup of the proposed team shall be part of the proposal.

While there could be shared key personnel resources, it is advisable that the RAP team be independent of the ESIA team and must include a legal expert.

To enhance local skills and experience, it is recommended that the consultant integrates local expertise into the project execution team.
The consultant's team is expected to provide key expertise as stated in Table 2 and Table 3.
The consultant will be expected to name a team leader from amongst the proposed staff to carry out day to day management of the project. The consultant is free to propose additional skills as he deems necessary to execute the assignment within the stated methodology.

Table 2: Key personnel for ESIA with estimated time inputs

Expert	Minimum relevant experience (years)	Indicative staff input (month)
Environmental Specialist	10	01
Sociologist	05	0.25
Hydrologist	05	0. 25
Water and Wastewater Specialist	05	0.25
Surveyor	05	0.25

Table 3: Key personnel for RAP with estimated time inputs

Expert	Minimum relevant experience (years)	Indicative staff input (month)
RAP Specialist/Team Leader	07	01
Valuer	05	0.25
Legal Expert	05	0.25

Key Personnel for the consultancy

The consultancy shall provide all personnel necessary for the completion of the study. The following key personnel shall be included as a minimum requirement for the consultant's personnel:

1. **Environmental Specialist:** A graduate degree in environmental engineering, or equivalent, with 10 years of relevant experience in EIA preparation for infrastructure projects. The person shall be a NEMA-accredited environmental practitioner, have familiarity with World Bank's environmental safeguards policies from similar works financed by the World Bank. The person must be conversant with environmental engineering and environmental planning relevant to the proposed project.

2. **RAP Specialist:** A Bachelor's degree in surveying / land economics, or sociology, or equivalent, with 7 years of relevant experience in RAP preparation and implementation for infrastructure projects. The person shall have significant experience with World Bank's social safeguard policies, as will be evidenced from similar works carried out and financed by the World Bank.

3. **Sociologist:** A University Degree in Sociology with 5 years' experience in resettlement/mitigation or social impact assessment issues related to development schemes on projects financed by the World Bank.

4. **Hydrologist:** A university degree in hydrology, or equivalent, with 5 years of experience in assessing impacts from water storage by watercourse impoundments, ground-and surface water abstraction, and effluent discharges from water and sanitation projects, on the water source / receiving water.

5. **Water and Wastewater Specialist:** A university degree with 5 years of hands on experience in the management of water supply and wastewater projects

6. **Valuer:** A university degree in land economics or its equivalent with 5 years of experience in property valuation. The person must be registered by the Surveyors Registration Board (SRB) with a valid practicing certificate.

7. **Surveyor:** A university degree in surveying with 5 years of experience in survey of infrastructure projects. The person must be registered by the Surveyors Registration Board (SRB) with a valid practicing certificate.

8. **Legal Expert:** A University Degree in Law and a Post Graduate Diploma in Legal practice, with 5 years significant experience in handling issues of involuntary resettlement as evidenced from similar works carried out and financed by the World Bank.

5.0 DURATION OF THE ASSIGNMENT

The assignment is expected to be completed in Seven (07) weeks. The consultant shall establish a detailed work program within the above time period. The estimated staff time inputs should be provided in accordance with the consultant's professional judgment and knowledge of the local conditions and needs.

2.0 PRICING

In accordance with World Bank rules, the consultancy services shall be priced in any fully convertible currency, singly or in combination of up to three foreign currencies.

7.0 REPORTING AND MEETING REQUIREMENTS

The Consultant will report to:

The Senior Manager-Projects (WMDP)
Telephone: 0414315100
E-mail: info@nwsc.co.ug
Plot 39 Jinja Road. P.O. Box 7053, Kampala

A copy of each report will be submitted to
IDA TTL
Berina Uwimbambazi

The consultant will be required to produce and submit the following principal reports and documents in the quantities and timing indicated in Table 4. At each reporting stage, the consultant shall also be required to submit to NWSC and World Bank an electronic copy, using software specified by the client in Table 4. In addition all data collected during the assignment shall be availed on request by the client at any stage of the project.

Table 4: Summary of reporting requirements

Description	Timing in weeks from starting date	No. of hard copies to		Electronic copies to NWSC contact
		World Bank	NWSC	
Draft ESIA ,RAP	5	1	3	Word; Excel (all tables); CAD (all drawings);
Final ESIA, RAP	7[1]	1	3	Word; Excel (all tables); CAD (all drawings); ArcView GIS (location of extents of environmental and social impacts etc);

The consultant shall prepare and submit a draft ESIA and RAP report followed by the final report to the client.

The client together with the World Bank, shall review the draft reports to issue a 'no objection' before the consultant submits the draft final ESIA report to NEMA and draft final RAP report to the Chief Government Valuer for approval. The ESIA report and RAP (without the list of entitlements) shall then be disclosed both in-country and at the World Bank's info shop.

[1] The time includes review and inputs by both NWSC and the World Bank which will be limited to one week

7.1 Reporting Requirements

7.1.1 Reporting Format for Environmental and Social Impact Assessment Report

The consultant will prepare an environmental and social impact assessment report and design mitigation measures as well as preliminary cost estimates. The report should be organized in formats suggested in the World Bank Document OP 4.01 and be in line with the already existing RAP for the Arua WMP. It should include the following as a minimum:

1. Executive Summary
2. Policy, Legal and Administrative Framework.
3. Description of the Proposed Project.
4. Description of the Environment.
5. Significant Environmental Impacts.
6. Analysis of Alternatives.
7. Environmental Management Plan, including mitigation, monitoring, capacity development and training and implementation schedule and costs; include environmental protection clauses for incorporation in contract agreements.
8. Inter-Agency and Public/NGO Consultation.
9. List of References.
10. Appendices:
    a) The Environmental and Social Impact Assessment team.
    b) Records of Inter-Agency and Public / NGO Communications.
    c) Data and Unpublished Reference Documents.
    d) Map, drawing and pictorial complement, especially to convey information on the project affected area and proposed project activities

7.1.2 Reporting Format for the Resettlement Action Plan

The Resettlement Action Plan (RAP) shall be in line with the already existing document for the Arua WMDP and include the following as a minimum

1. Executive Summary
2. Property census and surveying
3. Property valuation
4. Socio-economic surveys
5. Analysis of alternatives to minimize displacement
6. Analysis of institutional and legal framework
7. Entitlement options and income restoration recommendations
8. RAP implementation institutional framework
9. RAP implementation schedule
10. Record of stakeholder consultations
11. Grievance redress framework
12. Monitoring and evaluation framework
13. RAP costs and budgets
14. List of References.

15. Appendices:
    a) Strip maps
    b) Valuation roll

7.2 Meeting Requirements

The consultant will avail appropriate personnel for review meetings with the client and the design consultant during the entire project period. The review shall be for the purposes of:

1. Assessing progress.

2. Obtaining signoffs on proposals made to the design consultant in respect of minimising project impacts on the environment

3. Exchanging information and data relevant for the successful accomplishment of the entire assignment.

The nature of the meetings, locations (e.g. site, NWSC offices, and consultant's offices) and agenda shall be agreed upon by the consultant's and the client's project managers in agreement with the design consultant.
For ensuring organisational and stakeholder wide appreciation and ownership of the proposed recommendations, the consultant shall be required to organise coordination workshop for presentation of the draft ESIA and RAP report to a representative group of stakeholders that is to be agreed with the client. This will be organised and paid for by the Client while the consultant will facilitate.

8.0 DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT

To the extent possible, the client will provide free of charge all existing information, data, reports and maps in the custody of the client and will assist the consultant in obtaining other relevant information and materials from governmental institutions and state authorities as far as possible. In addition, the consultant shall have full access to information and draft reports produced by the design consultant for purposes of the project, as well as the already existing, and approved, ESIA and RAP documents for the Arua WMDP.

The data shall include (but not be limited to) the following:

1. Detailed design report – Feasibility study and detailed design for Arua Water Supply and Sanitation Project by Gauff Consultants Ltd.

2. Design review report - by FICHTNER Water & Transportation in Association with M&E Associates.

3. Detailed maps of the areas which supplementary ESIA and RAP are to be provided for

4. Block maps of the current Arua water supply and distribution system.

5. ESIA for the WMDP Arua – NEMA and World Bank approved.

6. RAP for the WMDP Arua – verified by Chief Government Valuer and World Bank approved.

The information, data, reports, etc., will be available for the consultant's unlimited use during execution of the proposed services. The Client will procure additional maps, aerial photographs, meteorological and geological data for use on the project if identified by the consultant and deemed necessary by the client.

9.0 SERVICES AND FACILITIES TO BE PROVIDED BY THE CONSULTANT

In carrying out this assignment, the consultant shall provide the following services, among others, which should be duly provided for in the consultant's proposal:

1. Suitable office in terms of space and furnishing for the consultant's team engaged on the assignment.

2. Office supplies, as required for the period of services.

3. Utility services and costs.

4. Long term accommodation for the consultant's staff while in Uganda and hotel accommodation for short term experts.
5. Subsistence (or per diem) payments for official travel for consultant's staff.
6. Secretarial and administrative support staff.
7. International and local telephone services for official communication only.
8. Transport for the period of the assignment.

Terms of Reference for ESIA and RAP for Bushenyi water supply and sanitation project

LE

RN

NATIONAL WATER AND SEWERAGE CORPORATION

BUSHENYI WATER SUPPLY AND SANITATION PROJECT

TERMS OF REFERENCE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND RESETTLEMENT ACTION PLAN

Table of Contents

Acronyms and Abbreviations

BoQ	Bills of Quantities
CGV	Chief Government Valuer
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GoU	Government of Uganda
IDA	International Development Agency
MIS	Management Information System
MWE	Ministry of Water And Environment
NEMA	National Environment and Management Authority
NGO	Non-Governmental Organisation
NWSC	National Water and Sewerage Corporation
PAP	Project Affected Person
PC	Performance Contract
PIU	Project Implementation Unit
PSP	Public Stand Post
RAP	Resettlement Action Plan
SACCO	Savings And Credit Co-Operative
ToR	Terms of Reference
WSPs	Waste Stabilization Ponds
WTW	Water Treatment Works

1.0 INTRODUCTION

1.1 Overview of National Water and Sewerage Corporation (NWSC)

The NWSC was established as a government parastatal organisation in 1972 to develop, operate, and maintain water supply and sewerage services in urban areas of Uganda. NWSC operates under the Ministry of Water and Environment, and currently covers sixty six towns.

1.2 Project Background

Bushenyi town is approximately 322 kilometres southwest of Kampala. Its service area extends to the areas of Butare in the north, Ishaka in the west and Rwentuha in the east (Figure 1).

Figure 1: Bushenyi Water Supply Service Area

The water supply system for Bushenyi town was constructed in the 1950's with the water treatment plant located along the Bushenyi – Ishaka highway. In 1991, Nyaruzinga water treatment plant, with a design capacity of 900 m3/day, was constructed. The raw water source is Nyaruzinga swamp and the water is of poor quality, which is mainly attributed to high levels of organic matter. In addition, the raw water source is unreliable as its yield varies significantly with season. The town has no centralized sanitation system.

To address the water supply and sanitation challenges, NWSC in 2011, using internally generated funds, expanded the Nyaruzinga water treatment plant to a production capacity of 2,000 m3/day. The pumping main was upgraded and the service reservoirs rehabilitated, increasing the storage capacity from 370 m3 to 640 m3 and limited network strengthening and extension activities were implemented.

With a current population of about 74,545, the town has a per capita production of about 27 litres per day. With increasing demand especially attributed to new developments such as Kampala International University Western Campus, the above per capita production figures are likely to become worse. As stated, Bushenyi also has problems with its current raw water source and a potential location has been identified at Kitagata to develop a new treatment plant of capacity

7,000 m3/day. NWSC has already acquired land for the proposed water treatment plant at Kitagata.

Currently, financed by World Bank funding, it is planned to undertake a feasibility study and design for a water supply system of the greater Bushenyi and Sheema districts covering Ishaka-Bushenyi municipality, and town councils of Kabwohe- Itendero, Kitagata and Bugongi. The work will also include the design of sewerage systems for the central business districts of Bushenyi, Ishaka, Kitagata, and Kabwohe, as well as service provision for the urban poor in each of the towns located in the project area. It is also planned to look into the possibility of developing three boreholes (of total safe yield of 1,600 m3/day), that have been drilled by WSDF-Western at Butale and Mashonga, to improve Bushenyi's water supply situation in the short term. The locations of these towns is shown in Figure 2

Figure 2: Map showing the location of the project towns

1.3 Project Description

The project will result in the provision of improved water supply services to the population living in Bushenyi, Kitagata, Bugongi, Kabwohe and Itendero. Sanitary infrastructure will also be constructed, including centralized sewerage systems for the business districts of Bushenyi, Ishaka, Kitagata, and Kabwohe.

The scope of work under this project will need to address: (i) borehole development; (ii) development of a new water treatment plant (iii) rehabilitation and expansion of the existing water supply and distribution systems; (iv) centralized sewerage systems for the business districts of Bushenyi, Ishaka, Kitagata, and Kabwohe; (v) sanitary services for each of the project towns; and (vi) water and sanitation facilities in informal settlements. Project implementation will be accompanied by source protection measures and practical approaches need to be identified. Details of the anticipated scope of work are shown in sections 1.3.1 to 1.3.6.

1.3.1 Borehole Development

As an immediate measure for improving the water supply situation, it is proposed that ground-water be developed. For this, three boreholes in Mashonga and Butare have been identified.

1.3.2 Development of a New Water Treatment Plant

As a long term measure for improving the water supply situation it the town councils of Bushenyi-Ishaka, Kitagata, Bugongi and Kabwohe-Itendero, a potential raw water source near Kitagata has been identified and it is proposed that the project includes the development of a new water treatment plant at that site. It is anticipated that the new water treatment plant will be of a capacity of 7,000 cubic meters per day.

1. 1.3.3 Rehabilitation and Expansion of the Water Supply and Distribution System

This will potentially include: (i) the construction of raw water transmission lines from boreholes to a reservoir tank that is to be constructed at Butare, and onwards to existing tanks in the Ishaka-Bushenyi supply area: (ii) intensifications on the existing Bushenyi-Ishaka distribution network; (iii) clear water transmission lines from a new water treatment plant in Kitagata to new reservoirs; and (iv) network intensifications and extensions within Bushenyi-Ishaka area and the town councils of Kitagata, Bugongi and Kabwohe-Itendero.

1.3.4 New Sewerage System

There is currently no sewerage system in this water supply service area. New systems, including water treatment ponds and a network of sewer lines, have to be built under the project to serve, as a minimum, the central business districts of Bushenyi, Ishaka, Kitagata, and Kabwohe.

1.3.5 Water and Sanitation Facilities in Informal Settlements

Bushenyi and Sheema towns have a considerable proportion of their population living in informal settlements. There, and in all other informal settlements in the project area, it is proposed that provision of water and sanitation services be improved through construction of public water service points and shared sanitation facilities.

1.3.6 Catchment Management and Source Protection

The project will include interventions towards the sustainable management of the current and proposed water sources, including restoration and re-vegetation of river banks, implementation of river bank protection regulations, implementation of wetland regulations, etc., as will be guided by the catchment protection guidelines of the Directorate of Water Resources Management (DWRM).

RN

2.0 ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT

The ESIA shall, be carried out in line with requirements of the legal, policy and regulatory framework of Uganda as well as the World Bank policy OP4.01: "Environmental Assessment," and other World Bank safeguard and information disclosure policies. Items where World Bank policy requirements are more comprehensive must be addressed over and above the requirements of the regulatory framework of Uganda.

2.1 ESIA Objectives and Principles

The assignment is commissioned to undertake an ESIA for the Bushenyi water and sanitation project. The work is to determine the project's potential environmental and social impacts and propose measures to mitigate these. The ESIA and the project feasibility/design will be carried out in parallel, so that all alternatives proposed are also assessed for their environmental impacts.

2.2 Specific Objectives

The main objective of the project is to carry out a comprehensive environmental and social impact assessment for the proposed Bushenyi water supply and sanitation project and to propose measures to mitigate the adverse impacts while reinforcing the positive ones.

The specific objectives are therefore:

1. To establish the project's potential environmental and social impacts and propose measures to mitigate them.
2. To assess the impacts of alternatives and advise the design consultant accordingly.
3. To determine the actions required by NWSC and other stakeholders to satisfactorily address the impacts.

2.3 Scope of Work

The consultancy is expected to include;

1. Policy and legal frameworks.
2. Description of potentially affected areas.
3. Analysis of the Potential Impacts of the Project.
4. Analysis of alternatives.
5. Development of an Environmental and Social Management Plan (ESMP).
6. Inter-Agency Coordination and stakeholder consultations.

Sections 0 to 0 outline the scope in detail.

2.3.1 Policy and Legal Framework

The consultant will identify policies, laws, regulations and guidelines that are applicable to the proposed project. The work should cover the following:

1. National laws and/or regulations on environmental assessments.
2. Regional, provincial or communal environmental assessment regulations.

LG RN

3. Legal, policy and regulatory framework for involuntary resettlement of Uganda.
4. Environmental assessment policies of the World Bank.
5. Identify design or operating standards which project components must meet to be in compliance with environmental safeguards, such as effluent standards, extraction limits, receiving water quality standards, noise standards, road safety standards, etc.
6. Any legal steps necessary to ensure the effective implementation of the identified environmental protection and impact mitigation measures.

World Bank Operational Policy 4.01: "Environmental Assessment," World Bank policy on Involuntary Resettlement (OP 4.12), other safeguards policies, and the World Bank Policy on Access to Information (July 1, 2010) too shall serve as a guidance for this work.

2.3.2 Description of potentially affected areas

The consultant shall provide a baseline description of the project social and physical environment, and identify all peoples and areas that are potentially affected by the project, collect population data, document topography, current land use status and physical land conditions, and identify environmentally sensitive areas. As a minimum, the consultant shall assess the following:

1. The locations where the feasibility study recommended the development of project infrastructure.
2. The route of the transmission lines from the water sources to their point of discharge. The point of discharge is the waste water treatment works.
3. The service area of the existing and new water network, focusing on locations where the network is to be rehabilitated, or intensified.
4. All areas into which the water network is to be expanded.
5. The service area for the new wastewater collection system.
6. The locations that are potentially affected by the rehabilitation and improvement works in the WTW.
7. The locations that are potentially affected by the borehole developments and the new treatment works.
8. The areas that are proposed as locations for the waste stabilization ponds (WSPs). During the feasibility study, several potential locations may be identified and all of them shall be assessed on their potential environmental and social impacts, and accordingly ranked
9. The effluent disposal route from the WSPs and the impact of effluents on the receiving water body and the surrounding communities.
10. All location of routes and infrastructure that is necessary for operating the planned WSPs (e.g. roads, electric power).

11. Locations in informal settlements where water and sanitation facilities are planned.

12. All potential impacts from routine operations of the water and wastewater facilities (e.g. sludge disposal from the WTW, sludge disposal from the WSPs, screenings disposal from the WSPs, odor, noise, dust, additional traffic, etc.)

The work shall include both, desk and field studies. The extent of field studies shall be for the Bushenyi Water Supply and Sanitation Project and may include interviews with residents of the project affected areas, government officials, and NGOs. At inception the consultant shall propose the scale of field work and request approval from NWSC and the World Bank prior to commencement of the studies. The consultant shall summarise the outcome of this work in which a broad assessment will have been made of the major biophysical and social impacts likely to be generated by the project.

2.3.3 Description of project potential impacts

The project potential impacts are classified as (i) impacts of the construction phase and (ii) impacts of the project operational phase. Further, they should be split into (i) Environmental and (ii) Social. Details of potential impacts are described in sections 2.3.3.1 to 2.3.3.2

2.3.3.1 Potential Impacts of Project Construction Phase

The consultant shall assess the proposed construction methods and point out any potential impacts on the environment that are construction related. For example, but not limited to:

1. Temporary drainage of wetlands to allow access.
2. Potential impacts on livelihoods, land uses, and community/social aspects.

For all issues identified, measures for mitigation and reinstatement shall be proposed in the environmental and social management plan (ESMP) (e.g. removal of temporary access, restoration of wetlands, site control to prevent encroaching, etc.).

Potential environmental impacts that can reasonably be expected to be part of construction e.g. minimisation of noise, dust, odour, prevention of pollution spills, shall constitute part of the ESIA assignment.

2.3.3.2 Potential Impacts of Project Operational Phase

The consultant should summarise the project process and point out their potential impacts on the environment. This part of the assignment shall concentrate on operational processes and include, for example:

1. Impact of raw water abstraction on source.
2. Anticipated wastewater volumes and quality.
3. Anticipated effluent quality.
4. Impact of WSPs' effluent on receiving water body.
5. Chemicals used in processes and their potential impacts on the environment when disposed.
6. Impact of general waste disposal.

7. Impact of operations related traffic.

8. Potential impacts on livelihoods, land uses, and community/social aspects.

Handling of chemicals and other potentially harmful materials as part of the project operations that form part of the works manual will be summarised in a separate chapter in the ESIA. The consultant shall also summarise all issues related to pest management, to ensure compliance with OP4.09 on Pest Management.

2.3.4 Analysis of the Potential Impacts of the Project

Based on the work undertaken in sections 2.3.1 to 2.3.3, produce an environmental and social analysis of the following:

1. Significant positive and negative impacts.

2. Direct and indirect impacts.

3. Immediate, long-term and cumulative impacts.

4. Identify impacts that are unavoidable or irreversible (residual impacts).

Wherever possible, describe impacts quantitatively, in terms of environmental and social costs and benefits. Assign economic values where feasible. Characterise the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. If found necessary, provide TORs for studies to obtain the missing information. Special attention should be given to:

1. The extent to which the water source will be impacted by the abstraction of water. For watercourse abstraction, the length that will be significantly impacted shall be stated. For groundwater abstraction, the impact on the aquifer in terms of water table and reservoir medium (e.g. compaction) shall be stated.

2. The extent to which receiving water quality standards and/or beneficial use objectives will be achieved with the proposed type and level of treatment in the WSPs.

3. The cumulative environmental impacts of water abstraction and effluent discharge on the affected water bodies and their socio-economic consequences.

4. The length of watercourse that will be positively or negatively affected by the discharge from the WSPs, and the magnitude of the changes in water quality parameters.

5. Projected quantitative changes in beneficial uses, such as fisheries (species composition, productivity), recreation and tourism (visitor-days, overnights, expenditures), and waters available for portable supply, irrigation, and industrial use.

6. Sanitation and public health benefits anticipated.

2.3.5 Analysis of Alternatives

The consultant shall briefly describe and evaluate alternatives that were examined during the feasibility of the proposed project and identify other alternatives that would achieve the same objectives. The concept of alternatives extends to the following:

1. Siting and design.
2. Technology selection.
3. Operation and maintenance procedures for the proposed systems.

The consultant should compare the alternatives in terms of:

1. Potential environmental and social impacts, including land and energy requirements.
2. Estimated capital and operating costs.
3. Reliability and suitability under local conditions.
4. Institutional, training, and monitoring requirements.

The description should indicate which impacts are irreversible or unavoidable and which may be mitigated. To the extent possible, costs and benefits of each alternative shall be quantified, incorporating the estimated costs of any associated mitigating measures. The alternative of not constructing the project should be included to demonstrate environmental and social conditions without the project being implemented.

2.3.6 Public Consultation and Disclosure

The Consultant shall undertake a stakeholder analysis at the initiation phase, and ensure an engagement plan is developed to address all stakeholders with interest or influence in the project, and those to be affected by the project.

2.3.7 Development of an Environmental and Social Management Plan (ESMP)

The consultant shall propose mitigation measures to manage the potential impacts, and discuss costs, timing, monitoring, and institutional responsibilities for the mitigation measures as well as the institutional enhancement and training requirements to implement them. The ESMP for this project shall include, among others, the following issues:

1. Proposed work programs, timing and budget estimates.
2. Staffing and training requirements.
3. Monitoring and evaluation.
4. Other necessary support services to implement the mitigating measures.
5. The ESMP should also consider measures for emergency response to accidental events as appropriate, including health and safety aspects of the both the public and the project workers.
6. Location, type and scope of catchment management and source protection measures as well as identifying stakeholders to be involved in the implementation of each action.

LE RN

The consultant shall prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during rehabilitation / construction and operation. The plan should include an estimate of capital and operating costs and a description of other inputs needed to implement the plan, such as training. and institutional strengthening. The plan shall also address environmental monitoring of the disposal sites for sludge and screenings, and include a regular schedule of monitoring and reporting on the quality of potentially affected surface and ground waters.

The consultant shall review the authority and capability of institutions at local, regional, and national levels and, if appropriate, recommend steps to strengthen or improve coordination so that the ESMP may be implemented effectively. The recommendations may extend to inter-sectorial arrangements, management procedures, training, staffing, and financial support.

An outline of the contents of the ESMP will be included in the project's operational manual and should be included along with environmental protection clauses for contracts and specifications in the BOQs and construction and operating contracts.

Offset-based mitigation measures (both land for land and enhanced management or ecological stability of remaining areas) will be considered to offset the residual impacts, especially regarding taking of forests or wetlands for the project.

2.3.8 Inter-Agency Coordination and Public/NGO Participation and consultations

The consultant shall assist the client in coordinating the ESIA with relevant agencies, consult with groups likely to be affected by the proposed project, and with local NGOs on the environmental and social aspects of the proposed project. The ESIA consultant shall work closely with the design team who will give data on the proposed project and in turn address environmental concerns that would arise out of the ESIA consultancy.

Consultations shall be organised for all issues identified as being of material interest to the public. In particular, the consultant shall organise stakeholder consultations concerning the shared use of water resources and their associated catchments. Here, the consultant shall identify key stakeholders, provide ample notice and information prior to consultations, identify meeting locations that all stakeholders can reach with reasonable effort, and otherwise reasonably facilitate the public consultations and ensure that participation is free.

The client, with the assistance of the consultant, shall provide relevant information to affected groups in a timely manner prior to consultation. The material shall be in a form and language that is understandable and accessible to the groups being consulted. The consultant shall maintain a record of the public consultations and the records should indicate the following:

1. Means other than consultations used to seek the views of affected stakeholders (e.g. surveys).
2. Date and location of the consultation meetings.
3. List of attendees, their affiliation, and contact address.
4. Summary minutes.

3.0 RESETTLEMENT ACTION PLAN (RAP)

The consultant is expected to develop a Resettlement Action Plan (RAP). The RAP will mainly aim at establishing the project social and economic impacts, resulting from acquisition of land for the project, on individuals or groups of people and minimising land acquisition as well as its impacts.

3.1 Specific Objectives of RAP

RAP is aimed at providing guidance on how *project-affected persons* in the *project-affected areas* should be assessed, equitably compensated and upon relocation, able to cope and lead a normal life as was previously lived or a better one. The specific objectives of RAP will include the following:

1. Determining the scope and magnitude of social impacts resulting in the permanent or temporary acquisition of land and displacement of people.
2. Avoiding or minimizing adverse social impacts
3. Providing people with opportunities to participate in the design and implementation of the resettlement program.
4. Assisting displaced people in their efforts to improve their livelihood and standards of living or at least to restore them.

The RAP will also determine the extent of involuntary resettlement impacts associated with the project and put in place measures to mitigate those impacts. The impacts are mainly to do with interruption of livelihoods of people affected by the project due to the land acquisition, taking or changing the use of the affected land related to the proposed distribution line. In addition, it will involve carrying out consultations with relevant stakeholders, including potentially affected persons, to obtain their views and suggestions regarding the social impacts of the proposed project and agree on the measures to cover the losses. The outcome of the consultations will be reflected in the RAP report and incorporated into the project design as appropriate. The results of the consultations will be made available to all relevant stakeholders, including the potentially project affected persons.

The RAP will capture the following key aspects:

1) Cadastral surveys and property valuation that informs the RAP with the aim to:

- Delineate private land and properties to be affected,
- Compile an accurate list of the project-affected persons (that is, owners and land users having an interest in the road reserve)
- Establish monetary worth of all immoveable assets, including structures (permanent or semi-permanent), perennial and annual crops and trees within the road reserve.

The RAP will involve the following aspects

i) Assess the extent of planned project land acquisition or displacement of the persons.
ii) Undertake a social-economic survey and prepare social economic baseline information and project impacts detailing the project affected people by household and their losses.

iii) Ensuring that the displaced people receive equitable compensation prior to their displacement.
iv) Raising awareness of the project and its consequences among affected communities.
v) Carrying out consultations with relevant stakeholders, including potentially affected persons and obtain their views and suggestions regarding social impacts of the proposed project and measures to cover the losses. The results of the consultations will be made available to all relevant stakeholders, including potentially affected persons through RAP disclosure.
vi) Documentation of views and concerns raised by stakeholders and potentially affected persons regarding the development and implementation of the RAP and action points for concerns raised.
vii) Determining the extent of the impacts due to involuntary resettlement associated with the land acquisition for purposes of construction and alignment of the road, and put in place measures to mitigate those impacts. The impacts here are to do with land acquisition and the accompanying losses or interruption of livelihoods of the project affected people due to the construction activities related to the proposed roads, etc.
viii) Establishing the actual compensation costs necessary for resettlement and quantify the land area to be acquired for the subproject with options identified and discussed with the affected people
ix) Preparing resettlement strategies including entitlement matrix and arrangements for implementation that would mitigate adverse socio-economic impacts and grievances.
x) Preparing strategies to mitigate adverse socio-economic impacts and managing possible grievances arising from resettlement.
xi) Defining RAP implementation arrangements, citing agencies and their responsibilities and detailed roles and responsibilities while making recommendations where some agencies have lean and specific capacities of staff.
xii) Establish monitoring and reporting arrangements both during the project and post project implementation in order to assess the efficiency and effectiveness of the RAP process;
xiii) Define implementation schedule in relation to overall project implementation.
xiv) Establish costs and commitment budget including costs compensation, livelihood restoration activities, community development plan, monitoring activities (as may be applicable).

3.2 Scope of Work

The RAP will include the methodology to be used in valuing losses to determine their replacement value and a description of the proposed types and levels of compensation. It will present a definition of affected persons and criteria for determining their eligibility for compensation and resettlement assistance. An entitlement matrix, defining compensation packages, and other resettlement measures, that will assist each category of eligible persons. Resettlement measures should be prepared in consultation with the affected population and should be framed in the overall approach of livelihood restoration and development. In addition, the RAP will clearly explain the process of how compensation and resettlement measures will be implemented. This includes details of information flows, money transfer to affected people, paperwork and sign off for

compensation package approval. An important part of this process is establishment and dissemination of a cut-off date after which people moving into the project area will not be eligible to receive benefits under the project. The cut-off date must be communicated in writing to the affected people.

The key tasks to be covered in the RAP include;

1. Socio-Economic studies and project impacts
2. Policy and legal frameworks.
3. Scope of Land/Property Survey and Valuation.
4. Resettlement measures.

Sections 3.2.1 to 3.2.4 indicate in detail the expected works.

3.2.1 Socio-Economic Studies and Project Impacts

The socio-economic studies should be conducted with the involvement of potentially affected people (PAPs). The mainstay of the report will base on the census survey and socio-economic studies that include:

1. The current occupants and an inventory of the assets they are likely to lose, or that are affected by the project, to establish a basis for the design of the resettlement program;
2. The PAPs identified by categories, the inventory of their losses in terms of the physical assets lost, such as farms, grazing land, forest or woodlots, etc., using the number of PAPs negatively affected. For example:
   a) Nos. who will lose residential or commercial land with structures.
   b) Nos. who will lose residential or commercial land only.
   c) Nos. who will lose part of their structure.
   d) Nos. who are tenants in the affected structure.
   e) Nos. who have leases on certain buildings or structures.
   f) Nos. who will lose standing crops and trees.
   g) Nos. of inhabitants in townships who will lose structures, both permanent and temporary.
   h) Nos. of industries, e.g. milk cooling plants, cotton or coffee stores, ginneries, and mines affected (if any).
   i) Loss of public infrastructure and other community or shared assets.
   j) Nos. of PAPs with permanent land use rights, marginally and severely affected.
   k) Others, e.g. the vulnerable, etc.

The consultant will define persons to be affected based on specified criteria for determining their eligibility for compensation and other assistance, including relevant cut-off dates. These should be guided by the relevant policy and legal frameworks. Disaggregated data on PAPs should be included by categories of loss and with specific reference to loss.

Tables may be used for presentation of data. The consultant shall also identify the project component or activities that will give rise to resettlement, as well as the alternatives and the mechanisms considered to avoid or minimise resettlement prior to project final design and/or implementation.

LE RN

The socio-economic studies shall be confined to the project activities with the aim of recommending appropriate livelihood restoration strategies and community development action plans for the PAPs. The consultant may use data collected during the feasibility by the design consultant and collect additional data on social-economic characteristics of the project affected people together with the census and inventory of assets. To provide for the socio-economic environment of the area, secondary data may also be included.

The socio-economic studies should document standard characteristics of the households affected, including descriptions of production systems, labour, and household organisation, and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the population to be affected by the project activities, the magnitude of the expected loss of assets (total or partial), and the extent of the effect (physical or economic) with respect to the different income streams.

The study shall contain detailed information on vulnerable groups or persons, for whom special provisions may have to be made, especially in the event that relocation is required. In the report, the consultant should outline the criteria used to identify vulnerable persons.

The consultant shall make provisions to update information on the affected people's livelihoods and standards of living at regular intervals.

In addition, studies need to be conducted that describe the following:

1. Land tenure and transfer systems, including an inventory of common property, natural resources from which people derive their livelihoods and sustenance, non-title-based systems (including grazing ,use of forest and swamp areas) governed by locally recognised land allocation mechanisms, and any issues raised by different tenure systems in the project area.
2. Patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the project. For example specific community groups like SACCOS or farmer groups that could be disrupted as a result of project implementation?
3. Public infrastructure and social services that will be affected. Based on the findings of the socio-economic survey, the consultant should conclude whether the project will have a significant impact on access to social services like water sources and health centres.
4. Social and cultural characteristics of communities to be affected, including a description of formal and informal institutions (e.g., community organizations, ritual groups, non-governmental organisations) that may be relevant in the consultation or to the design of the resettlement activities, or offer opportunities for synergies in implementation. These should be particularly considered for livelihood restoration activities in areas where similar undertakings by districts and other development partners exist.

3.2.2 Policy and Legal Framework

The consultant shall analyse the legal framework and document the findings. The work should cover the following:

1. The scope of the power of eminent domain and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment.
2. Applicable legal and administrative procedures, including a description of the remedies available to displaced persons in the judicial process and the normal time frame for such procedures and any available alternative dispute resolution mechanism that may be relevant to resettlement under the project.
3. Relevant law (including customary and traditional law) governing land tenure, valuation of assets and losses, compensation and natural resource usage rights, customary personal law related to displacement and environmental laws and social welfare legislation.
4. Laws and regulations relating to the agencies responsible for implementing resettlement activities.
5. Gaps, if any, between local laws covering eminent domain and resettlement and the World Bank's resettlement policy and the mechanisms to bridge such gaps.
6. Any legal steps necessary to ensure the effective implementation of resettlement activities under the project including, as appropriate, a process for recognising claims to legal rights to land – including claims that derive from customary law and traditional usage.

3.2.3 Scope of Land/Property Survey and Valuation

The methodology to be used in valuing losses to determine their replacement cost, and a description of the proposed types and levels of compensation shall address the requirements of Ugandan law and the requirements set out in World Bank document OP 4.12. Details of what ought to be done among others in (a) property survey and (b) valuation are outlined in sections below. \

3.2.3.1 Property Survey

The property survey shall:

1. Establish the names and particulars of the affected persons, size of land and ownership status, sizes of other properties, such as houses, to assist the valuation team in computing the values of affected properties. The PAPS should be located on strip maps.
2. Obtain cadastral and other relevant information to identify property owners and other persons that are likely to be affected by the project.
3. Document the damage to crops of PAPs, including photographic evidence.
4. The data obtained should be clearly cross-referenced in the valuation roll and strip maps.

3.2.3.2 Valuation

Valuation of assets lost will be done at current replacement value. The valuation shall be in accordance with the set out scope of work and should address the following points:

1. Identify the project affected persons using procedures approved by the Chief Government Valuer (CGV) and in line with the World Bank document OP 4.12

to carry out detailed valuation of all land, properties, and livelihoods affected by the project. This will provide the basis for compensation/resettlement.

2. Compile land acquisition and resettlement costs for areas that PAPs are to be resettled, if any.
3. Ensure the data collection during valuation is done on forms acceptable to the CGV and the process is properly witnessed by the client.
4. Ensure that all PAPs and their affected property are photo documented. This is for easy identification during disclosure and payments.
5. The valuation exercise shall be witnessed by staff of the project implementing agency or its appointed agent. The project implementing agency, or its appointed agent will sign the valuation exercise, together with the consultant and a representative of the local council.

The valuation data base is to be supplied as an electronic document in software determined by the NWSC. One hard copy each for the client and the consultant shall also be produced.

3.2.4 Resettlement Measures

A description shall be produced of the packages of compensation and other resettlement measures tailored to each category of eligible PAPs. It must be ensured that resources are allocated efficiently and effectively and, in addition, to being technically and economically feasible, the resettlement packages should be compatible with the cultural preferences of the PAPs and prepared in consultation with them. Particular interest shall be paid to components in the following sections.

3.2.4.1 Site Selection, Site Preparation and Relocation

If found necessary, suggest alternative relocation sites while clearly stating the site selection criteria. As a minimum, this should address:

1. Institutional and technical arrangements for identifying and preparing relocation sites, whether rural or urban.
2. The combination of productive potential, location specific advantages and other factors shall at least be comparable to the advantages of the old sites.
3. An estimate of the time needed to acquire and transfer land and ancillary resources.
4. Any measures necessary, for example adequate sensitisation and information dissemination, to prevent land speculation or influx of ineligible persons at the selected sites.
5. Procedures for physical relocation under the project, including timetables for site preparation and transfer.
6. Legal arrangements for legalising tenure and transferring titles to re-settlers.

3.2.4.2 Community Participation

To ensure that the RAP is efficient and effective, consultations with stakeholders and project affected persons is of utmost importance and the RAP should include:

1. A description of the strategy for consultation with and participation of re-settlers and hosts in the design and implementation of resettlement activities, if any, to develop a stakeholder engagement plan.

RN

2. A summary of the views expressed and how these views were taken into account in preparing RAP.
3. If applicable, a review of the resettlement alternatives presented and the choices made by affected persons regarding options available to them, including choices concerning compensation and resettlement assistance. This, for example, concerns choices on relocating as individual families versus relocating as parts of pre-existing communities or kinship groups in order to sustain existing patterns of group organisation as well as retaining access to cultural property (e.g. places of worship, pilgrimage centres, and cemeteries).
4. Institutionalised arrangements through which affected people can communicate their concerns to project authorities throughout planning and implementation, and measures to ensure that vulnerable groups such as indigenous people, ethnic minorities, the landless, and women are adequately represented.

3.2.4.3 Integration with Host Populations

Depending on the project impacts, if there are persons to be relocated, the consultant should recommend measures to mitigate the impact of resettlement on any host communities, including:

1. Undertake consultations with host communities and local governments to capture their concerns and fears concerning the relocation process.
2. Arrangements for promptly tendering any payment due to the hosts for land or other assets provided to re-settlers.
3. Arrangements for addressing any conflict that may arise between re-settlers and host communities.
4. Any measures necessary to augment services (e.g., education, water, health, and production services) in host communities to make them at least comparable to services available to re-settlers.

3.2.4.4 Grievance Procedures

This will detail the Identification of affordable and accessible procedures for settlement of complaints related to the planning and implementation of resettlement activities. This includes establishing procedures for recording grievances and response times for resolution of problems. The consultant shall identify agencies responsible for implementing these procedures and take into account community and traditional dispute settlement mechanisms as well as the availability of judicial recourse.

3.2.4.5 Organizational Responsibilities

The organisational framework for implementing resettlement should be clearly outlined. This includes:

1. Identification of agencies responsible for delivery of resettlement measures and provision of services.
2. Arrangements to ensure appropriate coordination between agencies and jurisdictions involved in implementation.
3. Any measures needed to strengthen the implementing agencies' capacity to design and carry out resettlement activities, including technical assistance.

4. Provisions for the transfer of responsibility for managing facilities and services provided under the project to local authorities or the re-settlers.

3.2.4.6 Implementation schedule

An implementation schedule shall be prepared. The schedule is to cover all resettlement activities, from preparation to implementation, and should state target dates for the achievement of expected benefits to the re-settlers and hosts. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.

3.2.4.7 Costs and budget

Tables shall be produced that show itemized cost estimates for all resettlement activities, including allowances for inflation, implementation and monitoring of the RAP and other contingencies and timetables for expenditures. Further sources of funds and arrangements for timely flow of funds should be indicated.

3.2.4.8 Monitoring and Evaluation

The purpose of monitoring and evaluation is to report on the effectiveness of the implementation of the RAP, covering physical resettlement, disbursement of compensation and effectiveness of public consultation, amongst others. Monitoring and purposeful evaluation will be key factors for the successful resettlement activities.

Monitoring and evaluation will be undertaken by independent monitors as part of the project implementation works. The monitors will be selected on criteria that are considered appropriate by the funding agency and, therefore, the consultant shall prepare a proposed monitoring and evaluation framework for RAP implementation, including:

1. A plan for monitoring and evaluation of the compensation package with indicators for measuring implementation performance, impacts and outcomes.
2. Involvement of the affected persons in the monitoring process.
3. The period monitoring and evaluation shall cover after completion of activities.
4. A review of the baseline survey results.
5. The compensation complaints / grievance redress committee.
6. Identification of alternative land for resettlement and farming.
7. Adherence to compensation payment schedule.
8. Movement and support of the PAPs and, in particular, the situation of small and marginal landholders, unskilled labourers, mobile vendors, migrant populations, ethnic minorities, women, children, and the elderly and disabled persons.
9. Reporting requirements for making the results of the monitoring work useful for subsequent projects.
10. The plan shall provide for reviews of the regular progress reports to the implementing agency by stake holders at national level, including the World Bank, and at local levels.

3.2.4.9 Rap Implementation

The Client will implement the RAP as a separate assignment once the scope has been defined in the RAP.

RN

4.0 ORGANISATION OF THE ASSIGNMENT

4.1 Contractual Arrangements

The contract for this assignment shall be lump sum and the consultant shall show the costs of his proposed services in accordance with the contractual arrangements.

4.2 Logistical Setup and Staffing

Within the technical proposal, the consultant shall elaborate on the envisaged logistical setup and deployment of appropriate skills for the execution of the assignment. The consultant shall present the staffing schedule in a manner that clearly shows the stage and duration where each of the proposed team members is planned to be involved on the project. An organogram reflecting the responsibilities of each staff member and line management setup of the proposed team shall be part of the proposal.

While there could be shared key personnel resources, it is advisable that the RAP team be independent of the ESIA team and must include a legal expert.

To enhance local skills and experience, it is recommended that the consultant integrates local expertise into the project execution team.
The consultant's team is expected to provide key expertise as stated in **Error! Reference source not found.**.
The consultant will be expected to name a team leader from amongst the proposed staff to carry out day to day management of the project. The consultant is free to propose additional skills as are deemed necessary to execute the assignment within their stated methodology.

Table 1: Key personnel for ESIA with estimated time inputs

Expert	Minimum relevant experience (years)	Indicative staff input (month)
Environmental Specialist/ Team Leader	10	02
Sociologist	05	02
Hydrologist	05	01
Water and Wastewater Specialist	05	01
Surveyor	05	01

Table 2: Key personnel for RAP with estimated time inputs

Expert	Minimum relevant experience (years)		Indicative staff input (month)
RAP Specialist/Team Leader	07		02
Valuer	05		02
Legal Expert	05		01

4.2.1 Key Personnel for the Consultancy

The consultancy shall provide all personnel necessary for the completion of the study. The following key personnel shall be included as a minimum requirement for the consultant's personnel:

1. **Environmental Specialist:** A graduate degree in environmental engineering, or equivalent, with 10 years of relevant experience in EIA preparation for infrastructure projects. The person shall be a NEMA-accredited environmental practitioner, have familiarity with World Bank's environmental safeguards policies from similar works financed by the World Bank. The person must be conversant with environmental engineering and environmental planning relevant to the proposed project.

2. **RAP Specialist:** A Bachelor's degree in surveying / land economics, or sociology, or equivalent, with 7 years of relevant experience in RAP preparation and implementation for infrastructure projects. The person shall have significant experience with World Bank's social safeguard policies, as will be evidenced from similar works carried out and financed by the World Bank.

3. **Sociologist:** A University Degree in Sociology with 5 years' experience in resettlement/mitigation or social impact assessment issues related to development schemes on projects financed by the World Bank.

4. **Hydrologist:** A university degree in hydrology, or equivalent, with 5 years of experience in assessing impacts from water storage by watercourse impoundments, ground-and surface water abstraction, and effluent discharges from water and sanitation projects, on the water source / receiving water.

5. **Water and Wastewater Specialist:** A university degree with 5 years of hands on experience in the management of water supply and wastewater projects

6. **Valuer:** A university degree in land economics or its equivalent with 5 years of experience in property valuation. The person must be registered by the Surveyors Registration Board (SRB) with a valid practicing certificate.

7. **Surveyor:** A university degree in surveying with 5 years of experience in survey of infrastructure projects. The person must be registered by the Surveyors Registration Board (SRB) with a valid practicing certificate.

8. **Legal Expert:** A university degree in Law and a Post Graduate Diploma in Legal practice, with 5 years significant experience in handling issues of involuntary resettlement as evidenced from similar works carried out and financed by the World Bank.

5.0 DURATION OF THE ASSIGNMENT

The assignment is expected to be completed in five months. The consultant shall establish a detailed work program within the above time period. The estimated staff time inputs should be provided in accordance with the consultant's professional judgment and knowledge of the local conditions and needs.

6.0 PRICING

In accordance with World Bank rules, the consultancy services shall be priced in any fully convertible currency, singly or in combination of up to three foreign currencies.

7.0 REPORTING AND MEETING REQUIREMENTS

The Consultant will report to:

The Senior Manager-Projects (WMDP)
Telephone: 0414315100
E-mail: info@nwsc.co.ug
Plot 39 Jinja Road. P.O. Box 7053, Kampala

A copy of each report will be submitted to

IDA TTL
Berina Uwimbambazi

The consultant will be required to produce and submit the following principal reports and documents in the quantities and timing indicated in Table 3. At each reporting stage, the consultant shall also be required to submit to NWSC and World Bank an electronic copy, using software specified by the client in Table 3. In addition all data collected during the assignment shall be availed on request by the client at any stage of the project.

Table 3: Summary of reporting requirements

Description	Timing in months from starting date	No. of hard copies to		Electronic copies to NWSC
		World Bank	NWSC	
Inception report	0.5	1	3	Word; Excel (all tables)
Draft ESIA, draft RAP	4	1	3	Word; Excel (all tables); CAD (all drawings);

Description	Timing in months from starting date	No. of hard copies to		Electronic copies to NWSC
		World Bank	NWSC	
Final ESIA, final RAP	5[1]	1	3	Word; Excel (all tables); CAD (all drawings); ArcView GIS (location of extents of environmental and social impacts etc);

The consultant shall prepare and submit an inception report, followed by a draft ESIA and RAP report to the client.
The inception report shall include findings from the old and updated project design, the general work plan and revised methodology.
The client, together with the World Bank, shall review the draft reports to issue a 'no objection' before the consultant submits the draft final ESIA report to NEMA and draft final RAP report to the Chief Government Valuer for approval. The ESIA report and RAP (without the list of entitlements) shall then be disclosed both in-country and at the World Bank's info shop.

7.1 Reporting Requirements

7.1.1 Reporting format for Environmental and social impact assessment report

The consultant will prepare an environmental and social impact assessment report, and design mitigation measures, as well as preliminary cost estimates. The report should be organized in formats suggested in the World Bank Document OP 4.01 and should include the following as a minimum:

1. Executive Summary.
2. Policy, Legal and Administrative Framework.
3. Description of the Proposed Project.
4. Description of the Environment.
5. Significant Environmental Impacts.
6. Analysis of Alternatives.
7. Environmental Management Plan, including mitigation, monitoring, capacity development and training and implementation schedule and costs; include environmental protection clauses for incorporation in contract agreements.
8. Inter-Agency and Public/NGO Consultation.
9. Grievance Redress Mechanism
10. Chance Finds Procedure
11. List of References.
12. Appendices:
    a) The Environmental and Social Impact Assessment team.

[1] The time includes review and inputs by both NWSC and the World Bank which will be limited to two weeks

b) Records of Inter-Agency and Public / NGO Communications.
c) Data and Unpublished Reference Documents.
d) Map, drawing and pictorial complement, especially to convey information on the project affected area and proposed project activities.

7.1.2 Reporting Format for the Resettlement Action Plan

The Resettlement Action Plan (RAP) shall have as the following as a minimum:

1. Executive Summary.
2. Property census and surveying.
3. Property valuation.
4. Socio-economic surveys.
5. Analysis of alternatives to minimize displacement.
6. Analysis of institutional and legal framework.
7. Entitlement options and income restoration recommendations.
8. RAP implementation institutional framework.
9. RAP implementation schedule.
10. Record of stakeholder consultations.
11. Grievance redress framework.
12. Monitoring and evaluation framework.
13. RAP costs and budgets.
14. List of References.
15. Appendices:
    a) The strip map.
    b) Valuation roll.

7.2 Meeting Requirements

Following the submission of the inception report, the consultant will avail appropriate personnel for review meetings with the client and the design consultant during the entire project period. The review shall be for the purposes of:

1. Assessing progress.

2. Obtaining signoffs on proposals made to the design consultant in respect of minimising project impacts on the environment

3. Exchanging information and data relevant for the successful accomplishment of the entire assignment.

The nature of the meetings, locations (e.g. site, NWSC offices, and consultant's offices) and agenda shall be agreed upon by the consultant's and the client's project managers in agreement with the design consultant.
For ensuring organisational and stakeholder wide appreciation and ownership of the proposed recommendations, the consultant shall be required to organise coordination workshops for presentation of key reports after each project milestone to a representative group of stakeholders that is to be agreed with the client. A minimum

of two workshops is proposed and shall include project inception and presentation of draft report. These will be organised and paid for by the Client while the consultant will facilitate.

8.0 DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT

To the extent possible, the client will provide free of charge all existing information, data, reports and maps in the custody of the client and will assist the consultant in obtaining other relevant information and materials from governmental institutions and state authorities as far as possible. In addition, the consultant shall have full access to information and draft reports produced by the design consultant for purposes of the project.
The data shall include (but not be limited to) the following:

1. Detailed design report – Feasibility study and detailed design for Bushenyi Water Supply and Sanitation Project 2009, by Kagga and Partners.

2. Block maps of the current Bushenyi water supply and distribution system.

3. Concept designs and detailed designs produced by the design consultant and all other relevant information produced by the design consultant as it becomes available.

The information, data, reports, etc., will be available for the consultant's unlimited use during execution of the proposed services. The Client will procure additional maps, aerial photographs, meteorological and geological data for use on the project if identified by the consultant and deemed necessary.by the client.

9.0 SERVICES AND FACILITIES TO BE PROVIDED BY THE CONSULTANT

In carrying out this assignment, the consultant shall provide the following services, among others, which should be duly provided for in the consultant's proposal:

1. Suitable office in terms of space and furnishing for the consultant's team engaged on the assignment.

2. Office supplies, as required for the period of services.

3. Utility services and costs.

4. Long term accommodation for the consultant's staff while in Uganda and hotel accommodation for short term experts.

5. Subsistence (or per diem) payments for official travel for consultant's staff.

6. Secretarial and administrative support staff.

RN

7. International and local telephone services for official communication only.
8. Transport for the period of the assignment

TECHNICAL PROPOSAL;

COPY

TECHNICAL PROPOSAL

For Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Gulu, Mbale, Bushenyi and Arua Water Supply and Sanitation Projects

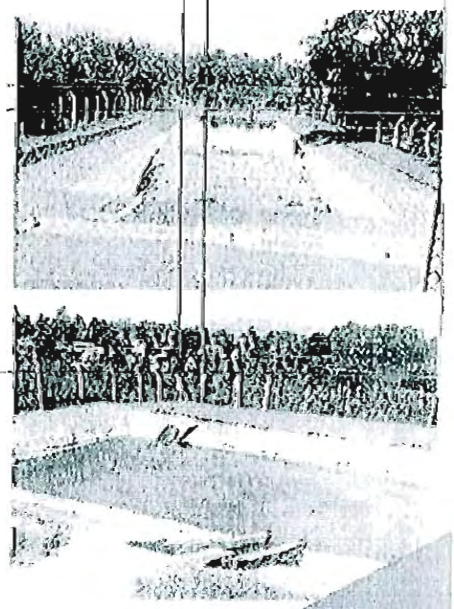
(RFP No: NWSC- HQRS/SRVCS/ 13-14/158804)

Submitted to:

The Manager Procurement
NATIONAL WATER AND SEWERAGE CORPORATION
Plot 43/49, 6th Street Industrial Area
Kampala, Uganda

By:

AIR WATER EARTH (AWE) LTD
Environmental, Civil Engineers & Project Management Consultants
M1, Plot 27 Binayomba Road, Bugolobi
P. O. Box 22428, Kampala, UGANDA.
Tel: 041-4268466, Mob: 078-2580480/ 077-2496451
E: mail@awe-engineers.com
W: www.awe-engineers.com



October 2014

AWE is member of International Federation of Consulting Engineers (FIDIC-GAMA)

Uganda • Kenya • Rwanda • USA

LE

RN

LE

RN

Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Gulu, Mbale, Bushenyi and Arua Water Supply and Sanitation Projects

RFP No : NWSC- HQRS/SRVCS/ 13-14/158804

TECHNICAL PROPOSAL

Submitted to:

The Manager Procurement
National Water and Sewerage Corporation
Plot 43/49, 6th Street Industrial Area
Kampala
Uganda

By:

AIR WATER EARTH (AWE)
Environmental, Civil Engineers & Project Management Consultants
M1, Plot 27 Binayomba Road, Bugolobi
P. O. Box 22428, Kampala, UGANDA.
Tel: 041-268466, Mob: 078-580480/ 077-2496451
E-mail: mail@awe-engineers.com
Web site: www.awe-engineers.com

LE

RN

Contents

Acronyms

AWE:	Air Water Earth (AWE) Limited, (here in the consultant)
Cap.:	Chapter
CGV:	Chief Government Valuer
DWD:	Directorate of Water Development
ESIA:	Environmental and Social Impact Assessment
EA:	Environmental assessment
EIS:	Environmental Impact Statement
GoU:	Government of the Republic of Uganda
HC:	Health Center (e.g. HC IV, HC III, HC II)
HIV/AIDS:	Human Immunodeficiency virus/ acquired Immunodeficiency syndrome
HEP:	Hydroelectric power
HPP:	Hydropower plant (or dam)
LAR:	Land Acquisition & Resettlement
LC:	Local Council
NEMA:	National Environment Management Authority
NDP:	National Development Plan
NGO:	Non-Governmental Organization
NWSC	National Water and sewage cooperation
PAP:	Project Affected Persons
PCR:	Physical Cultural Resources
PCDP:	Public Consultation and Disclosure Plan
PREPS:	Priority Rural Electrification Projects
PPE:	Personal Protective Equipment
RAP:	Resettlement Action Plan
RfP:	Request for Proposal
SACCOS:	Saving and Credit Cooperatives Society
SME:	Small and Medium Scale Enterprises
STDs:	Sexually transmitted diseases
TC:	Town Council
ToR:	Terms of Reference
UBOS:	Uganda Bureau of Statistics
UPE:	Universal Primary Education
WRMD:	Water Resources Management Directorate
WTP:	Water Treatment Plant

TECH -1: Technical Bid Submission Sheet

AIR WATER EARTH (AWE) LIMITED
Environmental, Civil Engineers & Project Management Consultants
"Plan Innovate Deliver"

M1, 27 Binayomba Road, Bugolobi
PO Box 22428, Kampala
Office Tel. +256-41-4288466
Mobiles: +256-78-2580480/ 077-2496451
Email: mail@awe-engineers.com
Web: www.awe-engineers.com

TIN: 1000128179
Company Reg. No. 52879

Date: 22nd October 2014
Our Ref: AWE.NWSC.ESIA/RAP.14.006
Your Ref: NWSC –HQRS/SRVCS/13-14/158804

To: The Manager Procurement
National Water and Sewerage Corporation
Plot 43/49, 6th Street Industrial Area
Kampala Uganda

Dear Sir/Madam:

We, the undersigned, offer to provide the consulting services **For Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Gulu, Mbale, Arua and Bushenyi Water Supply and Sanitation** in accordance with your Request for Proposal dated 20th August 2014 and our Proposal. We are hereby submitting our Proposal, which includes this Technical Proposal, and a Financial Proposal sealed under separate envelopes.

We hereby declare that:

a) All the information and statements made in this Proposal are true and we accept that any misinterpretation or misrepresentation contained in this Proposal may lead to our disqualification by the Client and/or may be sanctioned by the Bank.
b) Our Proposal shall be valid and remain binding upon us for the period of 120 calendar days
c) We have no conflict of interest in accordance with ITC 3.
d) We meet the eligibility requirements as stated in ITC 6, and we confirm our understanding of our obligation to abide by the Bank's policy in regard to corrupt and fraudulent practices as per ITC 5.

In competing for (and, if the award is made to us, in executing) the Contract, we undertake to observe the laws against fraud and corruption, including bribery, in force in the country of the Client.

If negotiations are held during the period of validity of the Proposal, i.e., before the date indicated in clause 12.1 of the Data Sheet (until 24th/ 01/2015), we undertake to negotiate on the basis of the proposed key experts. We accept that the substitution of Key Experts for reasons other than those stated in ITC Clause 12 and ITC Clause 28.4 may lead to the termination of Contract negotiations

Our Proposal is binding upon us and subject to the modifications resulting from Contract negotiations.

We undertake, if our Proposal is accepted and the Contract is signed to initiate the consulting services related to the assignment not later than the date indicated in Clause 30.2 of the Data Sheet.

We understand you are not bound to accept any Proposal you receive.
We remain,

Environmental Impact Assessment & analysis

Pollution control equipment

Wastewater

Air pollution

Carbon Audits/CDM

Solid waste

Water & sanitation

Site remediation

EIA & Environmental audits

Road/Highway design

Civil/structural engineering design

Yours sincerely,

Authorized Signature [In full and initials]: ----------

Name and Title of Signatory: Eng. Lammeck KAJUBI; PE. President/ CEO.
Registered Professional Engineer (PE), ERB/570
NEMA Registered EIA Practitioner

Name of Firm: **AIR WATER EARTH (AWE) LIMITED**

Address: M1, 27 Binayomba Road, Bugolobi
P.O Box 22428, Kampala
Office Tel. +256-41-4268466 Mobiles: +256-78-2580480/ 077-2496451
Email: mail@awe-engineers.com Web: www.awe-engineers.com

4.1 BACKGROUND TO PROJECT AREAS

4.1.1 Introduction

The Government of Uganda obtained a loan from the World Bank towards the Uganda Water Management and Development Project (WMDP). The WMDP was developed under the Ministry of Water and Environment (MWE) as an integrated water resource management and development project with objectives of Improving integrated water resources planning, management and development; and access to water and sanitation services in priority urban areas. It is believed that the project will contribute to higher level goals of sustaining natural resources, improving service delivery, and Increasing economic productivity.

Part of the WMDP funds is intended to be applied towards Water Supply and Sanitation Projects in Gulu, Mbale, Arua and Bushenyi with the agency implementing these projects being National Water & Sewerage Corporation (NWSC). The NWSC was established as a government organisation in 1972 to develop, operate and maintain water supply and sewerage services in urban areas. The proposed project is intended for the improvement of water production and distribution capacity, rehabilitation and expansion of water and sanitation infrastructure of the project area including Gulu, Arua, Bushenyi and Mbale urban centres.

4.1.2 Gulu Municipality

4.1.2.1 Existing water supply and sanitation systems

Gulu Municipality located about 340 km by road from Kampala is the administrative and commercial centre of Gulu District and one of the most populous towns in Northern Uganda.

Water supply: The town has a conventional water treatment plant with a design capacity of 5500 m3/day and comprising of the clarification (coagulation, flocculation & sedimentation), filtration and disinfection processes. The water treatment plant is located in the senior quarters of the municipality. Raw water is abstracted from Oyitino dam (Figure 1) located on River Oyitino 7 km northwest of the Municipality and pumped to the treatment plant. Treated water is pumped to three reservoirs located at Boma, Customer Corner and Pece with a total storage capacity of about 6000 m^3. Of the three reservoirs, Customer Corner reservoir inaugurated in 2010 is the biggest with a capacity of 5300m^3. From the reservoirs, water is supplied by gravity to (currently) just over 4500 connections that serve a population of about 200,000 people.

Gulu town is water-stressed most of the entire year and supply situation worsens during the dry seasons, necessitating the development of alternative and additional raw water sources. The estimated safe yield for the current raw water source stands at 2000 m^3/day which is insufficient for the town's current water needs. A study into additional raw water sources is currently underway however, it will have its own ESIA and RAP.

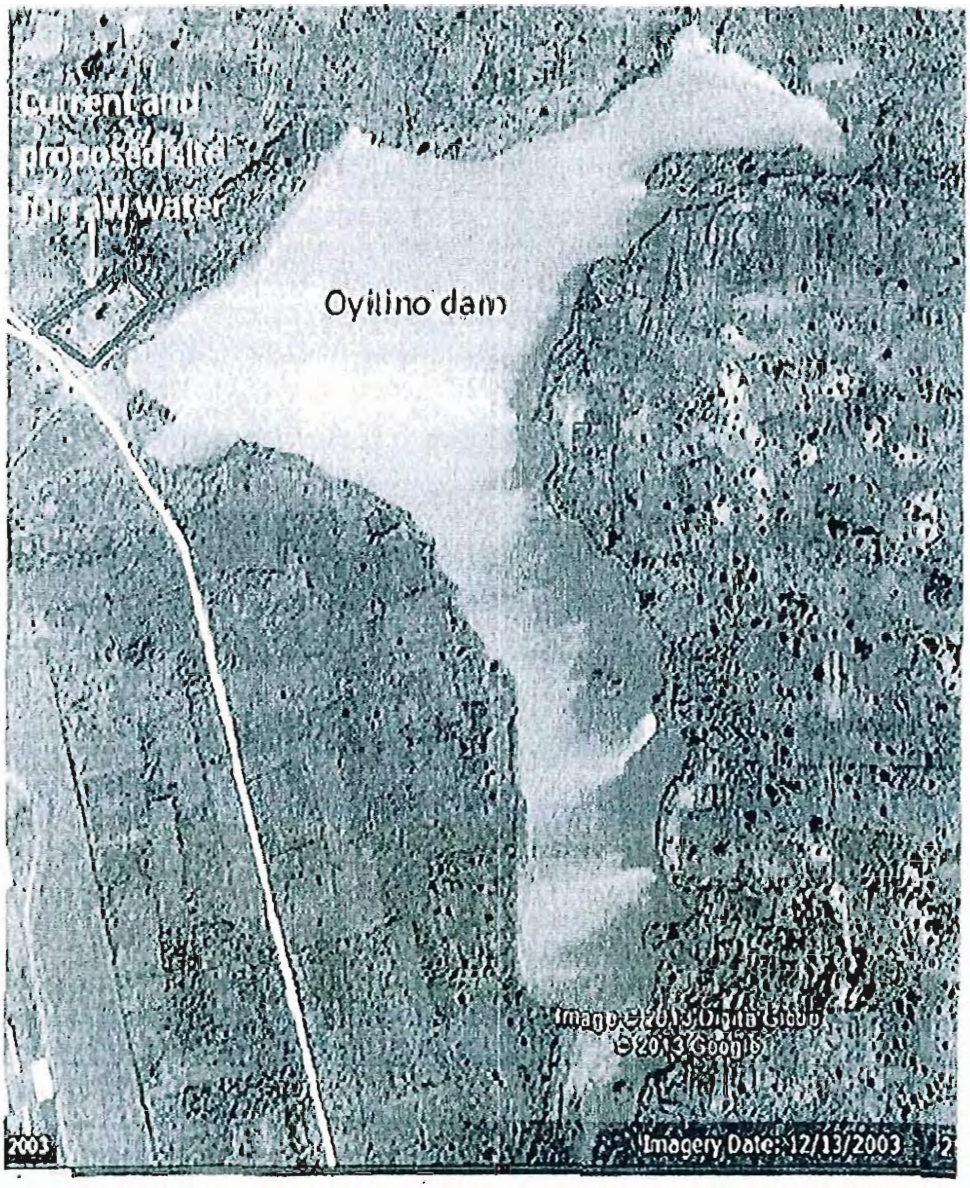


Figure 1: Current and proposed location of the water intake works at Oyitino dam

Sanitation system: The town has a sewerage system (currently with 565 connections) that consists of stabilisation ponds which cater for the central business district and parts of the Senior Quarters.

4.1.2.2 Proposed project description

The proposed project will involve rehabilitation and expansion of existing water treatment plant, water distribution network and existing wastewater collection system and sewage treatment lagoons. The existing raw water source at Oyitino dam will also be rehabilitated and its weir raised. This is expected to result into an increase in the submerged area along the current riverbank. In addition, sewerage

services will be extended to the un-sewered high density areas and new waste water stabilization ponds put in place that will discharging effluent to watercourses.

The bulk of works will be carried out in Gulu Municipality. Works to extend to surrounding peri-urban settlements will be limited to pipe works. All project works will be confined to existing supply area and asset sites.

a) Rehabilitation of raw water source: To increase storage capacity of Oyitino dam, the existing spillway/ weir will be raised by 500 mm. In addition, a new raw water intake will be constructed to optimize the new reservoir capacity. The new raw water intake will be accommodated at the same location as the current intake owned by NWSC.

b) Rehabilitation and expansion of water treatment plant: The current water treatment plant will be rehabilitated to restore its design capacity. With extra raw water mobilized as result of increased reservoir capacity and construction of new raw water intake, the treatment plant may be expanded to accommodate the new raw water volume. The treated water will maintain the current route and the expansion will also be accommodated within the current site boundaries of the waterworks.

c) Water supply and distribution system: The entire network of Gulu water supply system totals to about 76 km, with the biggest pipe size being 160 mm OD leading to bottlenecks in the supply. It is thus proposed to replace parts of the network with larger pipe sizes. Extensions within the existing service area to locations that are currently not served with water supply infrastructure will be made.

d) Sewer network and waste water treatment plant: It is proposed that the lagoons and sewer system will be rehabilitated and the sewer system extended to areas that are currently not served. In addition, the northern and army barracks catchments will have sewer networks and sewerage stabilization ponds constructed (for each catchment).

e) Water and sanitation facilities in informal settlements: A large proportion of Gulu's population is classified as "poor" living in informal settlements scattered all-over the municipality. It is proposed that the project constructs public water points and shared sanitary units in the informal settlements.

f) Catchment Management and Source Protection: The project will include interventions supporting sustainable management of the Oyitino raw water catchment including land use measures, restoration and re-vegetation of the rivers, implementation of river protection and wetland regulations.

4.1.3 Mbale Municipality and Small Towns

4.1.3.1 Existing water supply and sanitation systems

Mbale Municipality of a population of about 170000 people is located in Eastern Uganda 245 km by road from Kampala City. It is the main municipal, administrative and commercial centre of Mbale district and the sub-region.

Water supply: The town relies on two water treatment plants (WTP) at Bungokho and Manafwa that were constructed in the 1950's. The raw water is abstracted from River Manafwa, River Nabigyo and

River Nabuyonga and treated at Manafwa and Bunkoko water works by conventional treatment process. The water production capacity is 12,000m³/day. The two plants were constructed to serve a population of 45,000 people and have been rendered inadequate due to deteriorating raw water quality and increased water demand arising from growth of population and town boundaries. There are currently 235 public stand posts in the Mbale water supply area which are mostly used by the town's urban poor. The deteriorating water quality has had an impact on the operational costs and reduced the capacity of the water supply facilities. For example, the sediment load in River Manafwa has continuously increased affecting performance of the plant. Since construction, minor investments have been undertaken on the water treatment plants to improve their production capacities but little has been done to improve the distribution network which is in a poor state. The increased water demand combined with frequent pipe bursts, especially asbestos cement pipes, has resulted in pressures that do not guarantee continuous water supply to all parts of Mbale town. In order to address the pressure problems, a number of supply areas were connected directly to the pumping main that conveys water from Manafwa WTP to the reservoir at Bungokho WTP. This greatly reduced the amount of treated water reaching the main reservoirs in addition to negatively affecting performance of electro-mechanical equipment at Manafwa WTP.

Therefore, it is imperative to rehabilitate and expand the water supply system to address the low per capita production which stands at 15 litres per day. Neighbouring towns like Busolwe, Kadama, Tirinyi, Kibuku, Butaleja and Budaka also lack piped water supply.

Sanitation: The town relies on two sets of waste stabilisation pond (WSP) systems for sewage treatment, that is, Namatala and Doko WSP systems each having a capacity of 24 m³/ day. Parts of the town that are not connected to the sewerage network rely on on-site sanitation facilities.

4.1.3.2 Proposed project description

The project is intended to address the following: The proposed project will improve water production; rehabilitate and restructuring the distribution network; and rehabilitation and expansion of the sewerage system in Mbale. In addition to meeting the rising water demand in Mbale town, the rehabilitation and expansion of the water supply system is also aimed at extending piped water supply to the small towns of Busolwe, Kadama, Tirinyi, Butaleja and Budaka. Both the water supply and sanitation infrastructure in these small towns will be improved on.

In summary, the proposed project will, among others address:

i) Catchment management measures for protecting the current water sources at Nabijjo and Nabiyonga Dam;
ii) Rehabilitation and expansion of the Bungokho and Manafwa WTPs;
iii) Investigations into possible new raw water sources;
iv) Rehabilitation and expansion of the water supply and distribution system;
v) Extension of water services to neighbouring small towns and rural growth centres;
vi) Rehabilitation and expansion of the sewer network and construction of new waste water treatment facilities for new drainage areas; and water and sanitary facilities in informal settlements.

a) Catchment management and source protection: The project will include interventions supporting sustainable management and protection measures for the current and proposed new raw water sources, including restoration and re-vegetation of river banks, and implementation of river bank protection and wetland regulations.

b) Raw water sources: To address the problems of raw water quality deterioration in River Manafwa and high pumping cost of treated water to the distribution point at Bungokho WTP, the proposed project will increase abstraction capacity at Nabiyonga and Nabijjo dams and develop potential sources upstream of the dams where water can be delivered by gravity.

c) Water treatment plants: Proposed project will refurbish, upgrade and expand the existing water treatment plant and upgrade abstraction mains at Bungokho and Manafwa to increase capacity to meet water needs.

d) Water supply and transmission system: The proposed project will rehabilitate, upgrade, re-zone and expand the water supply and transmission system to restore network pressures and reduce energy costs.

e) Water distribution: The project will extend existing distribution networks in Mbale and all the small towns, including public water points for the urban poor to meet the water needs in Mbale, neighbouring small town and rural growth centres.

f) Mbale sewerage system: The proposed project will improve adequacy and efficiency of the existing waste stabilization pond systems, rehabilitate, upgrade and expand the existing sewer network in order to serve consumers that are not currently served and provide additional catchments with sewerage services as well as new stabilization ponds for wastewater treatment.

g) Water supply and sanitation services to the urban poor: NWSC will assess the current water supply and sanitation in the information settlements in order to improve service and develop the appropriate option; communal or household facilities.

h) Extension of water supply services to neighbouring small towns and growth centres: In partnership with the Directorate of Water Development (DWD), NWSC will develop sanitation options and extend water supply to the small towns of Busokwe/ Butaleja, Budaka, Kadama Tirinyi and Kibuku.

4.1.4 Arua Municipality

Arua Municipal Council is located in Arua District in the north-western region of Uganda. Arua District lies between latitude 20 30'N and 30 50'N and longitude 300 30'E and 310 30'E. It is bordered by Maracha District in the north-west; Yumbe District in the north-east; Democratic Republic of Congo in the west; Nebbi District in the south; Zombo District in the south-east; and Amuru District in the east.

Arua Municipality, which is surrounded by Ayivu County, is 15 km from the Democratic Republic of Congo to the west, 75 km from the Republic of Southern Sudan to the north and 540 km north-west of

Uganda's capital city, Kampala. The origin of Arua Municipal Council is directly linked with the time of the establishment of the colonial rule in Uganda. Arua Town became established in June 1914 as an Administrative Centre under the charge of A.E Weather Head, who was the first District Commissioner of West Nile. In 1938 a township Authority was formed in Arua and in the following year 1939, R. Thomson a new District Commissioner established Arua Town Board. It then grew to a Town Council and latter Arua was declared to be a Municipality in 1972 under the regime of President Idi Amin Dada. It is the civic centre of Arua District local administration and the largest commercial and social coordinating point in the district as well as for many regional activities in West Nile.

4.1.4.1 Existing water supply and sanitation systems

Water supply: The major source of safe water in Arua Municipality is the tap water supplied by National Water and Sewerage Corporation (NWSC) with coverage of 80% (AMDP 2010-2015). The system covers the entire Arua municipality and part of its surrounding peri-urban communities. It was constructed in the 1950's and, currently serves an estimated population of about 188,000 through approximately 5,000 accounts. The demand for new connections is high but the supply system is already severely overstretched which inhibits addition of new customers.

Other water sources are seasonal rivers within the municipality that normally dry up during the dry season, protected springs (23 No.) and the several boreholes (58 No.) which are mostly contaminated by nearby on-site sanitation facilities.

To bridge the water supply gap during the dry season, it is planned to augment the current raw water source with water from boreholes. It is envisaged to drill 13 exploratory wells and incorporate the 7 highest yielding ones into the Arua water supply.

Sanitation: Arua town does not have a centralised sewerage system. With the towns' population increasing, it is becoming increasingly difficult to maintain adequate sanitation without a centralised sewerage system. In addition, the current raw water source is insufficient and during the dry period there is a period of about 2 months were the source dries up almost completely. The population is mainly served by on-site sanitation facilities like water-borne toilets, VIP latrines and pit latrines. There are eleven (11) units of public toilets / latrines of different stance capacities in the municipality.

4.1.4.2 Proposed project description

The project includes rehabilitation of the current water source at the River Enyau, development of boreholes to augment the current water source, refurbishment and upgrading of the current water treatment plant, rehabilitation, upgrading and expansion of the water supply and distribution system, increasing storage capacity of the treated water, construction of a sewerage network for central Arua and waste stabilisation ponds, provision of water supply and sanitation in informal settlements, and catchment management and source protection.

To address the inadequate sanitation issues in Arua, it is planned to build a sewage collection and treatment system. A detailed design of water supply and sanitary systems was carried out in 2011 by Gauff Consultants (U) Ltd following a review of previous feasibility studies. In parallel, a consultant carried out an Environmental and Social Impact Assessment (ESIA) and developed a Resettlement Action Plan (RAP) for the proposed design.

However, in July 2014, NWSC signed a contract with a FICHTNER in association with M&E Associates for supervision of works under this project. This Consultant was also tasked with a review of the designs that were done by the previous consultant (Gauff Consultants U Ltd) and the amendment of the existing sewer system design. This amended design was aimed at increasing the sewerage service area and reducing the operational costs of the design that had been proposed by Gauff Consultants (U) Limited. The following are the amendments to the original sewerage design and, hence, the need to have an ESIA and RAP:

i) Construction of a new waste water treatment facility at Ociba as opposed to where it was proposed in Onduparaka.
ii) A second lifting station was proposed at the inlet of Ociba waste water treatment pond site.
iii) An overall increase in the length of sewers to 10 km. This is inclusive of the 6 km trunk sewer from the Wadriff lifting station to the new waste water treatment facility in Ociba which came up as a result of network re-routing.

In addition, there are parts of the original design where no ESIA and RAP was undertaken. These include:

The thirteen (13) bore hole sites: Seven (7) of these have already been identified and are located in places shown in box below while six (6) are yet to be sited by the design consultant.

Box 1: Location of boreholes already sited

Borehole number	Location
VES 41	Ombachi
VES 44	Angufea B
VES 45	Kenya
VES 55	Ozuvu
VES 57	Ambeko
VES 58	Giligili
VES 37	Nyio

Public toilets: Ten (10) public toilets will be constructed in designated areas within the municipality.

4.1.5 Bushenyi Municipality

Bushenyi town is approximately 322 kilometres southwest of Kampala. Its service area extends to the areas of Butare in the north, Ishaka in the west and Rwentuha in the east.

4.1.5.1 Existing water supply and sanitation systems

Water supply: The water supply system for Bushenyi town was constructed in the 1950's with the water treatment plant located along the Bushenyi – Ishaka Highway. In 1991, Nyaruzinga water treatment plant of design capacity 900 m^3/day was constructed. The raw water source is Nyaruzinga swamp and the water is of poor quality this mainly attributed to high levels of organic matter characteristic to raw swamp water. In addition, this raw water source is unreliable due to significant seasonal variations (and possibly climate change!). Given the water supply and sanitation challenges, Nyaruzinga plant was expanded to a production capacity of 2000 m^3/day. In addition, the pumping main was upgraded and

the service reservoirs rehabilitated, increasing the storage capacity from 370 m^3 to 640 m^3 and limited network strengthening and extension activities were implemented. Given the town's current population of about 74,545 and new developments such as Kampala International University's Western Campus, the WTP's current per capita production of about 27 litres per day is likely to reduce further necessitating upgrading and expansion of the existing systems.

Sanitation: The town has no centralized sanitation system.

4.1.5.2 Proposed project description

The project will result in the provision of improved water supply services to the population living in Bushenyi, Kitagata, Bugongi, Kabwohe and Itendero. Sanitary infrastructure will also be constructed, including centralized sewerage systems for the business districts of Bushenyi, Ishaka, Kitagata, and Kabwoho. The project works will include:

a) Development of boreholes: As an immediate measure for improving the water supply situation, groundwater resources will be developed. For this, three borehole sites with a total safe yield of 1600 m^3/day have been identified in Mashonga and Butare.

b) Development of a new water treatment plant: This is a long-term measure for improving the water supply situation in the town councils of Bushenyi - Ishaka, Kitagata, Bugongi and Kabwohe - Itendero. The proposed site for this treatment plant is near a potential raw water source at Kitagata. It is anticipated that the new water treatment plant will have a capacity of 7000 m^3/ day. The land on which the plant is to be sited has already been acquired by NWSC.

c) Rehabilitation and expansion of the water supply and distribution system: This will include construction of raw water transmission lines from boreholes to a reservoir tank that is to be constructed at Butare and onwards to existing tanks in the Ishaka-Bushenyi supply area, intensifications on the existing Bushenyi-Ishaka distribution network, clear water transmission lines from a new water treatment plant in Kitagata and network intensifications and extensions within Bushenyi-Ishaka area and the town councils of Kitagata, Bugongi and Kabwohe-Itendero.

d) New sewerage system: New waste stabilisation ponds and a network of sewer lines will be developed to serve, as a minimum, the central business districts of Bushenyi, Ishaka, Kitagata, and Kabwohe.

e) Water and sanitation facilities in informal settlements: Water supply and sanitation will be improved in the informal settlements in Bushenyi and Sheema towns through construction of public water service points and shared sanitation facilities.

f) Catchment management and source protection: The project will develop interventions for sustainable management of existing and proposed water sources, including restoration and re-vegetation of river banks, implementation of river bank protection regulations, implementation of wetland regulations, etc., as will be guided by the catchment protection guidelines of the Directorate of Water Resources Management (DWRM).

4.2 APPROACH OF EXECUTING THE ASSIGNMENT

The environmental studies and RAP for the two areas will be carried out concurrently so as to save time and keep within the project timeline.

The assignment will be undertaken by two split teams each handling "*Gulu and Arua*" while another will be responsible for "*Mbale and Bushenyi*".

The approach has been developed from careful studies of previous successfully designed and commissioned works and is based on recognised and acceptable National and International Standards. According to the National Environment Act, this is a Third Schedule Project requiring a full ESIA. A typical environmental and social impact assessment process is presented in figure below. Therefore, the ESIA will involve two stages, that is, the scoping study and the detailed ESIA. However, for Arua town, the ESIA had already been conducted and a review will be done instead taking into consideration of the changes in the project design. In the scoping study, terms of reference that guide the detailed ESIA are developed.

During the scoping phase, the following activities will be undertaken:

- Environmental and socio-economic baseline survey
- Physical and biological environment assessment
- Stakeholder consultations

During the detailed ESIA more details on activities undertaken during the scoping will be obtained in addition to:

- Impact assessment and recommendation of mitigation measures
- Stakeholder consultation
- Development of environmental and social management plan

The environmental and social impact analysis will follow a step-by-step process with defined milestones. Maximum use will be made of the existing data in addition to data collected from the field and laboratory investigations. The consultant will also work interactively with the client, the design consultant and key stakeholders so as to incorporate environmental and social issues in evaluating and selecting the optimal development option.

Figure below summarises the process to be followed during the ESIA study.

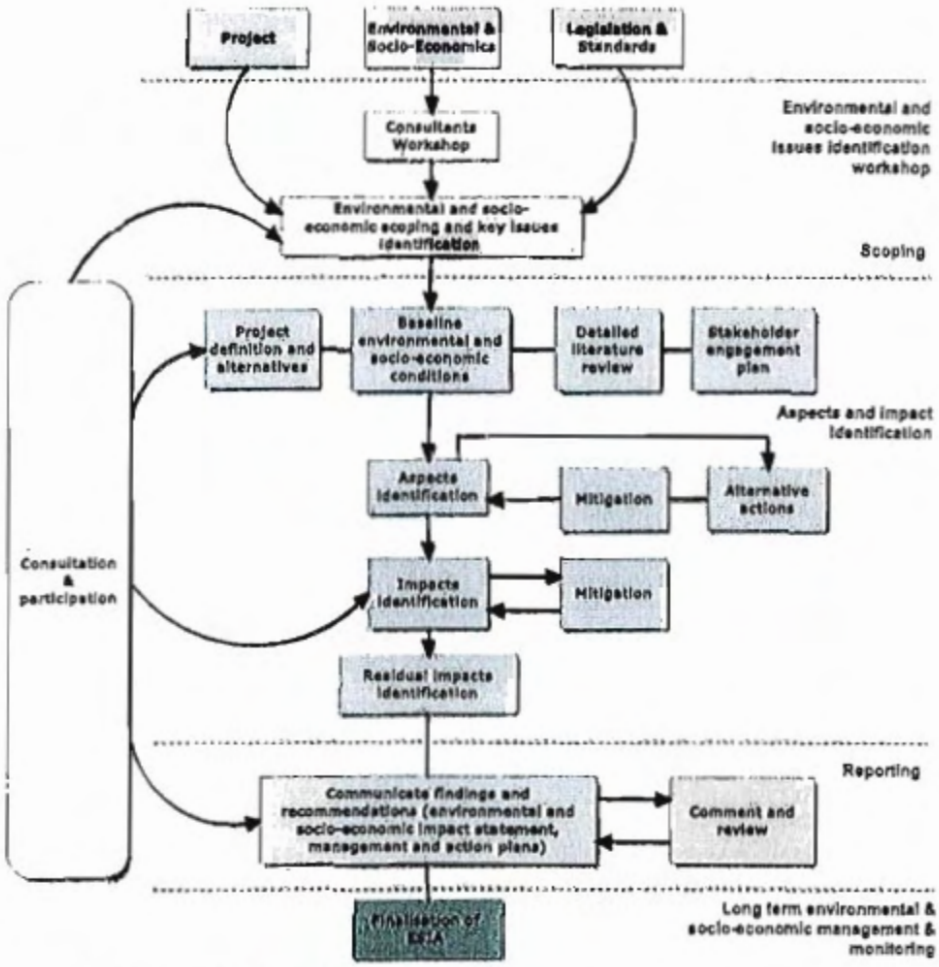


Figure 2: Environmental and social impact assessment process to be utilised

Description of the proposed project/ works: Details of the project will be established through liaison with the feasibility/ design team and the client. This will be an iterative process and will define parameters which could give rise to social or environmental impacts and therefore need to be considered in the study.

i) Project location: To be described by narrative and maps.
ii) Zone of influence of water supply and sanitation systems project: Extent established by considerations of methods of propagation of impacts (e.g. hydrodynamic effects etc.).
iii) Technical description of water supply and sanitation systems works and associated facilities: to be described from information provided by engineering/design team.
iv) Description of construction activities: (same as in iii).
v) Scheduling of project: to be established from client (NWSC) and engineering/design team.
vi) Workforce requirement: to be established from engineering/design team and NWSC management.
vii) Accommodation of construction workers: to be established from client (NWSC) and engineering/design team.

viii) Sources of construction materials: to be established from engineering/design team.
ix) Waste (construction waste, domestic waste from workers, etc.): waste types to be identified from nature of proposed construction activities, number of workers, materials to be used on site, etc.
x) Operational parameters - including use of water treatment chemicals, waste discharge, staff accommodation, traffic movement by number and characteristics, etc.

Environmental and socio-economic baseline studies: These will involve establishment of the environmental baseline including topography, characteristics of soils, climatic conditions and weather patterns; ambient levels of noise, air quality, quality of existing ground and surface water resources, terrestrial ecology including vegetation and protected species, aquatic environment including benthic communities and fisheries, religious and cultural background, population and demographics, ethnic groups, historical resources, aesthetics and tourism, infrastructure, education, land tenure and use pattern, employment, agriculture and public health.

AWE has field equipment to measure quantifiable baseline conditions such as air quality, odour, noise, vibrations and ambient dust. Tools such as structured questionnaires and data analysis tools will be utilised to analyse socio baseline data collected form the project areas. An interactive database that can be interrogated of all project-affected people will be created using *MS Access*.

Impact assessment - prediction and evaluation of potential impacts (both positive and negative) that might arise as a result of the project will be undertaken using relevant methods and criteria determined in the scoping exercise. It is vital that the decision making process is well documented and tracked. To aid this process, AWE can draw on its in house specialty tools and software such as for noise or air quality modelling and also methods for estimating carbon sink loss associated with vegetation clearing for linear projects such as water and sanitation systems where they are to be constructed in undisturbed areas.

It will be important to consider impacts for all stages of project development and also to include possible induced or cumulative effects.

Mitigation/enhancements - Where potential negative impacts are predicted, practical and cost-effective mitigation or compensation options which minimise such effects to acceptable levels will be identified. Similarly, where appropriate opportunities for enhancement exist, these will be identified and considered. Some of these measures particularly where they need to be customised to the appropriate geographical, development or cultural context may need to be considered and developed from an early stage to ensure they will both fulfil the necessary mitigating function and are acceptable in design and operational terms.

Mitigation will be considered from the outset of the assessment process, and where possible the on-going approach to the landscape and visual assessment will provide input into the design and development of the proposals. This element of the work will require continued close communication between the design consultant and the client to ensure realistic and successful mitigation measures that can be delivered as an on-going process through the life of the project development.

Environmental Management Plan (EMP) - Mitigation and management measures of impacts will be clearly specified in Environmental Management Plans (EMPs) including how they should be

implemented, monitored and the personnel responsibility for doing so. The EMPs should be capable of being incorporated in contractual documents. It is anticipated that generic plans for dealing with specific topics for example biodiversity, migration/induced development, resettlement, community development will also be produced.

Environmental monitoring ensures that the project will keep track of impacts, mitigation effectiveness and in some cases enable early impact prevention. Recognizing that mitigation should be backed by resources and capacity to implement them, the EMP will include cost estimates where applicable and issues such as capacity required by implementing agencies.

Consultation - Stakeholders will be engaged via meetings, phone interviews and emails. The aim will be to inform, and seek feedback in the simplest, quickest and most convenient way on perception of the project by the stakeholders. The stakeholders to be consulted include but not limited to:

- NWSC
- NEMA
- The Project District Local Governments, Municipalities and Urban Councils
- The Directorate of Water Development
- The Directorate of Water Resources Management
- The Directorate of Environment Affairs
- Non-Governmental Organisations in the Project Areas (e.g. Water Aid, UWASNET, etc.)
- The Local Communities affected by the project

Client Interactions – the following interactions with NWSC throughout the project are proposed:

i) An inception meeting to define client roles and ongoing interaction such as enabling interfaces with design team and relevant stakeholders like NEMA;
ii) Client review and sign up to the methodologies proposed for the ESIA and RAP technical topics; and
iii) Progress reporting.

RAP will entail sensitisation of project-affected people (PAPs), a census of PAPs, social profile survey that establishes socio-economic conditions in the project areas, property survey and valuation (utilising methodology agreed with the *Chief Government Valuer*) and consultations.

Deliverables: The output from the first phase will be an Inception Report followed by Scoping Report which will outline how the preferred route and sanitary options were selected. In the Inception report, a detailed presentation is made of the approach and methodology that will be followed in executing the studies. The Scoping Report contains the terms of reference that will guide the detailed ESIA for each specialist study as required by the Environmental Impact Assessment Regulation, 1998. The output from the second phase will be the EISA and RAP Reports.

4.3 ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT METHODOLOGY (PART 1)

4.3.1 Environmental Scoping

The purpose of the scoping study will be to identify key issues and would also include detailed definitions of study areas and methods. Defining details at this stage presents significant advantages both in terms of planning and consultation with key agencies, ensuring that there is an early understanding of possible areas of disagreement and opportunities to resolve them satisfactorily, thus reducing the likelihood of objections being raised to the proposals or method of assessment at a later stage in the study.

The scoping study will comprise baseline desk studies, stakeholder consultations and field visits to allow an informed assessment of the proposed project. During scoping the consultant will review Uganda land laws and national environmental legal requirements in addition to financing agencies requirements. The outputs of the study will form the basis of the detailed environmental & social surveys. A summary of technical aspects that will be assessed or investigated during the scoping activities are presented in table below.

Table 1: A summary of the proposed technical aspects and their corresponding approach during the scoping stage

Technical aspect	Approach to Scoping study
Project description	More detailed information on project description inform of the lengths, sizes and routes of water lines will be obtained from the design Consultant and Client
Biodiversity (Flora and fauna)	Desk study and walkover survey to determine if there are endangered species which could be affected, habitats of biodiversity importance and IUCN protected species.
Drainage and water resources	Desk study of existing information on water quality of watercourses (if available) and topographical information (if available) to determine potential drainage patterns. This information would be used to inform the study team in terms of the least potential impact on runoff.
Landscape and visual amenity	Desk study of existing information including aerial photography and topography (if available) to determine zones of visual influence of the pipeline routes.
Recreation	Identification through a desk study and field reconnaissance of existing recreation places in the project areas and how they would be impacted on by the project during the construction and operation phases.
Land use & agriculture	Desk study of existing soils and land use information around the project area
Protected areas, wetlands & Ecosystem	This will involve rapidly characterizing the major ecosystem / habitat types in the project area, for example, at Kitagata, and selecting the most sensitive areas. For all the taxonomic groups to be surveyed a literature review will be conducted to compile all available secondary data that can be accessed. This will help direct the planning of the field surveys.
Cultural property	Desk study of existing information on culture, property, attitudes and social-psychological conditions, including attitudes toward the proposed project; trust in political and social institutions, perceptions or risks; relevant psychological coping and adjustment capacity; cultural cognition of society and environment; assessed quality of life; and improvement values that may be relevant to or affected by the proposed water supply and sanitation projects.
RAP aspects including property, settlements & community facilities	This will involve preliminary investigation to determine the approach to economic valuation of community's property and other infrastructure to establish resettlement impacts and views of affected people to impeding displacement/ resettlement. These

Technical aspect	Approach to Scoping study
	will guide / refine RAP methodology to adopt.
Occupational Health & Safety	Desk study of existing information on occupational policies, regulations and guidelines established and Improvement measures recommended will be reviewed. OHS situation and other risks will be identified by observation.
Occupational Health & Safety	Desk study of existing information on occupational policies, regulations and guidelines established and Improvement measures recommended will be reviewed. OHS situation and other risks will be identified by observation
Security implications	Desk studies of crime rates and nature of crimes in the affected districts will be assessed. Crime will also be assessed at sub-country and lower levels of administration were information is found available.
Demographic effects	Desk studies will try to identify previous patterns of movement of people in the project districts and regionally.
Access tracks and traffic	Desk traffic volume studies and vehicle classification counts will be conducted along access roads where the transmission/distribution water lines will pass.
Induced development from improved access to electricity	Desk studies and stakeholder consultations from key government entities and other development patterns.
Security implications	Desk studies of crime rates and nature of crimes in the affected districts will be assessed. Crime will also be assessed at sub-country and lower levels of administration were information is found available.
Demographic effects	Desk studies will try to identify previous patterns of movement of people in the project districts and regionally.
Access tracks and traffic	Desk traffic volume studies and vehicle classification counts will be conducted along access roads where the transmission/distribution water lines will pass.
General EHS sector guidelines as well as Water abstraction and Supply Guidelines	Desk study of Guidelines for Water abstraction and Supply to cover a wide range of issues including construction and maintenance of transmission pipelines, employee safety related to trenching and laying of pipes, and community health issues such as water borne diseases.
Preliminary impact identification	This will be achieved through desk study and field reconnaissance in comparison with the location of the different project components during both the construction, operation and decommissioning phases.

Expected output: A scoping report will be produced for each project area with proposed terms of reference for the detailed environmental and social impact assessment. These will be submitted to NEMA for review and approval of Terms of Reference.

4.3.2 Environmental Baseline Conditions

The consultant will assess the environmental conditions of the project affected area by carrying out baseline surveys/studies. These will be intended to provide a measure of existing environment and the socio-economic situation against which future changes due to the establishment of the water treatment/supply and/ or waste collection and treatment systems can be monitored. The baseline environment studies will aid in developing appropriate monitoring indicators.

Specific actions: Methodology will involve establishing the physical environment (topography/soils, climate and air quality, ground and surface water resources, noise levels, etc.); biological environment (terrestrial fauna and flora, aquatic environment and benthic communities, primary and secondary production); and socio-economic environment (population and demographics, religious and cultural background, ethnic groups, historical resources, aesthetics and tourism, service infrastructure, education, land tenure and land use systems, sources of livelihood, and public health, among others).

Cultural and socio-economic baseline conditions will be established through observation, interviews/consultation with communities, lead agencies and literature review.

The main objectives of environmental baseline study will be to description of the present environment in the area of influence of the proposed projects and related activities taking into consideration site specific and regional baseline studies.

4.3.2.1 Physical environment

Physical environment survey will include air quality, noise and water quality. AWE will assess the physical environmental conditions of the project affected area by carrying out baseline surveys/studies during the various seasons experienced in region over the year; these will be intended to provide a measure of existing natural environment against which future changes due to proposed construction of water supply pipe line can be monitored. The baseline environment studies will aid in developing appropriate monitoring indicators and, exact coordinates of the important features, which could be adversely impacted by the proposed project, will be recorded using a handheld geographical positioning system (GPS) unit.

I) Water quality

Baseline water quality will be measured using the multipara meter water quality meter (HANNA HI 9828) that can make measurements for up to 13 parameters including electrical conductivity, resistivity, pH/mV and specific gravity of the water sample. Samples will be obtained from various resources identified and encountered including wetlands in the project area to obtain a baseline for monitoring of contamination during construction and operation phases of the projects.

Table 2: Sample table for water analysis results

Sample No.	Parameters	Locations and nature of Water resource (e.g. river, swamp, borehole or springs)		Permissible limits as per DWD
1	pH			
2	Colour			
3	Turbidity			
4	TDS (mg/L)			
5	Total Hardness as $CaCO_3$ (mg/L)			
6	Calcium as Ca (mg/L)			
7	Magnesium as Mg (mg/L			
8	Chloride as Cl (mg/L)			
9	Fluoride as F (mg/L)			
10	Sulphate as SO_4 (mg/L)			
11	Nitrates as NO_3 (mg/L)			
12	Iron as Fe (mg/L)			
13	Total Alkalinity (as $CaCO_3$)			

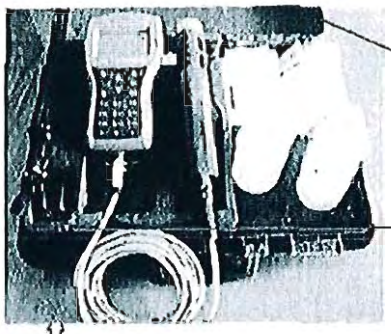


Plate 1: Multiparameter water quality meter (HANNA HI 9828) used to measure up to 13 different water parameters

II) Air quality

Baseline air quality will be measured with multi-gas field meters. Particulate/dust will be measured with either a high volume air sampler or digital dust meter. The former enables extractive analysis to establish nature of the dust while the latter provides only ambient concentration.

III) Noise

Baseline noise will be measured with a noise meter. Noise modelling will be done by AWE engineers to establish potential offsite levels and impact extent during construction of water pipe line at different locations for both Day and Night time. Air pollution modelling will be dome to establish impact magnitude and extent from project site. Baseline noise data will be presented as soon below.

Table 3: Presentation of baseline noise data

Location	L_{max} (dBA)	L_{eq} (dBA)	L_{90} (dBA)	L_{50} (dBA)	Noted noise sources

Plate 2: Gas measurement inclusive of CO_2, O_3, (in ambient and indoor air)

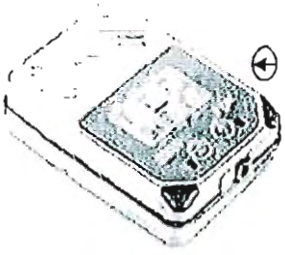


Plate 3: A digital 6-gas *ITX* meter used to measure baseline NOx, CO, H_2S, LEL and SOx

Plate 4: AWE has capability in air quality measurement and modelling. This will be vital for sewage treatment plant sites.

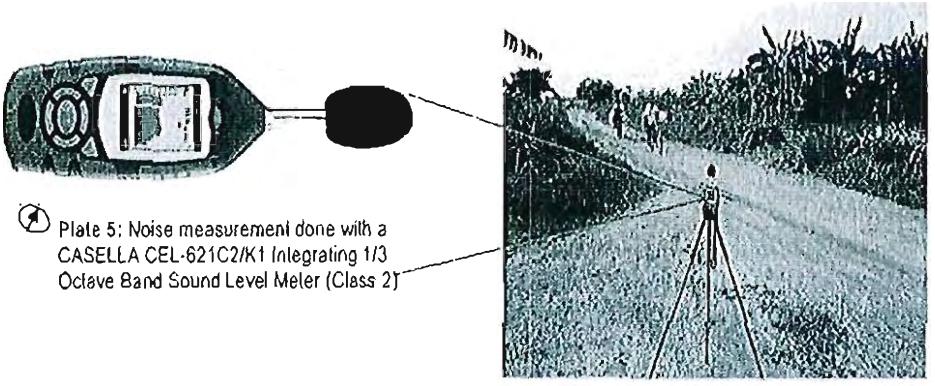


Plate 5: Noise measurement done with a CASELLA CEL-621C2/K1 Integrating 1/3 Octave Band Sound Level Meter (Class 2)

iv) Soil environment

Specific sites for soil sampling will be earmarked at locations of the proposed water/ wastewater treatment systems and along pipe routes in all project towns. For correct classification and understanding of the soils of the project areas, soil profile description method will be employed and the soil properties of all the horizons up to the parent material will be described. This method involves exposing a profile by digging a 1.5 m^2 area test pit with a depth of up to the parent material as demonstrated in Plate 6. The test pits will be strategically sited to represent the areas within the project areas. For each of the horizons in the soil profiles, soil properties will be described, including: depth of the horizon, boundary regularity and sharpness, moisture status, colour, texture, structure, consistence, porosity, compactness, presence of fauna, drainage, roots distribution and size with their quantifying adjectives such as shape, nature, health and age. In addition, details of the vegetation, slope gradient and susceptibility to erodibility around the samples area will be recorded.

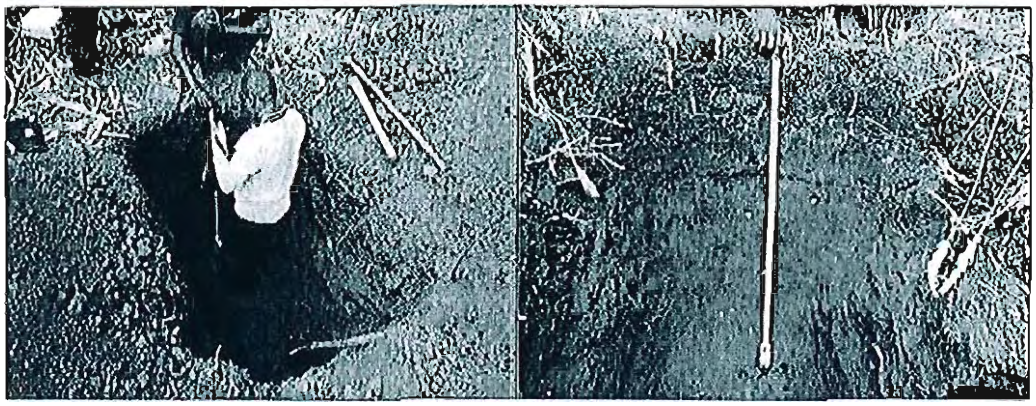


Plate 6: Characterization of soil test pits

The following terms will be used in the description of the soil properties:

Depth: Measured from the top of the mineral soil (A1 layer), just under any leaf litter or biomass lying on the top of the soil.

Boundary sharpness: If boundary zone is ≤ 5cm wide the sharpness is classed as "*clear*", if zone is about 5-10cm wide, the sharpness is "*Gradual*", if the zone is 10cm and above wide, sharpness is "*Diffuse*". Boundary of a horizon always refers to the lower limit of the soil horizon in question.

Boundary regularity: Class as *smooth*, *wavy*, *Irregular* and *tongued* based on the shape.

Moisture status:

Dry – Following Munsell notation, soil darkens or assumes a lower colour value when the soil is moistened (Kuehni, 2002; Landa and Fairchild, 2005). In the dry state, the soil will not bind and when broken, dust may be produced amongst other fragments.

Slightly moist – Soil darkens slightly when wetted. When broken the soil falls into fragments with little or no dust produced. The fragments cannot be moulded.

Moist or damp – Soil does not change colour on moistening. The soil does not moisten the fingers immediately but by prolonged working will do so. All except sandy soils can be moulded fairly easily.

Very moist – Soil just below field capacity. On working the soil the fingers are quickly moistened and the soil will stick on to the fingers when moulded and show a slight cohesion.

Wet (4) – Soil immediately wets or sticks to the fingers but water does not readily drip out.

Water logged – All fissures and soil pores to be completely filled with water. Water drips away and sandy soils especially tend to flow on handling.

Colour: The most important record of colour is the colour number from the Munsell Soil Colour Charts, given for the soil as recorded in the field.

Texture: This term describes the proportions of different sized particles in the soil;

Sandy texture – Soil will not roll out into an unbroken thread.

Loam – Soil forms an unbroken thread but usually breaks when held by an end or bent into a half circle.

Clay loam – Soil forms a thread which can be held by one end, can usually be bend into a half circle but not a full circle.

Clay – Soil forms a thread which can be bent into a full circle without breaking.

Structure: This refers to the size and shape of the natural soil aggregates or "peds". Two aspects of structure should be recorded, namely:

Its strength or distinctness or degree of structural development

Structureless – No observable aggregation or no definite orderly arrangement of natural lines of weakness. This is common for soil without clay or beyond the weathering zone.

Weakly developed – Poorly formed indistinct peds that are barely observable in place. When disturbed, the soil breaks into a mixture of few entire peds, some broken peds, and little un-aggregated material. If necessary for comparison, this grade may be sub-divided into very weak and moderately weak.

Weak – Barely observable in the pit face and the soil breaks into a mixture of broken "peds" and unaggregated soil.

Strong – Distinct in the pit face and the soil separates mainly into whole peds.

Its shape:

This involves observations and descriptions in terms of the shapes for the peds when soils from the horizons are crushed between the palms. They can be *"platy" "columnar" "blocky", "granular", "crumb", "single grain", "massive" and "sub-angular"*.

Consistence: This is the ability of the soil aggregates to resist deformation. It is tested by attempting to break or crush the soil in your hand, and different adjectives are used depending on whether the soil is air-dry or moist, or wet. Since most of the soil pits were moist that is when moisture content is about half-way between Field Capacity and air dry, the following adjectives were used *for moist conditions: loose, friable, firm, very firm and extremely firm.*

For wet soils: *stickiness* will be used and it is the quality of adhesion to other objects. For field evaluation of stickiness soil material is pressed, between thumb and finger and its adherence noted. Degrees of stickiness are described as follows: *non-sticky, slightly sticky, sticky, very sticky* and *Plasticity* which is the ability to change shape continuously under the influence of an applied stress and to retain the impressed shape on removal of stress.

For dry soils: The *rigidity or brittle resistance* of an air dry aggregate to fragmentation in the hand. The degree of rigidity is described as: *loose, soft, slightly hard, hard* and *Very hard, extremely hard.*

Porosity: This is described based on the sizes of the spaces within the soil aggregates as:

Fine porous	<1mm diameter
Porous	1-3mm diameter
Spongy	3-5mm diameter
Cavernous	5-10mm diameter

Compactness: describes the resistance of the fabric to penetration or disintegration:

Description	Spade/hoe/shovel

Description	Spade/hoe/shovel
Very compact	Will not enter; pick-axe or bar needed
Compact	Enters with difficulty much fragmentation
Loose	Enters easily and spit falls readily into pieces
Friable	Digs well with fine fragmentation
Indurated	pick axe needed to break, then digs easily
Tenacious	Clogs and tears away from uncut faces

Drainage: The ability of the soil to let water pass through it naturally. The quality of drainage will be described in four drainage classes:

Excessive drainage – water moves rapidly through the soil mass and insufficient is retained for normal plant growth.
Perfect drainage (free – drainage) – water moves easily through the soil to give ideal aeration while at the same time the pores retain sufficient water for normal plant growth.
Imperfect or poor drainage – there is some fluctuations between aerobic and anaerobic conditions usually brought about by the compaction of the soil.
Impeded Drainage – there is definite obstacle to downward percolation of water and is frequently associated with pans, rock pavements, perched water tables or a permanently high zone of saturation.

Roots: May be classified under seven headings:

Quantity:	*Abundant:*	more than 100 per ft^2 of profile face
	Frequent:	100 – 20 per ft^2 profile face
	Few:	20 – 4 per ft^2 of profile face
	Rare:	3 – 1 per ft^2
Size (diameter)	*Large:*	½ inch
	Medium:	½ – 1/3 inch
	Small:	1/8 – 1/32 inch

For the size, the descriptive adjectives long, medium and short will be at times used.
Shape – Free-growing or distorted
Nature – Woody, fleshy, fibrous, or rhizomatous
Health – Dead, alive, strong or weak
Age – *Old*, young, that is for previous or present vegetation cover respectively,

Fauna: Any observed soil fauna will be described and noted including ants, centipedes, earthworms, termites, millipedes or any evidence of cast, burrows, and droppings.
Special features observed: For example any mineralization, parent material, water table will be recorded.

In order to establish the baseline status of soil chemical characteristics, samples that will be collected from identified locations will be analysed for the different parameters. The expected output is illustrated in the sample table below.

Table 4: Presentation of soil analysis results

Sample. No. and location	Parameters	Value
	pH	
	Bulk density (gm/ml)	
	Moisture content	
	Water holding capacity (WHC) (%)	
	Soil texture	
	Soil colour	
	Nitrogen as N (kg/ha)	
	Phosphorous (kg/ha)	
	Potassium as K (kg/ha)	
	Conductivity (µmho/cm)	
	Organic matter (%)	

v) Land environment

Land use planning is aimed at minimizing the adverse impact on the environment of project implementation activities both during construction and operation phases and also helps in economy of the project as well as effective restoration and enhancement of land surface values at the end of the project. Baseline on the land environment will include assessment of the topographical and geological settings, ecological and land use patterns of the project areas. Baseline land environment data will be collected and presented on the following themes.

Table 5: Presentation of land use pattern of the study area

Sample number	Particulars	Coverage (%)

Table 6: Presentation of area and production of the main crops

Type of crop	Location	Area (Ha)	Production (tones)

vi) Drainage

Potential for construction and operation phases to impair onsite drainage will be investigated basing on likely effect of construction and operation-phase activities on nature of existing ground profile, vegetation cover and natural drainage. Drainage impairment will be assessed by comparing planned construction and operation developments with existing ground profile, drainage network adjoin site and land-use around site *(pre-construction scenario)*.

Expected output:

- Potential for construction activities to impair onsite drainage and that of surrounding areas identified;

- Adequate mitigation recommendations developed

vii) Meteorological conditions

Baseline meteorological conditions such as temperature, humidity, illumination, wind speed and direction will be measured using CEM DT 8820 and Kestrel 4500NV pocket weather Tracker. Data on rainfall of area comprising the site will be obtained from the Department of Meteorology. Wind and air temperature patterns influence extent and intensity of dust migration. Rainfall intensity is a crucial factor of influence in soil erosion.

Plate 7: Kestrel 4500 NV pocket weather Tracker used to measure baseline wind speed, temperature and relative humidity

Expected output:

- Baseline meteorological conditions, established.
- Potential influence of meteorological conditions on offsite air pollution, erosion and drainage, established.

4.3.2.2 Biological environment

For purposes of harmonizing the survey protocols and enabling comparisons and complementarily analyses to be done, it will be essential for the "Biological environment survey" field team to conduct a preliminary field visit (Scoping Visit) together in order to:

- Familiarizing with the project area
- Evaluate the logistical requirements and arrangements
- Rapidly characterizing the major habitat/vegetation types in the project area
- Select the most representative suit of survey areas

Biological environment survey will include plants, mammals, birds, reptiles/ amphibians, insects and aquatic life in and around the proposed water intake works, waste treatment systems and transmission/ distribution systems. The biological survey methods and output are illustrated in Table 2.

Table 7: Illustration of biological survey methods and expected output

Items	Sub-Items	Method	Tools	Output
Plant	Vegetation	Plant community survey (30 points)	Plant press, Secateurs, Ivy tags, Measuring tape, Diameter tape	• An inventory and updated Flora list, • Updated Vegetation map, • Wetlands distribution map, • Distribution map of species of conservation concern
Mammals	Bat & small mammal survey	Bat Trapping (2 point) Small mammal trapping (4-5 points)	Mist net, Harp Trap, 60 Sherman trap	• Community composition, • Indication of relative abundance of different species, • Inventory of species present • Evaluation of conservation and or occurrence status of species recorded
Bird	Line census	6 route	Binocular	• Species inventory • Occurrence/distributions record for different species • Habitat sensitivities for different species. • Occurrence and range of large raptor and storks which could be a factor in transmission line and bird strikes. • Distribution maps for the important or more critical species • Evaluation of conservation and or occurrence status of species recorded
Reptile/ Amphibian	Trapping			• Fauna list/species inventories • Distribution maps for the important species • Mapping of areas of sensitivity
Insect	Light trap	1 point	6 Insect net	• Fauna list/inventory of species • Distribution/occurrence maps for important species • Distribution maps of sensitive/critical habitats • Evaluation of conservation and or occurrence status of species recorded
	Baited traps/ Sweep nets	3 points		
Aquatic Life	Catching with net/ fishing	4 points	Fish net, Boat engine, Hooks, Basket traps	• Species/inventory list, • Location map for the important species • Evaluation of conservation and or occurrence status of species recorded

Expected outputs: These methods are proposed so that, where appropriate, the following outputs could be achieved:

- Checklists for species occurrence
- A clear idea of spatial occurrence of the species in the different taxa
- Some indication of relative abundance of different species in the different taxa
- An indication of any temporal patterns that may be due to seasons or general habitat dynamics
- Produce maps of occurrence of the taxa
- Produce an updated vegetation map based on groundtruthed data

- Compile lists of rare, endemic, threatened, IUCN or otherwise listed species that will have been recorded in different areas for the different taxa
- Identification of critical habitats for the different animal taxa

4.3.2.3 Socio-economic environment

Site survey will be undertaken to determine the area of influence and gather information under several key areas:

- Socio-economic conditions in the surrounding communities such as population and demography, livelihoods and economy, health, education, culture and infrastructure,
- Current land use and property in the proposed project area.
- Archaeological places around and along the Project area.

Detailed surveys will be carried out covering the specific areas likely to be affected by the construction of water pipe lines, sewers and treatment systems.

Study methods will include direct observation in and around the Project area, secondary data collection from local Governments (Districts and Municipalities), NGOs, and traditional or cultural institutions. Primary data on socio-economic conditions will be captured through focus group discussions (FGD) with the communities and other tools of social assessment. The survey on land use and property for specific households will be undertaken by questionnaire, direct observation, FGD and other appropriate methods.

Data will be collected using qualitative and quantitative techniques to ensure validity and accuracy. Baseline socio-economic data will be collected and presented on the following themes:

i) Population and demography

- Population; population structure by gender, age structure, ethnic composition, religious composition, household sizes, density, growth rates and mortality
- Immigration patterns.

ii) Livelihoods and economy

- Livelihood and subsistence activities (agriculture, fishery, livestock)
- Employment and income levels
- Regional economic activities

iii) Health and sanitation

- Location and access to health facilities
- Health indicators (morbidity, mortality rates)
- Communicable and non-communicable disease incidence and prevalence (including HIV/AIDS)

iv) Education and literacy

- Location and access to educational institutions

- Education indicators (enrolment rate, literacy rate, teacher to pupil ratio, classroom numbers)

v) Infrastructure and services

- Location and access to water resources (drinking, domestic, agriculture and livestock)
- Location of community access roads
- Location of local markets
- Source of energy and energy use practice
- Waste management practice

vi) Culture and heritage

- Cultural norms
- Historical and cultural heritage
- Archaeology

Table 8: Survey items and methods for socio-economic environment

Items	Sub-Items	Methods	Time and Place	Tools	Outputs
Population and Demography	Population structure by gender and age, Ethnic and Religious composition, Household size, population density	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community	Questionnaire, GPS, camera, if necessary	Population table/chart, Ethnic and religious composition map/table/chart/Household size map/table/chart, population density map/table/chart
	Immigration	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community	Questionnaire, GPS, camera, if necessary	Immigration map/table
Livelihoods and Economy	Livelihood and subsistence activities (agriculture, fishery, livestock etc)	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community	Questionnaire	Statistical table for livelihoods and subsistence activities and map
	Employment and income levels	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community	Questionnaire	Statistical table for employment and income
	Regional economic activities	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community	Questionnaire, GPS, camera	Statistical table for regional economic activities and map

Items	Sub-items	Methods	Time and Place	Tools	Outputs
Health and sanitation	Location and access to health facilities	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community	Questionnaire, GPS, camera	Health facility map
	Health indicators	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Questionnaire	Statistical table for health indicators (days of morbidity, mortality rates)
	Communicable and non-communicable disease including HIV/AIDS	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Questionnaire	Statistical table for disease including HIV/AIDS (incidence and prevalence)
Education and Literacy	Location and access to educational institutions	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community	Questionnaire, GPS, camera	Educational institution map
	Educational indicators	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once at education department, district office	Questionnaire	Statistical table for education indicator at school (enrolment, literacy, teacher to pupil ratio, classroom numbers)
Infrastructure and services	Water resources	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community, once at environment department, district office	Questionnaire, GPS, camera	Water resource map
	Location of community access roads	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community, once at environment department, district office	Questionnaire, GPS, camera	Road map
	Location of local market	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community, once at trading centres	Questionnaire, GPS, camera	Market map

Items	Sub-Items	Methods	Time and Place	Tools	Outputs
	Source of energy and energy use practice	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community	Questionnaire, GPS, camera	Energy use table/chart
	Waste management practice	Secondary data collection if necessary, interview, questionnaire, focus group discussion	Once for each community, once at environment department, district office	Questionnaire, GPS, camera	Statistical table for waste management practice
Cultural and Heritage	Cultural norms	Secondary data collection, site survey (questionnaire/semi-structured interview)	Once for each community	Questionnaire, GPS, camera	-
	Historical and cultural heritage	Site survey		GPS, camera	Historical and cultural heritage map
	Archaeology	Site survey	Several times around project site	GPS, camera	Archaeological map

4.3.3 Environmental and Social Impact Assessment

This will involve a detailed environmental and social impact assessment and evaluation of the positive and negative, direct and indirect, immediate and long term, and permanent and temporary impacts due to the construction of water supply pipe lines and rehabilitation of the existing ones and related activities, including the construction of access roads both, during the construction and future operation of these structures and facilities. AWE will assess the impacts identified in either qualitative or quantitative terms, according to their inherent nature and the availability of adequate data to enable predictive analysis to be undertaken.

4.3.3.1 Physical environment

i) Air

Impact items, affected area, impact value, affected duration, and affected nearest receptors will be identified based on design, air pollution survey result, and household survey. Environmental monitoring result of past similar projects will be referred to assess the impact. Possibly affected area will be figured out on the map.

ii) Water quality

Water quality impacts will be established from identification of potential contain nation sources (fuel spills, waste oil, sediment)

iii) Drainage impacts

These will be established from hydrological assessment of the site and its catchment.

iv) Wetland impacts

Any fringe wetlands in the project site will be identified and its fauna/flora characterized to predict possible degradation and propose mitigation measures.

v) Noise

Affected area, impact value, affected duration, and affected nearest receptors/houses and species shall be identified based on project design, noise and vibration survey, household survey, biological survey and actual impacts shall be assessed and possibly affected area should be figured out on the map. Home ranges of the important species will be provided by the biological survey specialists.

vi) Transportation

This will involve assessment of traffic flow disruptions, blocking access to properties and material extraction (gravel pits). This will involve inspection of the proposed sites and its neighbourhood to identify possible effects to traffic flow or severance of access to private properties. Impacts associated with material acquisition and haulage routes will be identified.

Numbers of delivery vehicles, delivery routes, and types of the vehicles during construction and operation should be predicted based on transportation survey result and construction plan.

4.3.3.2 Biological environment

I) Flora

Areas in which the vegetation will be "Permanently" affected vegetation and those where it will only be "Temporarily" affected will be identified and mapped. The vegetation map will be revised based on the aerial photo provided by the Study Team and site survey. Affected wetland and the recorded distribution IUCN red listed species will be also identified on the map. The plant survey data will be correlated with the fauna survey results especially that of large herbivores including elephants and Hippos to evaluate potential impact of these on the vegetation as opposed to potential project impacts.

II) Fauna

Possible impact on all the important species will be assessed. The distribution of critical habitats for rare, vulnerable, endangered and IUCN listed species will be assessed to evaluate potential impact of project activities on their behaviour, ranging and survival of the species. The assessment will make use of the vegetation survey results and the updated vegetation map in the assessment of potential impacts on critical habitats for the mammals.

Bird: Possible impact on all the important species will be assessed. The distribution of critical habitats for rare, vulnerable, endangered and IUCN listed species will be assessed to evaluate potential impact of project activities on their behaviour, ranging and survival of the species. The assessment will make use of the vegetation survey results and the updated vegetation map in the assessment of potential impacts on critical habitats for the birds. The impact assessment will be conducted for both resident species and migrant species.

Reptile/ Amphibian: Possible impact on all the important species will be assessed. The distribution of critical habitats for rare, vulnerable, endangered, IUCN listed and species of tourism interest will be assessed to evaluate potential impact of project activities on their behaviour, ranging and survival of the species. The assessment will make use of the vegetation survey results and the distribution map of wetlands in the assessment of potential impacts on critical habitats for the herpetiles.

Insect: Possible impact on all the important species will be assessed. The distribution of critical habitats for rare, vulnerable, endangered and IUCN listed species will be assessed to evaluate potential impact of project activities on the ranging and survival of the species. The assessment will make use of the vegetation survey results and the updated vegetation map in the assessment of potential impacts on critical habitats for the insect groups that will be surveyed for this study.

4.3.3.3 Social environment

A detailed social impact assessment and evaluation of the positive and negative, direct and indirect, immediate and long term, and permanent and temporary impacts due to the construction and operation of water and sanitation facilities and associated works will be carried out. AWE will assess the impacts identified in either qualitative or quantitative terms, according to their inherent nature and the availability of adequate data to enable predictive analysis to be undertaken.

Specific actions:

i) Land use in site zone of influence: Types of land use will be established from observation and consultation with Local/district Planning Authorities on existing land use will then be established.
ii) Existing infrastructure (water, sanitation, power, telephony): Their presence will established by observation and consultation with relevant utility companies. Potential impact of line during construction on any such existing facilities will be predicted.
iii) Settlement patterns including induced unplanned development: Population numbers, characteristics and dynamics will be analysed to predict potential induced developments.
iv) Circulation patterns (people and livestock): These will be established by observation with aim of identifying any potential severance of access when existing paths get blocked by construction works.
v) Social cohesion: This will be established from community consultations and literature review to predict any disruption of social ties during or after project construction.
vi) Population demographics: Population numbers, education levels, age, gender disparities, access to factors of production, disease burden, income sources and expenditure will be established from a social survey and consultations.
vii) Community structure: will be established from observation, surveys and community consultation.
viii) Employment characteristics: will be established from social surveys, consultations and review of existing local and national census or labour reports/surveys undertaken by Uganda Bureau of Statistics (UBOS).
ix) Local economy and income distribution: Will be determined through a socio-economic survey by an economist, observation and interviews. Household incomes will also be determined through a socio-economic survey.
x) Social services: Presence or lack and efficacy of existing services will be determined through a socio-economic survey, observations and community consultations.

xi) Sociologists will establish any unique ethnic or tribal customs, traditions/ethos and values which might be affected by the construction works in the project area, AWE will look out for known sites of significant historic, cultural merit (locally, regional or internationally). Consultations with Ministry of Tourism, Wildlife & Antiquities will help to identify potential presence of archaeological resources and how "chance finds" should be managed if encountered.

xii) Public health: Potential public health (PH) and occupational Health &Safety (OHS) impacts during construction will be outlined. Measures to manage dust plumes from excavations, underwater construction, rock blasting; noise levels from construction equipment and night soil (human excreta) during will be developed. Other PH and OHS impacts to be established include risk of exposure to hazardous substances without adequate protection (skin contact); disease vectors, risk of drowning; machine-related accidents and inadequate sanitation, HIV/AIDS.

xiii) Gender analysis: will be carried out to identify potential gender impacts. The SWOT tool will be applied during community consultations to reveal expected opportunities that can be evaluated.

4.3.3.4 Impact characterization and assessment

Impacts will be characterised as outlined below.

a) *Impact identification:*

Potential impacts were identified by considering how the proposed project would interact with the environmental and social baseline. Impact identification was carried out as part of the field surveys and was refined during data analyses based on the experience and professional judgment of the consulting team.

b) *Impact description:*

Describing a potential impact involved an appraisal of its characteristics, together with the attributes of the receiving environment. Relevant impact characteristics may include whether the impact is:

- Adverse or beneficial;
- Direct or indirect;
- Short, medium, or long-term in duration; and permanent or temporary;
- Affecting a local, regional or global scale; including trans-boundary; and
- Cumulative (such an impact results from the aggregated effect of more than one project occurring at the same time, or the aggregated effect of sequential projects. A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions").

Consideration of the above gives a sense of the relative intensity of the impact. Sensitivity of the receiving environment will be determined by specialists based on ESIA baseline data collected.

c) *Impact significance:*

By considering the combination of the intensity of impact and the sensitivity of the receiving environment, the severity of the potential impact is derived. The determination of severity of an impact is largely subjective and primarily based on professional judgement. To provide a relative illustration of impact severity, it is useful to assign numerical or relative descriptors to the impact intensity and receptor sensitivity for each potential impact. Each is assigned a numerical descriptor of 1, 2, 3, or 4, equivalent to very low, low, medium or high. The severity of impact is then indicated by the product of

the two numerical descriptors, with severity being described as negligible, minor, moderate or major, as illustrated in Table below. This is a qualitative method designed to provide a broad ranking of the different impacts of a project. The positive impacts identified are described and their enhancement measures are presented.

Table 9: Determination of impact severity

		Sensitivity of receptor			
		Very low 1	Low 2	Medium 3	High 4
Intensity of impact	Very low 1	1 Negligible	2 Minor	3 Minor	4 Minor
	Low 2	2 Minor	4 Minor	6 Moderate	8 Moderate
	Medium 3	3 Minor	6 Moderate	9 Moderate	12 Major
	High 4	4 Minor	8 Moderate	12 Major	16 Major

The textural description of the descriptors ranging from "Very low" to "High" is presented in table below.

Table 10: Impact assessment criteria and rating scale

Criteria	Rating scales
Intensity (the expected magnitude or size of the impact)	**Negligible**- where the impact affects the environment in such a way that natural, and /or cultural and social functions and processes are negligibly affected and valued, important, sensitive or vulnerable systems or communities are negligibly affected.
	Low- where the impact affects the environment in such a way that natural, and/or cultural and social functions and processes are minimally affected and valued, important, sensitive or vulnerable systems or communities are minimally affected. No obvious changes prevail on the natural, and / or cultural/ social functions/ process as a result of project implementation
	Medium - where the affected environment is altered but natural, and/or cultural and social functions and processes continue albeit in a modified way, and valued, important, sensitive or vulnerable systems or communities are moderately affected.
	High - where natural and/or cultural or social functions and processes are altered to the extent that they will temporarily or permanently cease, and valued, important, sensitive or vulnerable systems or communities are substantially affected. The changes to the natural and/or cultural / social-economic processes and functions are drastic and commonly irreversible
Probability (The likelihood of the impact occurring)	**None** – where the impact will not materialize
	Low – where the possibility of the Impact materializing is very low (<20%)
	Medium – where there is a good possibility (30%-60% chance) that the impact will occur.
	High– where it is most likely (60% -100% chance) that the impact will occur.

A description of significance values that would apply to various impacts is presented in Table 5.

Table 11: Illustration of significance values that would apply to various impacts

	Major impact	Minor-Moderate and Moderate impact	Negligible-Minor, and Minor
Legislative compliance	Expected non-compliance with national regulatory standards or good industry practice (e.g. IFC Performance Standards)	Potential for non-compliance with national regulatory standards or good industry practice.	Expected compliance with national regulatory standards or good industry practice, or no regulations apply
Biophysical environment	• Impairment of forest ecosystem with no expectation of recovery within 20 years. • Effect contrary to the objectives of management plans for internationally or nationally protected populations, habitats or sites with no expectation of recovery within 5 years. • Environmental changes giving rise to issues of public or international concern. Impacts that harm human health, or damage a site of historic, cultural or archaeological value. • Long-term (>10 years) and widespread changes to habitat or ecosystems features or functions that reduce its integrity, affect the ability to sustain valued components and may require extensive intervention. The habitat/ecosystem may not recover to its baseline state. • Disturbance of a sufficient portion of the biogeographic population of a species to cause a decline in abundance, distribution or size of the genetic pool such that the population of the species, and other species dependent on it, will not recover naturally to former levels. • Major loss or major alteration to an internationally designated site whereby key elements will be fundamentally changed. • Incident that requires mobilization of international response equipment and crews. • Injury or death of an IUCN listed "Endangered" species. • Major change to the visual quality, setting and feeling associated with a rare or unique (inter)nationally recognized landscape. • Widespread and permanent change to hydrology and hydrogeology in an internationally or nationally designated site.	• Impairment of Forest ecosystem with expectation of recovery within 10 years. • Effect contrary to the objectives of management plans for internationally or nationally protected populations, habitats or sites with expectation of recovery within 1-5 years. • Disturbance of a sufficient portion of the biogeographic population of a species to cause a decline in abundance, distribution or size of the genetic pool such that the population of the species, and other species dependent on it, will not recover within several generations. • Major loss or major alteration to a locally designated site whereby key elements will be fundamentally changed. • Injury or death of an IUCN listed "Vulnerable" species. • Incident that requires mobilization of national/company response equipment. • Major change to the visual quality, setting and feeling associated with a rare or unique locally recognized landscape. • Fundamental change to hydrology and hydrogeology resulting in temporal changes to the watershed.	• Impairment of Forest ecosystem with expectation of recovery within 5 years. • Ecosystem change is within the range of natural variation, but may be detectable; or ecosystem change that is unlikely to be noticed; or change resulting in positive, desirable of beneficial effects on an ecosystem. • Reduction in ecosystem or habitat integrity, but recovery to baseline state is expected within 2-5 years with minimal intervention. • Disturbance of a bio-geographic population or individuals of a species resulting in a decline in abundance or distribution over one or two generations, but that does not change the integrity of the population of the species or populations of other dependent species. • Incident that requires mobilization of onsite response equipment and crews. • A noticeable but not fundamental change to hydrology or hydrogeology. • The development will not affect the key characteristics that contribute to the distinctiveness and/or value of the landscape.
Social environment	• Damage to social, cultural or economic activity considerably beyond programme lifetime. • Long term or life threatening health effects that may increase mortality rates. • Physical resettlement (as defined in IFC PS 5) of a community. • Changes that differentially negatively affects the life chances (access to health care/medicines) of vulnerable groups (disabled, elderly, female-headed households and those living below officially poverty or subsistence levels). • Damage to a site of international cultural importance or national site where damage is likely to provoke protest/unrest. • Damage to a site of national cultural importance or local site where damage is likely to provoke protest/unrest. • Unplanned in-migration flows sufficient to cause exceedance of the capacity of numerous components of physical or social infrastructure. • Increases of cultural conflict likely not to be contained within existing social control norms	• May adversely affect the economic and social wellbeing of residents for the duration of the programme. • Raises issues of limited public concern. • Physical resettlement (as defined in IFC PS 5) one or more household/businesses. • Reduction in assets, or access to assets, such that economic displacement (as defined in IFC PS 5) affects five or more individuals, households or businesses. • Job losses in small communities very limited alternative opportunities in the near – medium term (within one year of job losses). • Changes likely to prejudice success of an existing policy or plan. • Changes that differentially affects the livelihoods of vulnerable groups (disabled, elderly, female-headed households and those living below poverty or subsistence levels). • Damage to a site of local or regional cultural importance. • Medium to long-term (>1 year) financial loss to businesses where recovery may be difficult. • Unplanned in-migration flows sufficient to cause exceedance of the capacity of at least one component of infrastructure. • Increases in incidences of cultural conflict, but expected to be contained within existing social control norms. • Movement of development traffic through very sensitive areas (e.g. near schools, hospitals) or that may exceed carrying capacity of roads. • Movement of development traffic through community areas or having the potential to add unsuitable loadings to the infrastructure. • Increased public exposure to health threats that may increase morbidity rates.	• Negative effect within existing fluctuation of the society or economy. • Reduction in assets, or access to assets, such that economic displacement (as defined in IFC PS 5) affects 1-4 individuals, households or businesses. • Job losses in a community able to adapt and provide alternative job opportunities in the near – medium term (within one year). • Short-term (<1 year) financial loss to owners of businesses where recovery is likely. • Unplanned in-migration not expected to cause infrastructure capacity exceedance. • Decline in access to health care facilities and acquisition of treatment.

Expected Output:

- Potential Impacts identified, characterised (described) and their significance derived.
- Appropriate project design and introduction of general and specific environmental protection measures within the vicinity of the developed infrastructure.
- Mitigation measures incorporated in the Environmental Management Plan (EMP).

Target areas for mitigation and management measures both during construction and operation of the projects will aim at preventing or reducing negative impacts on:

- Social and physical well-being of local residents,
- Preserve cultural relics, archaeological sites and unique cultural heritage,
- Terrestrial vegetation and general flora and fauna
- Both small and large mammal fauna,
- Wetlands, swampy area and aquatic biota and
- Avifauna and herpetofauna

4.3.3.5 Mitigation measures

Based on the assessed impact mitigation measures the consultant will assess and identify the most cost-effective mitigation measures to reduce or elude adverse impacts, or to enhance beneficial impacts. The consultant will ensure the proposed mitigation measures are consistent with Uganda's laws as well as that of the World Bank and other applicable international laws. The studies will be aimed at determining the extent to which different mitigation measures will reduce the scale of impacts arising from the proposed project activities and the level unavoidable residual impacts will be identified.

Mitigation measures will be based on the impact prediction, assessment of the impact significance/ characteristics. Impacts shall be characterised as negative, positive, direct, indirect, cumulative, short-term, long-term, reversible or irreversible. Modelling will be done to establish areas likely to experience highest impacts of emissions and noise.

Specific actions:
Impact characterisation will be done by establishing the category of each potential impact (i.e. negative, positive, direct, indirect, cumulative, short-term, long-term, reversible or irreversible).

The precautionary principle shall be applied in impact assessment, particularly where major uncertainty, low levels of confidence in predictions and poor data quality or information are encountered.

The *Precautionary Principle* promotes decision-making based on the concept of "an ounce of prevention is worth a pound of cure." Such an approach would:

- Take anticipatory action to prevent harm;
- Examine a full range of alternatives;
- Provide communities with the right to know about potential harm; and
- Consider all the reasonably foreseeable costs of the activity.

Where applicable, computer software shall be used to model environmental conditions of air quality, noise and water contamination to establish worst affected localities.

Residual Impact Assessment:

Following description of the potential impacts and assessment of their severity, mitigation measures designed to reduce the impact severity are developed. The severity is then re-assessed, assuming application of the mitigation measures, to derive the 'residual' impact severity; i.e. an appraisal of the impact that is predicted to result even after mitigation has been applied. Those impacts that remain significant after application of the mitigations were subjected to further assessment; either to reduce them to acceptable levels, or to compensate for them where this is not possible.

Cumulative impacts: These will be assessed based on World Bank and IFC guidelines e.g. IFC's "*Good Practice Handbook (GPH) on Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets*".

4.3.3.6 Analysis of project alternatives

In light of the current environmental and social circumstances, the consultant will discuss alternative water lines and sewer routes using a multi criteria analysis, and make appropriate recommendations for cost effective options. Analysis of project alternatives will entail:

- Site/ line route alternatives
- Design alternatives
- Technology alternatives
- Construction methods
- "No project scenario"

Alternatives analysis will entail capital & operating costs, institutional, training and monitoring requirements.

Expected Output:

- Comprehensive project alternatives identified and analysed.
- Recommendation of the best line route alignment and tower type.

4.3.3.7 Stakeholder consultations (Public consultations)

Consultations will be carried out with stakeholders to obtain their views about the operation of the water and sanitation facilities through:

i) Structured interviews
ii) Non-structured Ad hoc discussions
iii) Meetings with technical personnel, district officials and political leaders
iv) Telephone interviews
v) Emails correspondence
vi) Website link created the project (e.g. www.awe-engineers.com/nwsc2015)

The stakeholders to be consulted will be identified through a stakeholder analysis exercise but evidently include but not limited to:

- District Local Government Officials of Arua, Mbale, Gulu and Bushenyi
- Municipal Councils of Arua, Mbale, Gulu and Bushenyi
- NEMA
- Ministry of Gender, Labour and Social Development - Department of Occupational Safety and Health
- The Directorates of Water Development, Water Resources Management and Environment Affairs
- The affected communities

Expected Output:

- Community and stakeholder input and concerns on the proposed project obtained.
- Genuineness of comments and concerns of community established.
- Views and comments of the public will be incorporated, to the extent possible, in the project design and implementation.

4.3.3.8 Environmental and social management plan (ESMP)

A detailed plan to monitor implementation of mitigation measures and impacts of the project during rehabilitation / construction and operation shall be prepared to include an estimate of capital and operating costs and a description of other inputs needed to implement the plan, such as training and institutional strengthening. The plan shall also address social and environmental monitoring of the disposal sites for sludge and screenings, and include a regular schedule of monitoring and reporting on the quality of potentially affected population, surface and ground waters

In addition, the consultant team shall review the authority and capability of institutions at local, regional, and national levels and, if appropriate, recommend steps to strengthen or expand them so that the ESMP may be implemented effectively. The recommendations may extend to inter-sectorial arrangements, management procedures, training, staffing, and financial support.

The ESMP will outline mitigation measures, accountability, monitoring and institutional arrangements for environmental management of the Project. The ESMP will also provide information on environmental decisions which need to be made during the design, construction and operation phases of the project. It will provide key performance indicators for evaluating efficiency of mitigation and management measures and suggest actions that need to be taken to achieve the desired project outcomes.

Recognizing that mitigation should be backed by resources and capacity to implement them, cost estimates will be included where applicable in addition to issues such as capacity required by implementing agencies.

Expected Output: ESMP will specify issues:

- Issue to Monitor (OHS requirements including HIV/AIDS awareness, water and soil pollution Waste management)
- Issues to protect (Archaeological or cultural sites, wildlife and ecological sites and other critical areas identified during the study)

- Indicator(s)
- Data collection methods (Who collects; who checks; methods)
- Use of data (who acts; referral if action can't be taken)
- Training needs
- Institutional capacity with regards to implementation of the various mitigation and monitoring measures
- Cost

Monitoring is necessary to avoid negative effects during construction and operation of the proposed project and achieve sustained environmental compliance. Details of the recommended monitoring actions will be presented in the ESMP as well.

Table 12: Tabular Illustration of an Environmental and Social Management Plan

No.	Issue/ Impact	Indicator(s)	Data collection and Reporting			Use of data		Training or orientation required
			Who collects **Timeframe	Who checks, Counter-checks	Method(s), Tools **Cost (UgShs)	Who acts, **Action	Referral (if action cannot be taken)	
1								
2								
3								
4								

4.4 RESETTLEMENT ACTION PLAN (RAP) METHODOLOGY (PART 2)

4.4.1 Understanding the Scope of the Assignment

The consultation team will design the RAP in accordance with World Bank requirement O.P 4.12, NWSC procedures in consultation with local stakeholders.

The project will involve land acquisition and displacement of people in some places. Without proper planning and management, involuntary resettlement may result in long-term hardships for the affected people. Through proper resettlement planning, a developer can enhance beneficial impacts of a project thereby improving the living standards of affected people.

The World Bank's standards on Involuntary Resettlement, OP 4.12 states that when displacement is unavoidable, displaced persons should be assisted in their efforts to improve their former living standards, income earning capacity, and production levels, or at least to restore them. Particular attention during the RAP study will be paid to needs of the vulnerable groups.

Most donor guidelines urge project developers to avoid *involuntary* resettlement wherever feasible or to minimize it by exploring alternative project design or sighting. In situations where this is not possible, a RAP that specifies actions and procedures to properly resettle and compensate affected property owners. A RAP is the developer's commitment to affected people that he will meet his obligations arising from involuntary displacement. Proper resettlement and compensation benefits the developer in form of enhanced goodwill within the host community.

Resettlement is *involuntary* when:

- It occurs without the informed consent of the displaced persons or,
- If they give their consent, without having the power to refuse resettlement. An example of such displacement is a government agency's expropriation of land for a development project such as a water mains. People occupying or otherwise dependent on that land for their livelihoods may be offered fair compensation for their losses but have little recourse to oppose the government's expropriation regardless of their desire to continue occupying or using the affected land.

Displacement may be either *physical* or *economic*. *Physical displacement* is the actual physical relocation of people resulting in a loss of a dwelling, productive assets or access to productive assets (such as land, water and forests). *Economic displacement* results from elimination of people's access to productive assets without physically relocating the people themselves.

While land acquisition does not necessarily require displacement of people occupying or using the land, it may have an effect on living standards of people who depend on resources located in, on, or around that land. For example, a farming family may lose a portion of its land to a project without having to vacate its homestead. Nevertheless, loss of even a portion of its land may reduce overall productivity of that farm. This effect is more significant where farm fields are typically small and often widely scattered. The consultant has carried out and acknowledges the existence of various types of possible resettlements in Uganda and a key objective of the RAP will be to establish, which is/are applicable to the proposed water

supply and sanitation project. Common types of resettlement and the issues associated with them are shown in Box 2.

Box 2: Types of resettlement

a) **Rural resettlement**—Displacement of people in a rural area typically from a project's acquisition of farm land, pasture, or grazing land or the obstruction of access to natural resources on which affected populations rely for livelihoods (for example, forest products, wildlife, and fisheries). Major challenges associated with rural resettlement include: requirements for restoring income based on land or resources; and the need to avoid compromising the social and cultural continuity of affected communities.

b) **Urban resettlement**—Resettlement in urban or peri-urban settings typically results in both physical and economic displacement affecting housing, employment, and enterprises. A major challenge associated with urban resettlement involves restoration of wage-based or enterprise-based livelihoods that are often tied to location (such as proximity to jobs, customers, and markets). In some cases, the mobility of urban populations and the consequent weakening of social safety nets that are characteristic of rural communities require that resettlement is attentive to needs of vulnerable groups.

c) **Linear resettlement**—Linear resettlement describes a project having linear patterns of land acquisition (e.g. a road,). In sparsely populated rural areas, a linear project such as water pipe line may have minimal impact on any single landholder and compensation is characterized by a large number of small payments for the temporary loss of assets such as standing crops. If properly designed, linear projects can easily avoid or minimize demolition of permanent structures. Conversely, in a densely populated urban area, a linear project such as a road upgrading may require demolition of structures along the road reserve, thereby affecting significant numbers of property owners. Linear resettlement contrasts with site-specific resettlement because of the problems that frequently arise when resettlement actions have to be coordinated across multiple administrative jurisdictions. Difference in cultural and linguistic characteristics also poses challenges for linear resettlement although these are unlikely on the island where affected communities are predominantly of a uniform culture.

d) **Site-specific Resettlement**—Site-specific resettlement is associated with discrete, nonlinear projects such as a dam, etc., where land acquisition concerns a fixed area.

4.4.2 RAP Team

The RAP core team will comprise the following experts supported of a diversity of highly experienced field and office staff:

- RAP Specialist
- Sociologist
- Property Surveyor
- Valuer
- Lawyer

4.4.3 Detailed RAP Methodology

The RAP study will commence after the consultant obtains agreement with the Chief Government Valuer on the methodology to utilise.

Thereafter, activities described in sections below will be undertaken.

4.4.3.1 Consultation of the project affected persons

A sociologist team working with local leaders will carry out consultation in area comprising the water and sanitation facilities. Sensitization will be done using radio announcements, community meetings and brochures in local languages to ensure project awareness.

Expected Output:

- Awareness of project by affected persons;
- This will aim to disseminate the project, upcoming property take, surveying, and valuation and compensation process. A sensitized community is less likely to be hostile when surveyors and valuers move onto property to execute their respective roles.

4.4.3.2 Socio-economic studies/surveys

In conjunction with valuation surveyors, the RAP team will:

i) Collect social information from PAP's including livelihoods, incomes, dependants, education levels, access to social services, prevalent disease burden census and assets inventories by administering a questionnaire.
ii) Collect information land tenure and transfer systems including an inventory of common property natural resources and social and cultural characteristics of the affected communities.
iii) Identify all categories of impacts and affected people (including the vulnerable categories).
iv) Location of affected person's household/ home will be geo-referenced using a GPS and coordinates recorded.
v) All social survey and property valuation data will be entered into MS Access database to be provided to client on CD.

Note:

- *The **census** of affected persons must capture **100% of PAP's**.*
- *World Bank guidelines recommend a sample of **30-40%** for social profile surveys.*
- *Social surveys aim to obtain social conditions in project-affected area and experience has taught us that property valuation and social surveys on PAP's should be done concurrently to avoid missing census data of some PAP's, ensuring that valuation and social teams capture similar names of PAP's and that the PAP's database is accurate and complete. These socio-economic studies/surveys will be carried out concurrently with the environmental baseline conditions.*

Expected Output:

- Number and categories of affected people; inventories of assets losses and natural resources obtained
- Socio- economic conditions/characteristics among project-affected people, formal and informal institutions obtained.
- Results of affected people and stakeholder consultation obtained.
- Geo-referenced record of affected persons
- MS Access database of affected persons

4.4.3.3 Legal framework

The RAP team will analyse the policy, legal and administrative frameworks with regards to the PAP's and project area. The RAP Team will:

i) Identify and describe relevant national and international laws, policies and customs that relate to resettlement and the water and sanitation sector.
ii) Identify gaps, if any, between local laws covering eminent domain and resettlement and describe project-specific mechanisms to bridge such gaps.
iii) Describe the applicable legal and administrative procedures, including a description of the remedies available to PAP's in the judicial process and the normal timeframe for such procedures, and any available alternative dispute resolution mechanisms that may be relevant to resettlement under the project.
iv) Identify gaps between national laws and World Bank Group operational procedures policies, and describe project-specific mechanisms to address conflicts.
v) Describe entitlement policies for each category of impact and specify that resettlement
vi) Describe method of valuation used for affected structures, land, trees, and other assets.
vii) Prepare entitlement matrix.

Expected Output: A discussion of national laws and polices under which the RAP will be implemented and how they compare with Operational Directives of donors e.g. the World Bank (WB). WB is singled out because most other RAP Guidelines were derived from those of WB.

4.4.3.4 Institutional framework for implementation

The objective will be to identify who would be responsible for specific actions in the RAP. The RAP Team will:

i) Describe institution(s) responsible for delivery of each item/activity in the entitlement policy; implementation of income restoration programs; and coordination of activities associated with and described in the RAP.
ii) Review institutional framework and identify agencies responsible for resettlement activities and local NGOs that may have a role in RAP implementation alongside examining the capacity of such agencies and NGOs.
iii) Propose how coordination issues should be addressed in cases where resettlement is spread over a number of jurisdictions.
iv) In consultation with stakeholders, identify a suitable external (non-project) local organization (preferably an NGO) they trust to act as a witness agency to oversee implementation of the RAP in way that would be fair to all affected persons.
v) Discuss institutional capacity for and commitment to resettlement.
vi) Describe mechanisms for ensuring independent monitoring, evaluation, and financial audit of the RAP and for ensuring that corrective measures are carried out in a timely fashion.

Expected Output:

- Identification of appropriate institutional arrangements, in which the RAP would best be implemented.

- Make proposals to enhance institutional capacity of identified agencies and NGOs for resettlement implementation.

4.4.3.5 Eligibility

Local Council leaders (LC's) will be used to identify landowner/Tenants/licensees during identification process; the adjacent landowner shall be present to justify boundary of the land area affected by the project footprint which will be staked by surveyors.

Expected Output:

- Co-ordinates of affected land shall be taken to determine its size and location.
- Establishment of nature of land ownership of PAP's

4.4.3.6 Scope of land/property survey & valuation

Property survey: Local leaders (LC's and Elders) will identify landowner/stakeholders during identification process; the adjacent landowner shall be present to justify boundary of the land area affected by the project footprint which will be staked by surveyors. Co-ordinates of affected land shall be taken to determine its size and location. The census will be done by surveyor who will ensure 100% PAP's are enumerated.

For property surveying the following will be done:

i) Obtain all cadastral information (relevant data and maps) necessary to identification of property owners and other persons potentially affected by the project. This will apply for the proposed project alignments and their neighbourhoods.
ii) Digitize existing cadastral maps obtained.
iii) Establish existing land tenure systems using existing maps.
iv) Undertake cadastral survey of the confirmed project area with aim of obtaining title deed for the project (mutation).
v) Obtain from PAP's and verify registered land title deeds from respective district land offices.
vi) Undertake full cadastral survey of proposed water and sewer lines and prepare cadastral maps.
vii) Prepare strip maps indicating land plots traversed by the water and sewer lines, approach roads on either side of line and attendant utilities.
viii) Obtain necessary authorization from Commissioner Surveys & Mapping Department (Ministry of Lands & Urban Development).
ix) Undertake cadastral survey of the confirmed water and sewer lines and project alignment with aim of obtaining title deed for the project (mutation).
x) Follow up transfer of title deeds to Uganda Government (Uganda Land Commission)/NWSC and mutate the remaining land parcels to respective land owners.

Specific actions:

Control survey and delineation of project site:

- A reconnaissance will be done to check on the location of the project site. GPS survey to connect the survey to the national grid network will be extended to site alignment.

- A traverse will be run to establish the site by placing benchmarks at agreed intervals on the boundaries of the project site. By using offsets the site will be marked by placing markers.

Cadastral and detail survey:

- Control data and cadastral maps of the affected plots will be obtained from district Land Survey Offices. This will form the database for the cadastral survey. Cadastral survey of the plots affected by the project will be carried out by opening boundaries of all affected land plots.
- Traverses will be run to enable coordinates of corner points of affected land plots to be calculated and later to compute area of land affected by the project.
- At this point detail surveys will also be carried out of any developments which fall within area of influence of the project.
- Copies of registered land titles, digitals maps of the site and immediate neighbourhood will be obtained and verified.

Surveying equipment/software available for the Job: The following equipment will be availed:

Table 13: Surveying equipment

	Equipment/software	Number
1	GPS Magellan Mobile Mapper ProMark 3	2
2	GPS Data Grid MK1 (Two Sets)	2
3	Total Station – 1 Leica TC 500	2
4	Total Station –3 Leica TC 1610	2
5	Sokkia Set 3 C	2
6	Theodolite T2 + Distoma	3
7	Steel bands, tapes, ranging rods, staves etc.	Many
8	Software: (Cadastral Survey Computations, AutoCAD, AutoCivil, and ARC Map).	5 on all office desktop computers and mainframe/ server

Expected Output:

- Names of people with affected property, nature of property to be lost and its size determined.
- Strip maps developed.
- Mutated titles returned to owners
- Project land title obtained.
- Geo-referenced record of affected persons
- MS Access database of affected persons

4.4.3.7 Valuation (Property valuation)

Chief Government Valuer (CGV): Liaison with the CGVs will be done to introduce the project and RAP study and seek consensus on the valuation approach and methodology.

Valuation of the land, crops and properties: Detailed valuation of affected property will be done by a *Property Valuer*. Standard replacement cost methods will be used to ensure PAP's can restore their livelihoods. The valuation will include the following aspects:

- Make a crop count of all crops existing in the way-leave corridor as identified by the land surveyor.
- Determine market value of affected land, crops and structures (both permanent and semi-permanent) to be compensated.
- Determine appropriate level of compensation for all affected property resulting from construction of the water and sanitation facilities.

Value of buildings will be determined by:

a) *Permanent buildings:* The basis of valuation is full replacement value based on comparable building costs in the market and according to materials used.
b) *Semi-permanent buildings:* The basis is as per the building rates set out by the area district compensation committee according to the materials used in the construction.

It is assumed that district rates encompass every type of crop or its nearest comparison. Where district compensation rate omitted an item, this assessment will borrow a similar price of such item in the neighbouring district's compensation rates.

Disclosure

- Deposit at local authorities according to the Town and Country Planning Act, the resulting strip maps showing alignment, boundaries and plots, tenure system of affected property.
- Display same information at Ministry of Works, NWSC Kampala District offices, Wakiso District offices and at offices of project-affected local councils (LCs).

Expected Output:

- Consensus of CGV on valuation methodology, obtained.
- Costs of affected property (land, crops, buildings, other structures/improvements) and resettlement costs compiled.
- Database of all affected persons including their socio-economic conditions and property to be affected.
- Approval of valuation results by Chief Government Valuer.

4.4.3.8 Socio-economic survey

In addition to specific actions/activities mentioned above, photographic identification of all owners and users of affected properties by the project will be carried out.

Illustration of PAP's identification using name Boards

Socio-economic survey questionnaires will be administered to all owners/users affected by the proposed project.

Socio-economic survey questionnaires being administered

4.4.3.9 Resettlement measures

Measures incorporated in project design to minimize displacement will be identified and results/outcomes of these efforts described. Each category of eligible affected persons will be consulted to identify how best to be compensated or/and resettled measures to assist in order to achieve the RAP objectives. In addition to being technically and economically feasible, the resettlement packages should be compatible with the, and will be prepared in consultation with them.

The RAP Team will identify the following:

i) Compensation entitlements sufficient to restore income streams for each category of impact,
ii) What additional economic rehabilitation measures are necessary (such as disturbances allowances provided in national laws if displaced persons are required to vacate their properties earlier than legally prescribed timeframes),
iii) Restoration strategies for each category of impact and their institutional, financial and technical aspects.
iv) The process of consultation with affected populations and their participation in finalizing strategies for income restoration.
v) Whether income restoration requires change in livelihoods, substantial amount of training, etc.

vi) How the risks of impoverishment should be addressed.
vii) The main institutional and other risks that might affect smooth implementation of the RAP.
viii) A monitoring process for the effectiveness of income restoration measures.
ix) Any social or community development programs currently operating in or around the project area. (If such programs exist, do they meet the development priorities of their target communities? Are there opportunities for the project developer to support new programs or expand existing programs to meet development priorities of communities in the project area?)

Expected Output:

- Description of measures in project design, to minimize displacement and the results of these efforts
- Description of cultural preferences of the affected persons, with regards to resettlement packages.
- Identification of technically and economically feasible Resettlement measures.
- Opportunities and risks to successful income and livelihood restoration, identified and corrective measures recommended.

4.4.3.10 Site selection, site preparation and relocation

The RAP team will:

i) Review institutional and technical arrangements utilized for identifying and preparing relocation sites.
ii) Assay existing settlement patterns.
iii) Conduct meetings with affected persons, host populations, opinion-makers, elected officials, community/village-level leaders to identify and shape up the various options and alternatives for relocation.
iv) Conduct a relocation needs assessment survey at selected locations.

Expected Output:

- Identification of institutional and technical arrangements for identifying and preparing relocation sites
- Design a relocation time schedule
- Define procedures for physical relocation

4.4.3.11 Housing, Infrastructure and social services

The RAP team will:

i) Assay existing housing and infrastructure facilities and social services in the host populations in comparison to those in the project affected communities.
ii) Guide the provision of housing and infrastructure (e.g. water supply, feeder roads), and social services (e.g., schools, health services) required in the resettlement sites.
iii) Ensure comparable services to the host populations or any necessary site development, that engineering, and architectural designs for these facilities are made.

Expected Output:

- Development of a matrix for provision of housing, infrastructure and social services in both host communities and project sites.
- Establishment of comparable engineering, and architectural designs for proposed facilities.

4.4.3.12 Environmental and Social Impact Assessment for resettlement sites

By defining the boundaries of the relocation area the consultant will assess the environmental impacts of the proposed resettlement site, and propose measures to mitigate these impacts to ensure Environmental Protection and Management.

Expected Output:

- Potential impacts identified, characterised (described) and their significance derived basing on an objective analysis basing on impact severity and likelihood of occurrence.
- Incorporated of the general and specific mitigation measures at proposed resettlement site in the Environmental Management Plan (EMP)

4.4.3.13 Community participation

Community participation will entail sensitization of Project Affected Persons (PAP's) and stakeholder consultations. The consultant will work with local leaders to ensure that all PAP's in the project towns are sensitized about the project.

The RAP team will:

i) AWE will define and establish the compensation and Resettlement measures in consultation with PAP's. The purpose will be to ensure that resettlement packages are compatible with cultural preferences of affected persons.
ii) Identify various stakeholders and undertake interviews and village meetings to obtain their views on resettlement and compensation.
iii) Describe the process of promoting consultation/participation of affected people and stakeholders in resettlement preparation and planning.
iv) Describe the process of involving affected people and other stakeholders in RAP implementation and monitoring.
v) Describe the plan for disseminating RAP information to affected populations and stakeholders, including information about compensation for lost assets, eligibility for compensation, resettlement assistance, and grievance redress.

Expected Output: Complete stakeholder involvement in developing and implementation of the RAP, achieved. Information on all public consultation including announcements and schedules of public meetings, meeting minutes and lists of attendees compiled.

4.4.3.14 Integration with host populations

The RAP team will:

i) Conduct consultations with host communities and local governments.
ii) Identify procedures of how to integrate displaced PAP's into host population and environments in ways that will help them improve their quality of life, economic opportunities, minimize associated environmental impacts and also benefit the poor within the same community, thereby reducing social conflict.

Expected Output:

- Put in place replicable and effective techniques, and appropriate institutional arrangements for assisting dislocated PAP's to improve their shelter, education, and livelihood circumstances involving partnerships between central and local governments, NGOs, and the beneficiary communities.
- Establish instructional frameworks and public policies that addressing any conflict that may arise between resettlers and host communities, and improve the employment opportunities of the internally displaced populations and other vulnerable populations in host communities.

4.4.3.15 Grievance procedures

The grievance procedures will be developed as follows:

i) Describe a step-by-step process for registering and addressing grievances and provide specific details regarding a cost-free process for registering complaints, response time, and communication modes.
ii) Describe the mechanism for appeal.
iii) Describe the provisions for approaching civil courts if other options fail.

Expected Output: A comprehensive grievance/dispute management mechanism developed

4.4.3.16 Organizational responsibilities

The objective will be to identify who would be responsible for specific actions in the RAP. The RAP team will:

i) Describe institution(s) responsible for delivery of each item/activity in the entitlement policy; implementation of income restoration programs; and coordination of activities associated with and described in the RAP.
ii) Propose how coordination issues should be addressed in cases where resettlement is spread over a number of jurisdictions.
iii) In consultation with stakeholders, identify a suitable external (non-project) local organization (preferably an NGO) they trust to act as a witness agency to oversee implementation of the RAP in way that would be fair to all affected persons.
iv) Discuss institutional capacity for and commitment to resettlement.
v) Describe mechanisms for ensuring independent monitoring, evaluation, and financial audit of the RAP and for ensuring that corrective measures are carried out in a timely fashion.
vi) Design the organizational framework for implementing resettlement, including identification of agencies responsible for delivery or resettlement measures and provision of services.

vii) Ensure and propose proper arrangements with appropriate coordination between agencies and jurisdictions involved in implementation.
viii) Review of documentation and consult key stakeholders in implementing agencies to identify capacity needs/gaps.

Expected Output:

- Identification of appropriate institutional arrangements, in which the RAP would best be implemented.
- Identification of lead agencies with regards to resettlement activities.
- Identification of capacity needs/gaps with regards to strengthening implementing agencies and outline areas of improvement.
- Identification of local authorities or resettlers themselves with the capacity to managing facilities and services provided under the project.

4.4.3.17 Implementation schedule

The overall schedule of RAP implementation will be based on the principle that, (i) all affected households are paid their due compensation and other benefits/allowances prior to relocation and (ii) relocation of the households/businesses will be synchronized with the staged development approach and schedule. Therefore, the RAP Team will:

i) List chronological steps in implementation of the RAP, including identification of agencies responsible for each activity and with a brief explanation of each activity.
ii) Prepare an implementation schedule (using a Gantt chart, for example) covering all resettlement activities to be undertaken from preparation through implementation of the RAP.
iii) Describe how the resettlement activities are linked to the implementation of the overall project.

Expected Output: Implementation schedule of the RAP developed including target dates for the achievement of expected benefits to resettlers and hosts and terminating the various forms of assistance

4.4.3.18 Costs and budgets

From results of the valuation exercise, the RAP Team will development of the RAP costs & budgets.

i) Provide a clear statement of financial responsibility and authority.
ii) List the sources of funds for resettlement and describe the flow of funds.
iii) Ensure that the budget for resettlement is sufficient and included in the overall project budget.
iv) Identify resettlement costs, if any, to be funded by the government and the mechanisms that will be established to ensure coordination of disbursements with the RAP and the project schedule.
v) Prepare an estimated budget, by cost and by item, for all resettlement costs including planning and implementation, management and administration, monitoring and evaluation, and contingencies.
vi) Where applicable, describe mechanisms to adjust cost estimates and compensation payments for inflation and currency fluctuations.
vii) Describe provisions to account for physical and price contingencies.
viii) Describe financial arrangements for external monitoring and evaluation.

Expected Output: A budget for RAP implementation developed

4.4.3.19 Monitoring and evaluation

The RAP Team will:

i) Describe the internal/performance of the monitoring process.
ii) Define key monitoring indicators derived from baseline survey.
iii) Describe institutional (including financial) arrangements.
iv) Describe frequency of reporting and content for internal monitoring.
v) Describe process for integrating feedback from internal monitoring into implementation.
vi) Define methodology for external monitoring.
vii) Define key indicators for external monitoring.
viii) Describe frequency of reporting and content for external monitoring.
ix) Describe process for integrating feedback from external monitoring into implementation.
x) Describe arrangements for final external evaluation.

Expected Output: A comprehensive monitoring and evaluation mechanism developed

4.5 QUALITY ASSURANCE

The consultant's goal is to implement projects to total satisfaction of our clients in a manner that conforms to ethical professional practice. Achieving good quality is dependent on all aspects of our operations, such as requirements for high quality staff and establishment of effective project management. The QA philosophy underlying our framework is normalization and documentation of normal good professional practices developed in-house in conformity with internationally accepted standards in the consulting industry.

A guiding principle for our QA approach is to link it closely to task implementation activities thus focusing QA on work processes rather than only on results. The advantage of this approach lies in maintaining a practical focus that allows for early corrective measures.

The consultant's typical scope of QA encompasses check and back stops in assignment planning, implementation, study results, in-depth review through QA audits of study progress reports and reality of objectives and critical assumptions. At AWE, QA of any projects undertaken is based on a logical framework comprising normal control, extended control, intensive control and quality team audits applied to project planning and monitoring.

A minimum of two QA audits will be made by the QA Team within the project timeframe. The first QA audit will take place during field surveys, and the process of identifying potential impacts. The second QA audit will take place at during the development of the environmental management plan (EMP) and the RAP implementation schedule.

The audits will check that the project progress adequately meets the requirements of the client. The QA team will perform its activities through standardizing sampling techniques and counter-checking reported information against field findings.

Our QA System is governed by *ISO9001:2008 Quality Management System* as evidenced by certification below.

Copy of ISO 9001:2008 Certificate

QAS International

REGISTRATION CERTIFICATE

This document certifies that the administration systems of

Air Water Earth (AWE) Ltd

Mt. 27 Binayemba Road, Bugolobi Kampala, Uganda

have been assessed and approved by QAS International to the following management systems, standards and guidelines:

ISO 9001:2008

The approved administration systems apply to the following:

AWE provides innovative environmental and civil engineering consulting services to private, government and corporate clients.

Original Approval	20th April 2013
Current Certificate	20th April 2014
Certificate Expiry	20th April 2015
Certificate Number	A1001UG

Signed Certification Officer

On behalf of QAS International

RN

TECH-5: WORK SCHEDULE AND PLANNING FOR DELIVERABLES

a) Work Schedule

No	Item	Unit	Quantity	2014/2015					
				Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
	A. TECHNICAL INPUT								
1	**Kick off meetings**	Days	1						
2	**Project Management**	Weeks	20						
3	**ESIA Studies**								
	Environmental Scoping	Weeks	3						
	Environmental Baseline condition	Weeks	4						
	Archaeological and cultural heritage impact assessmen	Weeks	2						
	Terrestrial and river ecology surveys	Weeks	3						
	Hydrology surveys	Weeks	3						
	Environmental and Social Impacts Assessment	Weeks	6						
	Mitigation Measures	Weeks	4						
	Environmental and Social Management Plan (EMP)	Weeks	4						
4	**Resettlement Action Plan (RAP) Studies**								
	Consultation of the project Affected Persons	Weeks	4						
	Socio-economic studies and surveys	Weeks	5						
	Legal Framework	Weeks							
	Institutional Framework for Implementation	Weeks	4						
	Eligibility	Weeks	4						
	Land /Property Survey and Valuation	Weeks	5						
	Resettlement measures	Weeks	4						
	Community Participation	Weeks	15						
	Grievance procedures	Weeks	4						
	Organizational Responsibilities	Weeks	2						
	Implementation Schedule	Weeks	3						
	Costs and Budget	Weeks	4						
	Monitoring and evaluation	Weeks	4						
5	**Data Analysis & Development of Strip Maps**	Weeks	4						
	B. COMPLETION, SUBMISSION OF REPORTS & OTHER DELIVERABLES								
	Inception Report	Books	4						
	Draft ESIA Repot	Books	3						
	Draft RAP Repot	Books	3						
	Final ESIA Report	Books	4						
	Final RAP Report including strip maps & valuation repor	Books	4						

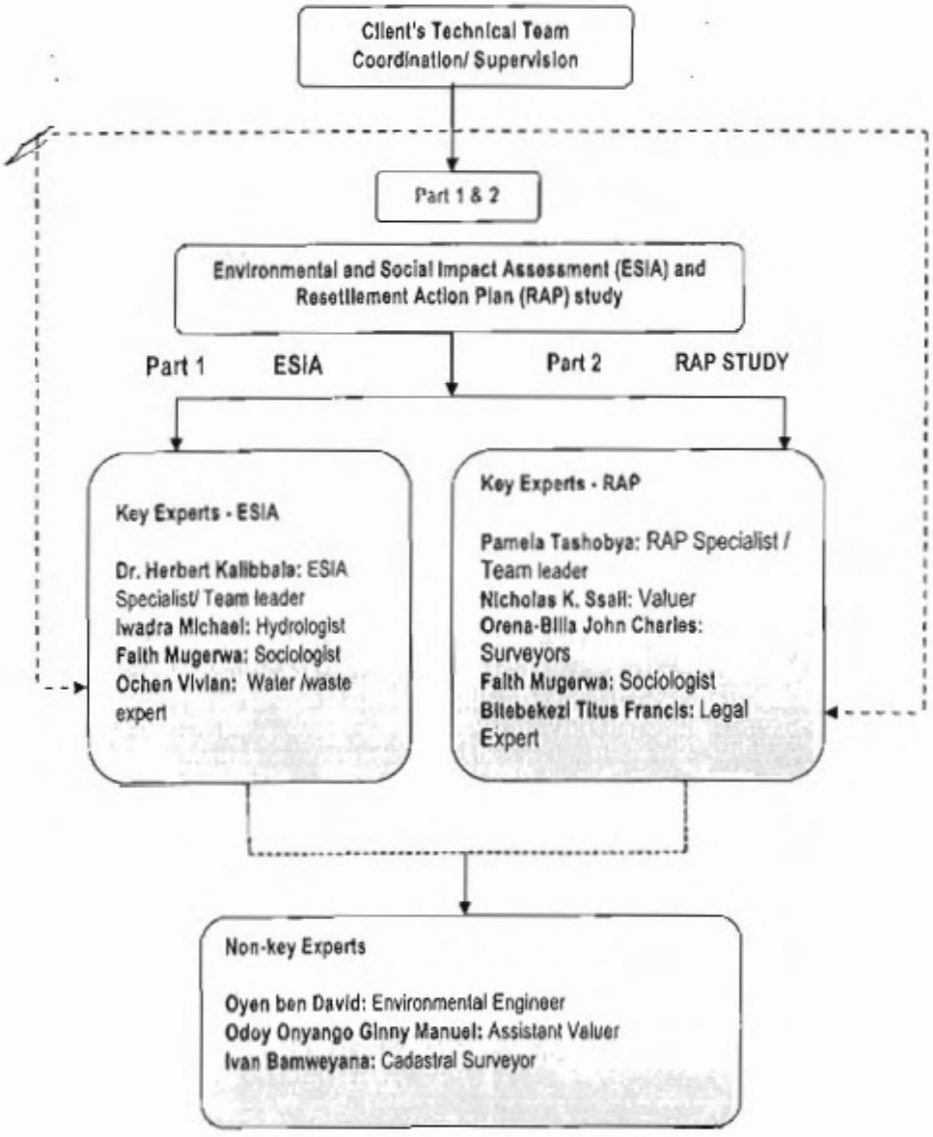
b) Deliverables

No	Item	Unit	Quantity	2014/2015 Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
	DELIVERABLE 1 - Inception Report								
1	Kick off meetings	Days	1						
2	Inception Field mission	Weeks	2						
3	Drafting of inception reports	Weeks	2						
4	Submission of Inception Report	Books	4						
5	Review of Inception Report by Client	Weeks	1						
6	Submission of Final Inception Report	Books	4						
	DELIVERABLE 2 - ESIA Report								
1	ESIA studies	Weeks	3						
2	Environmental scoping	Weeks	4						
3	Environmental Baseline Conditions	Weeks	5						
4	Archaeological and cultural heritage impact assessment	Weeks	5						
5	Terrestrial and river ecology surveys	Weeks	5						
6	Hydrology surveys	Weeks	4						
7	Environmental and Social Impact Assessment	Weeks	4						
8	Mitigation measures	Weeks	3						
9	Environmental and social Management Plan (EMP)	Weeks	3						
	Submission of Draft ESIA Report	Books	4						
1	Review and Quality Assurance by client	Weeks	2						
2	Incorporation of Comments finalisation of Report	Weeks	2						
3	Submission of Final ESIA Report	Books	4						
	DELIVERABLE 3 - RAP Report								
1	Model for data collection for RAP	Days							
2	Output Census questionnaire and project brochure for public awareness	Books	Not sure						
3	Sensitization of Communities in Project affected Villages & District officials	Weeks							
4	RAP field study and administering of questionnaires	Weeks							
5	Data Analysis of questionnaires & all collected data	Weeks							
6	Drafting of RAP reports	Weeks							
7	Submission of Draft RAP Report	Weeks	4						
8	Review and Quality Assurance by client	Days							
9	Incorporation of Comments finalisation of Report	Weeks							
10	Submission of Final RAP Report	Books	4						
	DELIVERABLE 4 - Valuation & Survey Report								
1	Selection of Survey equipment and procedures	Weeks							
2	Development of Valuation Methodology	Weeks							
3	Submission of Valuation Methodology to Chief Government Valuer	Books	3						
4	Review, quality assurance & Approval of Valuation Methodology by CGV	Weeks							
5	Survey and Valuation Field Mission	Weeks							
6	Drafting of strip maps & valuation reports	Weeks							
7	Submission of Draft strip maps & valuation reports	Books	3						
8	Review of Draft strip maps & valuation reports by Client	Weeks							
9	Incorporation of Comments finalisation of Reports	Weeks							
10	Final strip maps & valuation reports Submission	Books/CDs	14						

Expert's Input (in person/month) per each Deliverable (listed in TECH-5)

N°	Name	Position		D-1	D-2	D-3	D-4			Total time-Input (in months) Home	Field	Total
	Key Experts											
K-1	Eng. Lemmeck Kajubi	Environmental specialist /Team Leader	(Home)	0.3	0.3					0.6		1.2
			(Field)	0.3	0.3						0.6	
K-2	Pamela Teshobya	RAP Specialist	(Home)			0.3	0.3			0.6		1.2
			(Field)			0.3	0.3				0.6	
K-3	Faith Muperwa	Sociologist	(Home)	0.2	0.2	0.2	0.2			0.8		2
			(Field)	0.3	0.3	0.3	0.3				1.2	
K-4	Iwadre Michael	Hydrologist	(Home)	0.2	0.2					0.4		1
			(Field)	0.3	0.3						0.6	
K-5	Dr. Isa Kabanga	Water and wastewater specialist	(Home)	0.2	0.2					0.4		1
			(Field)	0.3	0.3						0.6	
K-6	Orena - Bifa Charles	Surveyor	(Home)			0.2	0.2			0.4		1
			(Field)			0.3	0.3				0.6	
K-7	Nicholas K. Ssali	Valuer	(Home)			0.2	0.2			0.4		1
			(Field)			0.3	0.3				0.6	
K-8	Bibekezi Titus Francis	Legal Expert	(Home)			0.3	0.3			0.6		0.8
			(Field)			0.1	0.1				0.2	
								Subtotal		4.2	5	9.2
	Non-Key Experts											
N-1	Odoy Onyango, GINNY MANUEL	Assistant Land Valuer	(Home)			0.06	0.06			0.12		0.24
			(Field)			0.06	0.06				0.12	
N-2	Oyen Ben David	Environmental Engineer	(Home)							0		0.12
			(Field)	0.06	0.06						0.12	
N-3	Ivan Bamwayeno	Cadastral Surveyor	(Home)			0.06	0.06			0.12		0.36
			(Field)	0.06	0.06	0.06	0.06				0.24	
								Subtotal		0.24	0.48	0.72
								Total		4.44	5.48	9.92

ARUA AND GULU TOWNS



Expert's Input (in person/month) per each Deliverable (listed in TECH-5)

N°	Name	Position		D-1	D-2	D-3	D-4			Total time-input (in months) Home	Field	Total
	Key Experts											
K-1	Dr Herbert Kalobola	Environmental specialist /Team Leader	(Home)	0.3	0.3					0.6		1.2
			(Field)	0.3	0.3						0.6	
K-2	Pamela Yashobya	RAP Specialist/Team leader	(Home)			0.3	0.3			0.6		1.2
			(Field)			0.3	0.3				0.6	
K-3	Faith Mugenwa	Sociologist	(Home)	0.2	0.2	0.2	0.2			0.8		2
			(Field)	0.3	0.3	0.3	0.3				1.2	
K-4	Elphas Bunnya	Hydrologist	(Home)	0.2	0.2					0.4		1
			(Field)	0.3	0.3						0.6	
K-5	Vivian Ochen	Water and wastewater specialist	(Home)	0.2	0.2					0.4		1
			(Field)	0.3	0.3						0.6	
K-6	Dr Musinguzi Moses	Surveyor	(Home)			0.2	0.2			0.4		1
			(Field)			0.3	0.3				0.6	
K-7	Nicholas K. Ssali	Valuer	(Home)			0.2	0.2			0.4		1
			(Field)			0.3	0.3				0.6	
K-8	Bitebakezi, Titus Francis	Legal Expert	(Home)			0.3	0.3			0.6		0.8
			(Field)			0.1	0.1				0.2	
								Subtotal		4.2	6	9.2
	Non-Key Experts											
N-1	Joseph B. Nsereko	Assistant Valuer	(Home)			0.06	0.06			0.12		0.24
			(Field)			0.06	0.06				0.12	
N-2	Charity Tushemereirwe	Environmental Engineer	(Home)							0		0.12
			(Field)	0.06	0.06						0.12	
N-3	Ivan Bamweyana	Cadastral Surveyor	(Home)			0.06	0.06			0.12		0.36
			(Field)	0.06	0.06	0.06	0.06				0.24	
								Subtotal		0.24	0.48	0.72

TECH-6 – B CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

CV-1: Environmental Specialist - Eng. Lammeck KAJUBI

Position	Environmental specialist /Team leader
Name of Expert	Eng. Lammeck KAJUBI
Date of Birth:	09 Nov. 1971
Country of Citizenship/ Residence	Uganda

Education

Institution	Dated attended	Award
University of Queensland, Brisbane, Australia.	1997 - 1998	Master of Engineering Science (MEngSc.) in Environmental Engineering
Makerere University, Kampala, Uganda.	1991 - 1995	B.Sc. Eng.(1st Class Honors) in Agricultural Engineering (Soil & Water Engineering),

Employment record relevant to the assignment:

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
2002-Date	Organization Air Water Earth (AWE) Ltd Position Held Founder, CEO and Senior Environmental Engineer Reference: Assoc. Prof. Eng. Umar Bagampade Dean School of Engineering, Makerere University. Tel: 0772605495	Uganda	Resettlement Action Plan (RAP) for Kyenjojo-Holma-Masindi-Kigumba 230 km road upgrade to bituminous standards. Position Held: Team Leader/Environmental Engineer Activities performed: Led census and social surveys, stakeholder engagement and report development.
			Environmental & social impact assessment and resettlement action plan, RAP for proposed upgrade of Holma-Kyenjojo-Fort Portal, Kamwenge 240 km road to bituminous standards. Position Held: Team Leader/Environmental Engineer Activities performed: Led a multi-disciplinary team of engineers, physical cultural specialists and sociologists that collected baseline data (air quality, noise, water quality, social and cultural resources), assessed environmental and social impact of construction/ rehabilitation activities and developed a resettlement action plan

			ESIA and RAP for Proposed Nyamughasana Hydropower Project associated 33kV - 2014- on going **Position Held:** Team Leader/Environmental Engineer **Activities performed:** Led census and social surveys, stakeholder engagement and report development.
			Environmental Scoping for Kingfisher-4 development well in Bugoma, Hoima District (Kingfisher Discovery Area), Uganda **Position Held:** Team Leader/Environmental Engineer **Activities performed:** Participated in the development of the terms of reference, stakeholder consultations, and prediction of potential project impacts on the environment and society and compilation of the final report.
			EIA, RAP and SIA for proposed Muzizi hydropower project and associated 200 kV transmission line **Position Held:** Team Leader/Environmental Engineer **Activities performed:** Led the scoping study that developed study terms of reference. During detailed studies included baseline air quality, noise levels, water, and analyzed impacts associated with line construction, carbon emissions resulting from vegetation to be lost along the line, impact on watercourses, effects of workers camp, occupational safety and waste management. I also led stakeholder consultation activities, social impact surveys and resettlement action planning (RAP).
			Programmatic Environmental Impact Assessment (PEA) of Energy Efficient Commercial and Residential Lighting Program s in Uganda. CDM programme to reduce national energy demand. **Position Held:** Team Leader/Environmental Engineer **Activities performed:** Team leadership including preparation of a national stakeholder consultation workshop, carbon reduction estimates and energy demand reductions.

			Environmental Impact Assessment for proposed Ngege Field appraisal **Position Held:** Team Leader/Environmental Engineer **Activities performed:** Led baseline air quality, noise levels and analysed impacts, led stakeholder engagement
			Initial Environmental Assessment (IEE) for Feasibility Study for Development of Pipelines and Storage Facilities for Crude Oil and Gas in Uganda **Position Held:** Team Leader/Environmental Engineer **Activities performed:** Undertook initial environmental assessment (IEE) for the feasibility study.
			Isimba hydropower project and associated 132 kV transmission line. **EIA, RAP and SIA for the dam flood area and a 42 km 132 kV transmission line. EIA assessed construction, operation and decommissioning impacts.** **Position Held:** Team Leader/Environmental Engineer **Activities performed:** Led the scoping study that developed study terms of reference. During detailed studies, I established baseline air quality, noise levels and analyzed impacts associated with line construction, carbon emissions resulting from vegetation to be lost along the line, impact on watercourses, effects of workers camp, occupational safety and waste management. I also led stakeholder consultation activities.
			EIA for proposed sorghum growing project and biofuels refinery in Kayunga. **Position Held:** Team Leader/Environmental Engineer **Activities performed:** Team Leader responsible for team management, waste impacts and control technologies, air quality, noise pollution and development of respective mitigation measures
			EIA for proposed Jacobsen heavy fuel oil-based thermal power plant at Namanve. **Position Held** Team Leader/Environmental Engineer

			Activities performed: Established baseline air quality, noise levels and analysed impacts associated with air pollution, water pollution, oil pollution, occupational safety, waste management and noise. Undertook air pollution modelling to identify in which village and specific location from the power plant would lie the point of maxima (where stack emissions would impinge on the ground surface). This location would be worst impacted by oxides of sulphur (SOx), nitrogen (NOx), particulate matter (PM). This informed the EMP since it is at this point that air pollution monitoring should be done, than anywhere else.
			Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) for proposed Kampala Institutional and Infrastructure Development Programme (KIIDP-2) projects. **Position held** Team Leader **Activities performed:** Stakeholder consultations, report development.
			ESIA for West Nile drilling campaign comprising five proposed exploration wells (Omuka-A, Ondyek-A, Alwala-A, Riwu-A and Okuma) in Nebbi District **Client:** TOTAL E&P Uganda BV Limited **Position:** Team leader **Activities:** Baseline surveys, stakeholder consultations impact prediction and reporting.
			EIA and SIA for (Karuma-Kawanda 400 kV, Karuma-Lira 132 kV and Karuma-Olwiyo132 kV) transmission- Karuma Interconnection Project **Position Held** Team leader **Activities performed:** Established baseline air quality, noise levels and analysed impacts associated with line construction, carbon emissions resulting from vegetation to be lost along the line, impact on forest ecosystems and watercourses, water pollution, effects of workers camp, occupational safety and waste management. I also led stakeholder consultation activities.
			Environmental & social impact assessment and resettlement action plan, RAP for proposed widening of Northern Bypass by constructing a 17.5 km dual carriageway

			Client: Uganda National Roads Authority, UNRA **Position held:** Team leader; EIA Leader **Activities performed:** Scoping study, baseline studies, environmental and social impact surveys, stakeholder consultations, traffic noise abatement strategies and resettlement action planning.
			ESIA and RAP for proposed upgrade of Hoima-Kyenjojo-Fort Portal, Kamwenge 240 km road to bituminous standards **Client:** Uganda National Roads Authority, UNRA **Position held:** Team leader; EIA Leader **Activities performed:** Scoping study, baseline studies, environmental and social impact surveys, stakeholder consultations, traffic noise abatement strategies and resettlement action planning.
			ESIA and RAP for proposed upgrade of Fort Portal-Kamwenge Road 66.2 km road to bituminous standards **Client:** Uganda National Roads Authority, UNRA **Position held:** Team leader; EIA Leader **Activities performed:** Scoping study, baseline studies, environmental and social impact surveys, stakeholder consultations, traffic noise abatement strategies and resettlement action planning.
			ESIA and RAP for proposed upgrade rehabilitation of Kyotera-Mutukula road **Client:** Uganda National Roads Authority, UNRA **Position held:** Team leader; EIA Leader **Activities performed:** Scoping study, baseline studies, environmental and social impact surveys, stakeholder consultations, traffic noise abatement strategies and resettlement action planning
			EIA and resettlement action plan (RAP) for proposed Kalangala Infrastructure Project (main Island Road, 2 ferry landings, solar thermal electricity plant, and town water supply **Position held:** Team leader; EIA Leader

			Activities performed: Scoping study, baseline studies, environmental and social impact surveys, stakeholder consultations, traffic noise abatement strategies.
			EIA and SIA for selected Infrastructure in 13 AAMP Districts in Western Uganda **Main features**: Redevelopment of 56 community roads, 13 markets, 2 valley tanks and 1 bridge under the Rural Infrastructure Development component of the Area-based Agricultural Modernization Program (AAMP) **Client**: Ministry of Local Government **Position held**: Team leader; EIA Leader **Activities performed**: Scoping study, baseline studies, environmental and social impact surveys, stakeholder consultations, traffic noise abatement strategies.

Membership in Professional Associations and Publications:

- Registered consultant of the World Bank (No: UPI 452703)
- Registered Professional Engineer (PE) in Uganda, ERB No. 570
- Member, Uganda Institution of Professional Engineers (UIPE). No. PE/619
- NEMA-registered & certified Environmental Impact Assessment Practitioner (as Team Leader)
- NEMA-registered & certified Environmental Auditor (as Team Leader).
- Member, Uganda Association of Impact Assessment Practitioners (UAIA)

Language Skills:

Languages	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
French	Fair	Fair	Fair
Kinyarwanda	Fair	Fair	Good
Germany	Fair	Fair	Fair
Luganda	Mother tongue	Excellent	Excellent
Swahili	Good	Good	Good

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team	Reference to Prior Work Best Illustrating Capability to Handle Assigned Tasks
• Environmental Systems analysis and modelling • Analysis of policy, legal and administrative framework • Establishing the current socio-economic environment • Assessment of various sites sensitivity based on nature of existing ecological resources (flora and fauna). • OHS assessment	• Involved in feasibility studies, environmental and social impact assessments various project assignments including: • Resettlement Action Plan (RAP) for Kyenjojo-Hoima-Masindi-Kigumba 230 km road upgrade to bituminous standards. • ESIA for West Nile drilling campaign comprising five proposed exploration wells (Omuka-A, Ondyek-A, Alwala-A, Riwu-A and Okuma) in Nebbi District • EIA and SIA for (Karuma-Kawanda 400 kV, Karuma-Lira 132 kV and Karuma-Olwiyo132 kV) transmission-

	Karuma Interconnection Project ▪ Environmental & social impact assessment and resettlement action plan, RAP for proposed widening of Northern Bypass by constructing a 17.5 km dual carriageway ▪ ESIA and RAP for proposed upgrade of Hoima-Kyenjojo-Fort Portal, Kamwenge 240 km road to bituminous standards ▪ ESIA and RAP for proposed upgrade rehabilitation of Kyotera-Mutukula road ▪ Environmental Impact assessment and Ecological Audit for Bihanga-Katerera Road, Bushenyi District. ▪ EIA and resettlement action plan (RAP) for proposed Kalangala Infrastructure Project (main Island Road, 2 ferry landings, solar thermal electricity plant, and town water supply ▪ EIA and SIA for selected infrastructure in 13 AAMP Districts in Western Uganda
List all deliverables / tasks as in TECH 5 in which the expert will be involved - Inception report - Draft ESIA report - Final ESIA report	▪

Expert's contact information: email: i.kalubi@awe-engineers.com **Phone:** +256 782 580480

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Name of expert *Signature* *Date*

Name of authorized Representative of Consultant *Signature* *Date*

No. 570

THE REPUBLIC OF UGANDA

ENGINEERS REGISTRATION BOARD

It is hereby certified that

KAJUBI LAMMECK

has satisfied the Board pursuant and in accordance with the provisions of the Engineers Registration Act, 1969, section 19 *and that at the meeting of the Board held on the* 20th *day of* July, 2005 *was added to the Register of Engineers legally authorised to practise in the Republic of Uganda*

Chairman

Secretary

CV-2: Environmental Specialist - KALIBBALA Herbert Mpagi, PhD

Position	Environmental Specialist/ Team Leader
Name of Expert	KALIBBALA Herbert Mpagi
Date of Birth:	06 July 1974
Country of Citizenship/ Residence	Uganda

Education:

Date	Institution	Award
2012	Royal Institute of Technology (KTH), Department of Land & Water Resources Engineering, Stockholm, Sweden.	Doctorate of Philosophy (PhD) in Environmental Engineering
2007	Royal Institute of Technology (KTH), Department of Land & Water Resources Engineering, Stockholm, Sweden.	PhD Licentiate in Environmental Engineering
2001	Makerere University, Kampala Uganda	MSc. Environmental Engineering
1999	Makerere University, Kampala, Uganda.	B.Sc. Eng. (Hons) In Civil Engineering,

Employment record

Period	Employing Organization, Title and Reference contact	Country	Summary of activities performed
2003 – to date	**Organization:** Makerere University – Department of Civil & Environmental Engineering **Position held:** Lecturer **Reference:** Mr. Martin Tumutungire E-mail: mtumutungire@cedat.mak.ac.ug Tel.: +256 712/ 701-961947	Uganda	**Activities:** Lectures undergraduates in areas of Public Health Engineering Practice, Environmental Chemistry and Environmental Quality Management; Master of science in Advanced Water Treatment; Air & Noise Pollution; and Water Quality Management.
2002 – to date	**Organization:** Air Water Earth (AWE) Ltd **Position held:** Co-Founder, Vice President and Senior Water & Wastewater Engineer **Reference:** Eng. Lammeck KAJUBI L.Kajubi@awe-engineers.com +256 782 580480	Uganda	**Natural & Environmental Survey for the Preparatory Survey on Ayago Hydropower Project - 2013** **Position held :**Water Quality Specialist **Activities:** Environmental Baseline Site Survey and Preparation of field reports **Reference:** Uganda Electricity Generation Company Limited (UEGCL)
		Uganda	**Environmental Impact Assessment for proposed Ngege Field appraisal -2012** **Position held:** Environmental Engineer **Activities:** Water quality measurements and analysis; Soil quality sampling, profiling and analysis, Air quality measurements, Noise and Vibration measurements impact identification and assessment. **Reference:** Tullow Uganda Operations PTY LTD
		Uganda	**Preliminary Technical Evaluation of Masindi and Hoima National Water and Uganda Sewerage Corporation (NWSC) Sewerage Treatment Plants by Tullow Uganda Operations PTY Ltd – Year 2012** **Position Held:** Sanitary Engineer/ Water Quality Specialist **Activities:** Preparation of as-built drawings, design review, wastewater sampling, analysis

Period	Employing Organization, Title and Reference contact	Country	Summary of activities performed
			and preparation of reports **Reference:** Tullow Uganda Operations PTY Ltd
		Uganda	**Environmental and Social Impact Assessment (ESIA) for the proposed Omuka-An exploration well located in West Nile, Nebbi District - July 2012-Oct 2012** **Position held:** Environmental Engineer **Activities:** Water quality measurements and analysis; Soil quality sampling, profiling and analysis, Air quality measurements, Noise and Vibration measurements Impact identification and assessment and preparation of the ESIS. **Reference :** Tel: 256 (0) 794 888 186 Email : ben.kampala@total.com Name : Benjamin Kampala
		Uganda	**Environmental and Social Impact Assessment (ESIA) for the proposed Ondyek-A exploration well located in West Nile, Nebbi District - July 2012-Oct 2012.** **Position held:** Environmental Engineer **Activities:** Water quality measurements and analysis; Soil quality sampling, profiling and analysis, Air quality measurements, Noise and Vibration measurements Impact identification and assessment and preparation of the ESIS. **Reference:** Tel: 256 (0) 794 888 186 Email : ben.kampala@total.com Name : Benjamin Kampala
		Uganda	**Environmental and Social Impact Assessment (ESIA) for the proposed Riwu-A exploration well located in West Nile, Nebbi District - July 2012-Oct 2012** **Position held:** Water & Wastewater Engineer **Activities:** Water quality measurements and analysis; Soil quality sampling, profiling and analysis, Air quality measurements, Noise and Vibration measurements Impact identification and assessment and preparation of the ESIS. **Reference :** Tel: 256 (0) 794 888 186 Email : ben.kampala@total.com Name : Benjamin Kampala
		Uganda	**EIA for proposed Jacobsen heavy fuel oil-based thermal power plant at Namanve – Year 2011.** **Position held:** Environmental /Water Engineer **Activities:** Establishment baseline air quality, noise levels and analyzed impacts associated with air pollution, water pollution, oil pollution, occupational safety, waste management and noise. **Reference:** Jacobsen Uganda Power Plant Co. Ltd (JUPPCL), Plot 630, Namanve
		Uganda	**Isimba hydropower project and associated 132 kV transmission line.** **EIA, RAP and SIA for the dam flood area and**

Period	Employing Organization, Title and Reference contact	Country	Summary of activities performed
			a 42km 132 kV transmission line. EIA assessed construction, operation and decommissioning impacts – Year 2011. **Position held:** Environmental Engineer **Activities:** Establishment of baseline air quality, noise levels and analyzed impacts associated with line construction, carbon emissions resulting from vegetation to be lost along the line, impact on watercourses, and effects of workers camp, occupational safety and waste management. He also led stakeholder consultation activities. **Reference:** Kagga & Partners for Uganda Electricity Generation Company Limited (UEGCL)
		Uganda	**EIA and SIA for (Karuma-Kawanda 400KV, Karuma-Lira 132KV and Karuma-Olwiyo 132KV) transmission line routes that traversed a wide range of ecosystems and population centers. EIA assesses construction, operation and decommissioning impacts. I managed preparation of the Resettlement Action Plan (RAP) for project-affected people along the line routes – (2010 – 2011).** **Position held:** Water & Wastewater/ Engineer **Activities:** Established baseline air quality, noise levels and analyzed impacts associated with line construction, carbon emissions resulting from vegetation to be lost along the line, impact on forest ecosystems and watercourses, water pollution, effects of workers camp, occupational safety and waste management. I also led stakeholder consultation activities. **Reference:** Uganda Electricity Transmission Company Limited (UETCL) Tel: 0772 670110 Email : othijo@uetcl.com Name : John Othieno
		Uganda	**EIA for Kasemene-3 appraisal well in Buliso, Hoima District (Year 2010)** **Position Held** Environmental Engineer/ Water specialist **Activities** Water quality analysis, prediction of construction-phase and operation-phase impact and analysis, stakeholder consultation, development of mitigation recommendations and report writing. **Reference:** Tullow Uganda Operations PTY LTD (TUOP)
		Uganda	**EIA and Resettlement Action Plan (RAP) for proposed a 227.7 km 132 kV high voltage transmission line from Hoima-Fort Portal-Mputa-Nkenda in Kasese as part of the Early (oil) Production Scheme (EPS) by Tullow Oil and Uganda Government - 2008.**

Period	Employing Organization, Title and Reference contact	Country	Summary of activities performed
			Position held: Environmental Engineer **Activities:** Establishment of potential impacts on water ecosystems and courses during installation activities and identification of mitigation measures. **Reference:** Tullow Uganda Operations PTY LTD (TUOP)
		Uganda	**EIA for Kingfisher-3 appraisal well in Bugoma area – (Year 2008)** **Position held** Team Leader **Activities:** Team Leader and coordinated EIA team to develop terms of reference, undertake baseline fauna, flora, noise, water and air quality studies, stakeholder engagements, and follow-up during regulatory review.
		Uganda	**Design of sewage collection network, sewage treatment plant, water supply system and road network for Lubowa-80 Housing Estate – (Oct 2008- Nov 2008).** **Position Held:** Water Engineer **Activities:** Design of lagoons and participated in the technical and economic evaluation of lagoons against a package plant to advise on the best (technically and financially) sewage management option.
		Uganda	**EIA and resettlement action plan (RAP) for proposed Kalangala Infrastructure Project (main Island Road, 2 ferry landings, solar thermal electricity plant, town water supply system – (2007).** **Position Held:** Environmental Engineer/ Water specialist **Activities:** Responsible for assessing water quality at the proposed intake points and the existing supply systems, identification and analysis of environmental impacts resulting from upgrading of the road and establishment of the power plant, and transport on the lake; development of mitigation recommendations. **Reference** Tel: 0772 705222 Email : John Opiro <john.opiro@infraco.com> Name : John Opiro
		Rwanda	**Development of EIA Guidelines, Regulations and Procedure for Rwanda (Dec. 2005- Feb 2006)** **Position held:** Environmental /Water Engineer **Activities:** Part of the team that in streamlined Rwanda's environmental impact regulations and guidelines. I was responsible for developing EIA Guidelines and Procedures, stakeholder consultation, institutional analysis especially in the area of environment and water resources management. The findings were then presented in a stakeholder workshop to create awareness and build consensus.
		Uganda	**EIA and Socio-economic Impact**

Period	Employing Organization, Title and Reference contact	Country	Summary of activities performed
			Assessment for selected infrastructure in 13 Area-based Agricultural Modernization Program (AAMP) Districts in Western Uganda (Year – 2005) **Position held** Environmental /Water Engineer **Activities:** Water quality analysis, prediction of construction-phase and operation-phase impact and analysis, stakeholder consultation, development of mitigation recommendations and report writing
02/2011 – 07/2011	Free-lance consultant **Position held:** Water supply and sanitation Consultant **Reference:** Association of Private Water Operators/ GTZ	Uganda	**Development of Water Quality Testing and Monitoring Manual & Trainer's Manual** **Activities:** assessing the existing water supply schemes in small towns of Uganda and preparing manual for water quality testing and monitoring as well as a training manual; proposing a training programme and conducting training of the relevant staff of the Association of Private Water Operators
2004	Free-lance consultant **Position held:** Water and Sanitation Specialist	Uganda	**Consultant (Water and Sanitation Specialist) - Water and Sanitation Initiative: United Nations Human Settlement Programme (UN-HABITAT) Water for African Cities programme** **Activities:** Water supply and sanitation Consultant responsible for carrying out an assessment of the water supply and sanitation situation in Busia, Bugembe (Jinja Municipality), Kampala (Ggaba Parish), Mukono, Nyendo ward, Kyotera and Mutukula.
2002- 2004	**Organization:** National Water & Sewerage Corporation/ Makerere University **Position held:** Task Leader/ Environmental Engineer **Reference:** Mr. Christopher Kanyesigye E-mail: c.kanyesigye@nwsc.co.ug Tel.: +256 772 425675	Uganda	**Tertiary Industrial Wastewater Treatment Pilot Project, Lake Victoria Environment Management Program - Ministry of Lands, Water and Environment/ World Bank.** **Activities:** Systems' design, operation, supervision and monitoring of industrial wastewater treatment systems (wetlands); and information dissemination.
1998 - 2000	**Organization:** Makerere University – Department of Civil Engineering **Position held:** Research Assistant **Reference:** Dr. Maimuna Nalubega, mnalubega@yahoo.co.uk	Uganda	**Assessment of the risk to groundwater by on-site sanitation (ARGOSS) in the areas of Kampala and Iganga 1998 – 2000)**
			Sanitation Improvement Campaign for Fishing Villages (Consultancy for UNICEF / UFCU) (07/1998 – 08/1998) **Activities:** Responsible for evaluating and disseminating improved and cost effective sanitation technologies
			Water quality and environmental pollution / pollution control: Waste water treatment through wetlands, the Nakivubo Swamp – Uganda (06/1998 – 09/1998) **Activities:** Water sampling and laboratory analysis of the sample during monitoring

Membership in Professional Associations and Publications:

Membership to professional organizations

- NEMA-registered & certified Environmental Impact Assessment Practitioner (as Team Leader)
- NEMA-registered & certified Environmental Auditor (as Team Leader).
- Member, Uganda Association of Impact Assessment Practitioners (UAIA)
- East African Water Association (EAWA)
- Graduate member of the Uganda Institution of Professional Engineers

Publications:

Kalibbala, H. M., Kaggwa, R., Wahlberg, O., Plaza, E., 2011.Characteristics of natural organic matter and formation of chlorination by- products at Masaka waterworks. Journal of Water Supply: Research and Technology – Aqua 60(8): 511 – 519.

Kalibbala, H. M., Wahlberg, O., Plaza, E., 2012. Horizontal roughing filtration bed: impact on removal of natural organic matter and iron co-existing in water source. Separation Science and Technology 47(11): 1628 – 1637.

Kalibbala H. M, Wahlberg O., Hawumba T. J., 2009.The impact of Moringa Oleifera as a coagulant aid on the removal of trihalomethane (THM) precursors and iron from drinking water. Water Science &Technology – Water Supply 9(6): 707 - 714.

Kalibbala, H. M, Kaggwa, R., Plaza, E., 2012. Use of volcanic ash and its impact on algae proliferation in drinking water filtration. In press, Journal of Water, Sanitation and Hygiene for Development.

Kalibbala H. M., Plaza Elzbieta, Wahlberg Olle & Kaggwa Rose, 2010. Pre-treatment of algal-laden water using volcanic ash in a dual media filtration system. In the Proceedings of the 3rdIASTED African Conference Water Resource Management, September 6 - 8, Gaborone, Botswana, 135 – 141. DOI: 10.2316/P.2010.686-058.

Kalibbala H. M. & E. Plaza, 2009. Impact of Anthropogenic Activities and Climate Change on Raw Water Quality in Uganda – Case of River Nabaljuzi Wetland System.Presented at the Polish-Ukrainian-Swedish Seminar on Research and Application of New Technologies in Wastewater Treatment in Ukraine, Sweden and Poland from 23 to 25 September 2009, Sweden

Kalibbala, H. M., Nalubega, M., Wahlberg, O., Hultman, B., 2005. Performance Evaluation of Drinking Water Treatment Plants in Kampala – Case of Ggaba II. In theProceedings of 32nd WEDC International Conference - Sustainable Development of Water Resources,Water Supply and Environmental Sanitation, Sri Lanka, 231 – 234.

Bagampadde, U., **Kalibbala, H.M**, Kinobe, J., Kulabako, R., Niwagaba, C., Ottaviani. M., Pomi, R., Colonna, G. P., 2010.Integrating composting and anaerobic digestion of organic wastes in the tropics: The Case of a community based pilot plant in Kakiri, Kampala, Uganda. Presented at the 3rd International Symposium on Energy and Biomass, held 8-11 November 2010 in Venice, Italy. Paper resulting from on-going research project on Urban Pollution Control under the Italian Cooperation.

NiwagabaC.B., Bagampadde U., **Kalibbala H.M.**, KulabakoR.N., Kinobe J., Ottaviani, M., Pomi R., 2009. A pilot-scale study on assessment of domestic organic waste processing in Kampala – Uganda. Presented at the 12th International Waste Management and Landfill Symposium 5-9th October 2009 at S. Margherita di Pula, Sardinia, Italy. ISBN 978-88-6265-007-6.Paper resulting from on-going research project on Urban Pollution Control under the Italian Cooperation.

Nalubega, M., Kulabako, R.N., Niwagaba, B.C., **Kalibbala, H.** 2000. An investigation into the Effect of the Natural Luzira Swamp on UBL Effluent. A paper presented at the 1st Conference of the Faculty of Technology/Italian cooperation, Grand Imperial Hotel, Kampala, sponsored by the Italian cooperation Programme. ISBN 9970-812-00-9. pp 91-94.

Wozei, E., Kulabako, R.N., Byaruhanga, D., Nalubulwa, J., Niwagaba, C., **Kalibbala, H.**, Nalubega, M., 2010.Solar water disinfection – a promising technology for providing safe water for rural and peri-urban households in Uganda.The 3rd International perspectives on current and future state of water resources and the environment, organised by the Environmental and Water Resources Institute (EWRI) of the American Society of Civil Engineers (ASCE) and the Indian Institute of Technology (IIT) Madras, held between 5-7 January 2010 in Chennai, India.

Herbert Mpagi Kalibbala, 2012. Removal of natural organic matter and trihalomethanes formation control in water treatment. Royal Institute of Technology (KTH), Stockholm.TRITA LWR PhD Thesis 1064.

Herbert Mpagi Kalibbala,. 2007. Application of indigenous materials in drinking water treatment. Licentiate thesis 2036, Land and Water Resources Engineering Department, KTH, Stockholm, Sweden. ISBN 978-91-7283-565-76.

Herbert Mpagi Kalibbala, 2002. An investigation into the importance and efficiency of constructed wetlands in stripping pollutants from industrial wastewater – Case of Uganda Breweries Limited. Unpublished MSc. Dissertation, Makerere University, Kampala, Uganda.

Language Skills (indicate only languages in which you can work):

	Speaking	Writing	Reading
English	Excellent	Excellent	Excellent
Luganda	Mother tongue	Excellent	Excellent

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team	Reference to Prior Work Best Illustrating Capability to Handle Assigned Tasks
List all deliverables / tasks as in TECH 5 in which the expert will be involved	Involved in feasibility studies, environmental and social impact assessments various project assignments including ▪ Preliminary Technical Evaluation of Masindi and Hoima National Water and Sewerage Corporation (NWSC) Sewerage Treatment Plants by Tullow Uganda Operations PTY Ltd ▪ Natural & Environmental Survey for the Preparatory Survey on Ayago Hydropower Project ▪ Design of sewage collection network, sewage treatment plant, water supply system and road network for Lubowa-80 Housing Estate. ▪ Environmental and Social Impact Assessment (ESIA) for the proposed Omuka-An exploration well located in West Nile, Nebbi District. ▪ Environmental and Social Impact Assessment (ESIA) for the proposed Ondyek-A exploration well located in West Nile, Nebbi District ▪ Environmental and Social Impact Assessment (ESIA) for the proposed Riwu-A exploration well located in West Nile, Nebbi District ▪ Environmental Impact Assessment for proposed Ngege Field appraisal ▪ Isimba hydropower project and associated 132 kV transmission line. ▪ EIA, RAP and SIA for the dam flood area and a 42km 132 kV transmission line. EIA assessed construction, operation and decommissioning impacts. ▪ EIA and Resettlement Action Plan (RAP) for proposed a 227.7 km 132 kV high voltage transmission line from Hoima-Fort Portal-Mpute-Nkenda in Kasese as part of the Early (oil) Production Scheme (EPS) by Tullow Oil and Uganda Government. ▪ Position held –Wa ▪ EIA and resettlement action plan (RAP) for proposed Kalangala Infrastructure Project (main Island Road, 2 ferry landings, solar thermal electricity plant, town water supply system.

Expert's contact Information: email: h.kalibbala@awe-engineers.com phone: +256772496451

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Dr. Herbert Kalibbala Mpagi

Name of expert	*Signature*	*Date (dd/mm/year)*

Name of authorized Representative of Consultant	*Signature*	*Date(dd/mm/year)*

CV: Sociologist- TASHOBYA K. PAMELA: MSc(Dev.Mgt, Norway), BA Env.Mgt (MAK).

1. **Qualification:** Sociologist Development Specialist
2. **Name of Firm:** AIR WATER EARTH (U) LTD
3. **Physical Address:** AWE Environmental Engineers.
M1, Plot 27 Binayomba Road
P.O.Box 22428, Kamplala, Uganda
Tel:+256-41-4268466
Mobile: 0701-500974/ 0702515917
p.kwolekwa@awe-engineers.com
pkwolekwa@yahoo.com
www.awe-engineers.com
4. **Name of Staff:** TASHOBYA K. PAMELA
5. **Date of Birth:** 1 Jun 1978 **Nationality:** Ugandan
6. **Education:**
   2005-2007: MSc (Development Management), Agder University College-Norway.
   1998-2002: Bachelor of Arts (Hons.) Environmental Management- Makerere University.

Areas of Practice:

- Social Impact Assessment
- Establishing baseline socio-economic conditions
- Environmental Impact Assessment
- Waste Management
- Public and Occupational Risk Assessment
- Resettlement Action Plan (RAP)
- Hydropower
- GIS
- Strategic Environmental Assessment
- Solid waste

7. **Membership in Professional Societies:**

- Uganda Association for Impact Assessment (UAIA)
- NEMA-registered & certified Environmental Impact Assessment Practitioner

8. **Other Training:**

2012: Certificate in Management of Land Acquisition, Resettlement and Rehabilitation by World Bank
2010: Certificate in World Bank Environmental and Social Safeguards
2004: Certificate in Computer Applications, Makerere University Institute of Computer Science.

9. **Countries of Work Experience:** Uganda

10. **Languages:**

	Speaking	Writing	Reading
English	Excellent	Excellent	Excellent
Norsk	Good	Good	Good
Luganda	Good	Good	Good
Runyankole	Mother tongue	Excellent	Excellent

11. **Employment Record:**

- From 2007 to date
  Employer: *Air Water Earth (AWE)*
  Position Held: Social-Development Specialist

- From 2007
  Employer: *Health Nel Consult*

RN

Position Held: Research Assistant responsible for collecting/analysing social/health insurance (SHI) data in Uganda.

- From 2003 to 2005 July

Employer: *Air Water Earth (AWE)*
Position Held: Support Environmental Consultant

12. Work Undertaken that Best Illustrates capability to handle the Tasks Assigned

Name of assignment or project:	Environmental Audit Quality Chemical Industries.
Year:	2014- ongoing
Location:	Luzira Industrial Park, Kampala.
Client:	Quality Chemical Industries Limited.
Main project features:	In compliance with national regulatory requirement, Quality Chemical Industries Limited commissioned this audit to verify improvements in its environmental performance since previous 2012 audit.
Positions held:	Lead Sociologist
Activities performed:	Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment or project:	Environmental and Social Assessment for proposed Smart Business Hotel on Plot 31-35 Bombo Road Kampala
Year:	2014- ongoing
Location:	Kampala Uganda
Client:	Africa Youth Empowerment LTD
Main project features:	Africa Youth Empowerment LTD proposes to construct SMART Business Hotel a 106 room hotel on Plot 31-35 Bombo Road, Kampala. The development will be a 4-star business hotel ideal for middle income customers traveling to Uganda on business, tourism or visiting family.
Positions held:	Lead Sociologist
Activities performed:	Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.
Activities performed:	Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment or project:	Environmental Audit of Kampala Capital City Authority (KCCA) Landfill at Kiteezi.
Year:	April 2013
Location:	Kiteezi, near Mpererwe in Wakiso District
Client:	Kampala Capital City Authority (KCCA)
Main project features:	In compliance with national regulatory requirement, KCCA commissioned this audit to verify improvements in its environmental performance since previous 2010 audit.
Positions held:	Lead Sociologist
Activities performed:	Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment or project:	Resettlement Action Plan (RAP) for Kyenjojo-Hoima-Masindi-Kigumba 230 km road upgrade to bituminous standards.
Year:	May 2013- Jan 2014 (with AfDB, World Bank requirements updates)
Location:	Uganda.
Client:	Uganda National Roads Authority (UNRA)

RN

Main project features:	World Bank funded 100 km Kyenjojo-Kabwoya section while AfDB funded the rest of the road. The RAP study involved undertaking a census of affected persons, property surveys, social profile survey of 30% of affected persons, identification of vulnerable people, and development of entitlements, development of grievance redress mechanisms and PAPs and stakeholder consultation to meet both AfDB and World Bank Safeguard Standards.
Positions held:	Lead Sociologist
Activities performed:	Participated in census and social surveys, project disclosure, stakeholder engagement socio-environmental impact analyses, and report development.

Name of assignment:	Muzizi hydropower project and associated 180 kV transmission line.
Year:	2012-ongoing
Location:	Districts of Kibaale, Kabarole and Kyenjojo
Client:	Uganda Electricity Generation Company Limited (UEGCL)
Main project features:	The assignment involved preparing an EIA, RAP and SIA for the dam flood area and a 5 km 180 kV transmission line. EIA assessed construction, operation and decommissioning impacts.
Position held:	RAP Specialist
Activities performed:	Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment or project:	Environmental and Social Impact Assessment for five proposed exploration wells located in West Nile, Nebbi District. The five wells are Omuka-A, Ondyek-A, Alwala-A, Riwu-A and Okuma-A.
Year:	2012
Location:	Nebbi District
Client:	Total Exploration & Production Uganda (TEPU)
Main project features:	Total Exploration & Production Uganda to undertake Oil exploration and production in Nebbi District.
Positions held:	Sociologist
Activities performed:	I Participated in project disclosure, baseline site survey and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment: project:	Resettlement Policy Framework and Environmental and Social Management Framework for Uganda Support for Municipal Infrastructural Development (USMID) for MoLHUD.
Year:	2012
Location:	Uganda
Client:	Ministry of Lands Housing and Urban Development, (MoLHUD)
Main project features:	The assignment involved revision of the existing Resettlement policy Framework and Environmental and Social Management Framework for USMID in 14 selected Municipalities.
Positions held:	RAP Specialist
Activities performed:	I Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment or project:	Environmental Impact Assessment for Proposed Brew house Expansion Project.
Year:	2011
Location:	Uganda
Client:	Uganda Breweries Limited, (UBL)
Main project features:	The project is aimed at positioning UBL brewhouse to deliver 1.5 million hl/year up from 0.9millionhl/year. This uplift will be realized in the next 2-3 years. All expansion works will mainly occur in the brewhouse. The existing lautertun will be replaced by a mash filter, backed with a newcereal cooker and whirlpooland a new dry goods stream that will produce 10brews/dayup from the current 6 brews/day. Additional beer storage capacity in terms of 2 dual purpose vessels and 4 bright beer tanks associated cooling, dearation and separation

LE

RN

	equipment will also be added.
Positions held:	Socio-development consultant
Activities performed:	I Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment or project:	Environmental Audit for Sadolin paints.
Year:	2011
Location:	Uganda
Client:	Sadolin Paints (U) Limited
Main project features:	This audit was commissioned by SADOLIN management so as to remedy non-compliance issues identified by NEMA following inspection of the factory on 31st July 2009.
Positions held:	Sociologist
Activities performed:	I Participated in reviewing environmental regulations and development of abatement recommendations. I also Participated in taking Noise and Air measurements of the project site, project disclosure and stakeholder consultation. Socio-environment impact analyses and report development.

Name of assignment or project:	Environmental Audit of Namanve Thermal Power Plant (NTPP)
Year:	2011
Location:	Plot 630, Namanve
Client:	Jacobsen Uganda Power Plant Co. Ltd (JUPPCL)
Main project features:	Built and operated by JUPPCL, Namanve Thermal Power Plant (NTPP) was commissioned on 15th September 2008. The plant consists of seven (7 No.) Wärtsilä 18/V32 engines, each producing 7.3 MW, hence a maximum total of 50 MW. The seven engines run on low sulphur heavy fuel oil (HFO) and consume about 260 tons per day at full plant capacity. This fuel is stored on site in two principal storage tanks, each of 2000 m3 capacity. Power generated is fed into the national grid through a UETCL substation east of the plant. The audit focused on OHS, stack emissions/air quality, noise, vibration, odour, waste management, fire safety and fuel spill risks.
Positions held:	Sociologist
Activities performed:	I Participated in reviewing environmental regulations and development of abatement recommendations. I also Participated in taking Noise and Air measurements of the project site, project disclosure and stakeholder consultation, Socio-environment impact analyses and report development.

Name of assignment:	*Environmental Impact Assessment for proposed Ngege Field appraisal*
Audit Year:	2011
Location:	Masindi and Buliisa Districts
Client:	Tullow Uganda Operations PTY LTD (Tullow)
Main project features:	Tullow planned to undertake appraisal drilling and well-testing in Ngege Field located in Exploration Area 2 in Ngege Field split between Buliisa and Masindi Districts and covering an area of 121 km². Almost half of this field lay in Murchison Falls National Park (in Masindi District).
Position held:	Sociologist
Activities performed:	I participated in project disclosure, stakeholder engagement, field surveys, socio-environment impact analysis and report development.

Name of assignment or project:	Environmental & Social Impact Assessment of the Proposed Catering Facility in Buliisa District.
Year:	2011
Location:	Uganda
Client:	Lake Albert Catering & Camp Logistics Company Ltd
Main project features:	The client plans to develop a catering and training facility in Buliisa District, Kigwera Sub-county, Kisansya Parish, Bikongoro Village on an area of about 21 acres. This facility will be a greenfield (or "virgin site") development and first activities will include ground preparation, fencing, and construction of drainage and access roads. The project will also include; Construction of accommodation for over 400 persons, medical facility, waste handling

RN

	facilities and warehouses.
Positions held:	Sociologist
Activities performed:	I Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, and report development.

Name of assignment or project:	Environmental Audit for Century Bottling Co. Ltd (CBCL), Namanve Plant.
Year:	2011
Location:	Uganda
Client:	Century Bottling Company Ltd
Main project features:	This audit was based on intrusive facility inspection and measurements to establish facility performance in regard to air quality, noise, OHS, wastewater, trade waste management, facilities operation and general compliance with environmental regulatory requirements.
Positions held:	Sociologist
Activities performed.	I Participated in taking Noise and Air measurements of the project site, project disclosure and stakeholder consultation. Socio-environment impact analyses and report development.

Name of assignment or project:	Environmental Audit of Namanve Thermal Power Plant (NTPP)
Year:	2011
Location:	Uganda
Client:	Jacobsen Uganda Power Plant Co. Ltd (JUPPCL)
Main project features:	Built and operated by Jacobsen Uganda Power Plant Co. Ltd., Namanve Thermal Power Plant (NTPP) was commissioned on 15th September 2008. It consists of 7 Wärtsilä 18/V32 engines, each rated at 7.3 MW. The seven engines run on low sulphur HFO and consume about 260 tons per day at full plant capacity. This fuel is stored on site in two main storage tanks, each of 2000 m3 capacity. Power generated by this plant is fed into the national grid through an adjacent UETCL substation.
Positions held:	Sociologist
Activities performed:	I Participated in taking Noise and Air measurements of the project site, project disclosure and stakeholder consultation. Socio-environment impact analyses and report development.

Name of assignment or project:	Environmental & Social Impact Assessment (ESIA) of proposed paint factory at Namanve.
Year:	2011
Location:	Uganda
Client:	Sadolin Paints (U) Ltd
Main project features:	The Client intends to relocate its factory currently located in rented premises on Plot 8, 2nd Street of Kampala Industrial Area in Kampala City to a new site adjoining Kampala Industrial & Business Park (KIBP) also called "Namanve Industrial Park". Relocation will entail plant disassembly, transportation and closure of the existing factory premises. Other than moving the factory to a new location, no change in production from current levels is planned. Staffing levels are also planned to remain unchanged. Currently the plant, employing 250 people produces 18 million cubic meters (or 18000 million litres) of paint per year
Positions held:	Socio-development consultant
Activities performed:	I Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment or project:	Environmental & Social Impact Assessment and RAP for the Proposed Isimba Transmission Line
Year:	2011
Location:	Uganda

Client:	Uganda Electricity Transmission Company Ltd (UETCL)
Main project features:	The assignment involved preparing an EIA for a line route that traversed a wide range of ecosystems and population centers. EIA assesses construction, operation and decommissioning impacts. I managed preparation of the Resettlement Action Plan (RAP) of the project-affected people along the line route.
Positions held:	Lead Sociologist
Activities performed:	The assignment involved preparing an SIA for a line route that traversed a wide range of ecosystems and population centers. SIA assesses construction, operation and decommissioning impacts. I managed preparation of the Resettlement Action Plan (RAP) of the affected people along the line route

---

Name of assignment:	Environmental and social impact assessment for rehabilitation of Kyotera-Mutukula road (Client: Uganda National Roads Authority).
Year:	2011
Location:	Rakai District
Client:	Uganda National Roads Authority, UNRA
Main project features:	Rehabilitation of the road by replacing pavement along existing route.
Position held:	Sociologist

Name of assignment or project:	Environmental & Social Impact Assessment and RAP for the Proposed Karuma Interconnecting Project.
Year:	2011
Location:	Uganda
Client:	Uganda Electricity Transmission Company Ltd (UETCL)
Main project features:	The assignment involved preparing an EIA for a line route that traversed a wide range of ecosystems and population centers. EIA assesses construction, operation and decommissioning impacts. I managed preparation of the Resettlement Action Plan (RAP) of the project-affected people along the line route.
Positions held:	Lead Sociologist
Activities performed:	The assignment involved preparing an SIA for a line route that traversed a wide range of ecosystems and population centers. SIA assesses construction, operation and decommissioning impacts. I managed preparation of the Resettlement Action Plan (RAP) of the affected people along the line route

---

Name of assignment or project:	Community Impact and Environmental Review for Kaweri Coffee Plantation under NKG in Mubende Distr ict
Year:	2010
Location:	Uganda, Mubende District
Client:	Neumann Kaffee Gruppe (NKG)
Main project features:	The study was to carry out a community impact and environmental review of the Kaweri Coffee Plantation so as to get a clear understanding of the communities around the plantation, and outline the impacts (both positive and negative) associated with the plantation by the local communities; the study also entailed review of the plantation's current environmental performance and outline suggestions for potential improvements.
Positions held:	Sociologist
Activities performed:	I was responsible for stakeholder consultation, social impact analysis, communities assessments, development of mitigation recommendation and report writing.

Name of assignment or project:	Environmental & Social Impact Statement (ESIS) and RAP of Proposed Upgrading Rukungiri–Kihihi–Kanungu/ Ishasha Road to Bituminous Standards.
Year:	2010
Location:	Uganda
Client:	Uganda National Roads Authority.
Main project features:	The assignment involved preparing an EIA and SIA for (Rukungiri-Ishash-Kihihi-Kanungu road). The 238km road passes through a wide range of area and population centers. EIA assesses the

likely impacts of the affected population along proposed road to be constructed. And preparation of the Resettlement Action Plan (RAP) for project-affected people along the proposed Road.

Positions held: Lead Sociologist

Activities performed: I was responsible for establishing occupational health & safety impacts, stakeholder consultation, construction & operation phase-impacts analysis development of mitigation recommendations.

Name of assignment: Environmental and Social Impact Assessment for the renovation/construction and equipping of health Facilities.

Year: Jan 2010 to April 2010

Location: Uganda

Client: Ministry Of Health on behalf of the Government of Uganda

Main project features: The client intends to improve physical functionality of existing healthcare infrastructure, strengthen planning, human resources and strengthen management of health facilities in 23 districts so as to deliver the Uganda National Minimum Health Care Package (UNMHCP).

Positions held: Support Social/development consultant

Activities performed: Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment: *Environmental & social impact assessment for a proposed Office block in Entebbe*

Year: 2010

Location: Uganda

Client: UN MONUC

Main project features: The client intends to construct a more permanent office complex with a car-parking for 1500 vehicles to support existing semi-permanent facilities at MONUC Entebbe Support Base. The existing ESB base is characterised by large tents and porta-cabins. The proposed entire site size lies on land measuring 450,000 square meters (45 Hectares); the foot print in relation to the site size is approximately 25%. This will include the car parks, and other facilities with exception of the road networks. The office complex buildings will consist of four floors, that is; a) a basement b) ground floor c) two floors. The site will be landscaped using environmentally sensitive approaches.

Positions held: Support Social/development consultant

Activities performed: Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment: *Environmental audit for eight exploration and appraisal well sites (Mputa-1, -2, -3, -4; Nzizi-1, -2; Waraga-1) and a Drill Support Camp.*

Year: 2009

Location: Uganda (Kaiso area, Hoima District)

Client: Tullow Uganda Operations PTY LTD

Main project features: The audit was commissioned by TUOP in November 2009 to establish status of environmental compliance of past operations; and where applicable, to determine the nature and extent of remedial measures necessary to avoid environmental and public health risks at decommissioned oil and gas exploration and appraisal well-sites with associated drill support camp. It also entailed assessing success of revegetation decommissioned at projects sites.

Position held: Support Sociologist

Activities performed: I participated in project disclosure and consultation.

Name of assignment: *Environmental & social impact assessment for a proposed Chromated Copper Arsenate (CCA) pole treatment plant and Kara Sawmill on Plots 79-83 Industrial Estate Road, Jinja.*

Year: 2009

Location: Uganda

RN

Client:	BUSOGA FORESTRY COMPANY LIMITED (subsidiary of *Green Resources, As-Norway*)
Main project features:	The proponent sought to construct and operate a treatment plant that would use *vacuum pressure impregnation* technique to treat transmission poles and timber using CCA wood preservative. A small stationary Kara sawmill will also be installed and operated on site. The plant would have capacity to treat forty 10-meter poles per charge or eighteen 13-meter poles, an equivalent to annual output of about 30,000 poles.
Positions held:	Support Social/development consultant
Activities performed:	Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment:	*Environmental & social impact assessment for 4 proposed MTN regional switching centers in Mbuya, Tororo, Masindi and Mbarara.*
Year:	2008
Location: Uganda	
Client:	MTN UGANDA
Main project features:	In order to meet the requirement for additional switching capability following rapid and continuous growth in subscribers and traffic on its network, MTN Uganda sought to construct a four new Regional Switching Centre (RSC) to house equipment that enable local switching of voice traffic originating and terminating in respective regions. This would enable MTN realise savings in transmission costs then being incurred in routing and switching such traffic in Kampala and routing it back to these regions.
Positions held:	Support Social/development consultant
Activities performed:	Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment:	*Environmental & social impact assessment for proposed optical fibre loop in Kampala City.*
Year:	2008
Location: Uganda	
Client:	WARID TELECOM UGANDA LIMITED
Main project features:	WARID Telecom Uganda Limited proposed to lay and operate an optical fibre loop to connect its main headquarters to other telecommunication companies' switching centres in Kampala. The 14-km optical fibre cable would connect Warid Headquarters to Crane Bank, Warid Customer Centre on Jinja Road, MTN Uganda Switching Centre in Mbuya, Zain Uganda Switching Centre and finally back to Warid Headquarters.
Positions held:	Support Social/development consultant
Activities performed:	Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment:	*EIA for proposed leather tannery in Kyaggwe, Lugazi, Mukono District.*
Year:	2008
Location: Uganda	
Client:	HOOPOE Trading Limited
Main project features:	The assignment involved preparing an EIA for a leather tanning facility with capacity of 32,000 hides and skins per day purchased from local butcheries and hide and skin traders. It would process 5.0 million square feet (46 hectares) of hides per year comprising high quality hides and skins of wet blue, crust and finished leather. Project development would entail construction of buildings, offices, residential houses, installation of machinery and a wastewater treatment and disposal facility.
Positions held:	Support Social/development consultant
Activities performed:	Participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.

Name of assignment:	*EIA and RAP for proposed a 227.7 km 132 kV high voltage transmission line from Hoima-Fort Portal-Mputa-Nkenda in Kasese as part of the Early (oil) Production Scheme (EPS) by Tullow Oil and Uganda Government.*
Year:	2008
Location: Uganda	
Client:	Uganda Electricity Transmission Company Limited

RN

Main project features: The assignment involved preparing an EIA for a line route that traversed a wide range of ecosystems and population centers. EIA assesses construction, operation and decommissioning impacts. I managed preparation of the Resettlement Action Plan (RAP) for 1514 project-affected people along the line route.
Positions held: Support Social/development consultant
Activities performed: Participated in impact analyses for EIA and social-economic data analysis for resettlement action plan (RAP).

Name of assignment: *EIA for proposed Kenya-Uganda oil pipeline.*
Year: 2008
Location: Transboundary (Kenya-Uganda)
Client: Tamoil (work performed under Nutek-Kenya and *Arch Design*-Uganda)

Main project features: The project entailed construction and operation of a 352 km, 250 mm diameter welded subsurface steel oil pipe between Eldoret (Kenya) and Kampala (Uganda).
Position held: Support Social/development consultant
Activities performed: Supported social team in social-environmental impact analyses.

Name of assignment: *EIA for proposed sorghum growing project and biofuels refinery in Kayunga.*
Year: 2007
Location: Uganda
Client: *Client: JN International LTD*
Main project features: The assignment entailed undertaking a detailed social-environmental impact study (ESIA) that would be submitted to NEMA for approval and multilateral banks for funding. The project aimed to construct and operate a refinery for production of different types of ethanol, most of which to be blended with diesel fuel (biofuel). A nucleus farm was to be managed to produce 40-50% of the required sorghum and corn while the rest of the crop would be bought from outgrowers in local communities. The EIA established environmental-social economic baseline, analysed policy, legal and institutional framework, identified, characterised and evaluated potential impacts. Mitigation and enhancement measures and environmental and social management plan (ESMP) were developed to ensure sustained regulatory compliance during project's operation phase.
Positions held: Support Social/development consultant
Activities performed: Supported social team in social-environmental impact analyses, gender analysis.

Name of assignment: *EIA and Resettlement Action Plan for proposed Kasese Airport Development Project (KADP).*
Year: 2007
Location: Uganda
Client: *Civil aviation Authority (CAA-Uganda).*

Main project features: Kasese Airport Development Project sought to upgrade existing airstrip to an international airport that would serve the rift valley region including Rwanda, Congo, Tanzania and Kenya. The EIA aimed to analyze construction and operation-phase impacts of the airport including developing a resettlement action plan (RAP) for the 126 homesteads that would be relocated. The project will involve extensive earthworks to level the runway, quarrying to obtain stone and gravel for stabilizing the site.
Positions held: Support Social/development consultant
Activities performed: Participated in impact analyses for EIA and social-economic data analysis for the resettlement action plan (RAP).

Name of assignment: *EIA for proposed 50MW Solar-Thermal Plant at Namugoga and a 132 kV evacuation transmission line to Mutundwe Sub-station.*
Year: 2007
Location: Uganda
Client: Energy Systems for Africa.

RN

Main project features:	The study aimed to assess social environmental impact of constructing and operating a 50MW hybrid solar-thermal power plant and high-tension power lines to evacuate electricity from the plant to a substation.
Positions held:	Support Social/development consultant
Activities performed:	I took part in determining baseline environmental and socio-economic, construction-phase impacts occupational safety, report writeup, developing mitigation recommendations.

Name of assignment:	*Environmental impact assessment and Ecological Audit for Bihanga-Katerera Road, Bushenyi District.*
Year:	2005
Location: Uganda	
Client:	Ministry of Works, Housing & Communications
Main project features:	The project involved construction of a road with carriage width of 4.5 meters, 12 km of which passed through Kashoha-Kitomi Forest Reserve, one of the most ecologically sensitive forest reserves in Uganda. EIA consultants analyzed water in 13 streams crossing the proposed road to establish baseline water quality. The consultants also investigated potential impacts such as road kill of forest fauna during operation phase, soil and water contamination by oil, sediment and lime, air pollution from local dust and noise, road accidents, roadside litter, alteration of hydrological regimes of forest reserve, soil erosion and disruption of forest ecosystems. Indirect impacts investigated included induced development, gender imbalances in induced economic activity, increased illegal exploitation of the forest reserve, solid waste management and spread of, especially, sexually transmitted infections.
Positions held:	Support Social/environmental consultant
Activities performed:	Impact prediction and analysis, development of mitigation recommendations, EMP development and report writing.

Name of assignment:	*EIA and Socio-economic Impact Assessment for selected infrastructure in 13 AAMP Districts in Western Uganda.*
Year:	2005
Location: Uganda	
Client:	Ministry of Local Government
Main project features:	The project aimed to redevelop 56 community roads, 13 markets, 2 valley tanks and 1 bridge under the *Rural Infrastructure Development* component of the *Area-based Agricultural Modernization Program* (AAMP). Covering 13 districts in Western Uganda, the study encountered a wide diversity of environmental and socio-economic challenges demanding mitigation measures from multidisciplinary disciplines of engineering, social and natural sciences.
Positions held:	Support Social/environmental consultant
Activities performed:	Participated in assaying social and environmental baselines, prediction and analysis of construction-phase and operation-phase impact, stakeholder consultation, development of mitigation recommendations and report writing.

Name of assignment:	*EIA and Socio-economic Impact Assessment of installation of traffic lights (signaling) and pavement geometry improvement at 5 roundabouts (Clock Tower, Shop-rite, Kalwe-Mengo, Jinja Road and Africana Roundabouts) in Kampala City.*
Year:	2004
Location: Uganda	
Client:	Ministry of Works, Housing & Communications
Main project features:	The study aimed to improve city traffic flow and pavement geometry of several urban roads.
Positions held:	Support Social/environmental consultant
Activities performed:	I supported a multi disciplinary team and was specifically responsible for establishing baseline social-environmental conditions around proposed sites, analyzing social-related traffic impacts (accident risk assessment, travel time, economic value of traffic flow impairment) and developing requisite mitigation recommendations.

RN

13. Certification:

I, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications and my experience.

Curriculum Vitae (CV)

Position Title	Hydrologist	
Name of expert	Dr Henry Kayondo Ntale	
Date of birth	6th March 1967	
Country of citizenship / residence	Uganda	

Education:

Institution	Degree(s) or Diploma(s) obtained	Date obtained
University of Alberta, Edmonton, Canada	PhD Water Resources Engineering	2001
University of Dar es Salaam, Tanzania	MSc Water Resources Engineering	1993
Makerere University, Kampala	BSc Civil Engineering	1990

Specialised Training:

Specifics of the Training	Institution organising the training	Date Conducted
Training Workshop on Conflict Resolution and Negotiation Skills, Speke Resort Munyonyo,	USAID and the Directorate of Water Development (DWD)	27th February – 1st March 2002
Executive Development Programme on Effective Management, Jinja	Makerere University Business School, Kampala Uganda	28th – 30th March 2002
Dam Safety Course	Norwegian Water Resources and Energy Administration (NVE), Oslo, Norway	15th – 19th September 2003
Capacity Building and Policy development in E-learning in Higher Education	Faculty of Technology, Policy and Management, Delft University of Technology. Netherlands	3rd – 29th April 2002

Membership in professional associations and publications

Professional Association	Type of membership	Date Admitted
Uganda Institution of Professional Engineers (UIPE)	Corporate member (PE 320)	10th July 1996
Engineers' Registration Board (ERB)	Registered Engineer (No 522)	21st April 2004

Previous Consulting assignments

Reference to prior work consulting assignments	
Name of assignment or project:	**Individual consultancy to Develop Synthesised paper on Water for Food Security and Energy in Africa**
Year:	05/12/2014 – 31/1/2015
Location:	Uganda
Client:	Global Water Partnership – Eastern Africa
Main project features:	The main objective of this short-term assignment is to help GWP Eastern Africa to prepare a summarized paper on the theme "Water for food security and energy" that will be presented by African Ministers Council on Water (AMCOW) during the 7th World Water Forum in Korea in April 2015.
Positions held:	Individual Consultant: Water Resources Policy Expert
Activities to be performed:	Document the ongoing interventions, initiatives and best practices for dealing with issues of " Water for food security and energy" in Africa sub Region; Propose short and long term actionable strategies and recommendations for dealing with issues of " Water for food security and energy" in Africa; Prepare a synthesized report highlighting Facts and Figures focusing on " Water- food- energy- nexus " in Africa sub Region; Support and facilitate the organization of Regional multi-stakeholders workshop to review and discuss the paper on " Water for food security and energy"

LE

RN

Reference to prior work consulting assignments	
Name of assignment or project:	**Dam Safety Panel Of Experts (DSPOE), Nile Basin cooperation for results project – NELSAP component**
Year:	01/07/2014 – 30/06/2016
Location:	Kagera Basin (Rwanda, Burundi, Tanzania and Uganda)
Client:	Nile Equatorial Lakes Subsidiary Action Program (NELSAP)
Main project features:	NELSAP is about to undertake feasibility studies for 8 multipurpose dams projects in the Kagera basin. The **Dam Safety Panel Of Experts** will support the NELSAP in the preparation of the above projects by providing advice on the quality of the studies
Positions held:	On a retainer basis, Hydrology Expert, member of the **Dam Safety Panel Of Experts**
Activities to be performed:	To review and advise NELSAP on matters related to dam safety and other critical aspects of the eight proposed dams
Name of assignment or project:	**The GCP/INT/166/SWI "Strengthening Agricultural Water Efficiency and Productivity on the African and Global Level"**
Year:	June 2014 – July 2014
Location:	Uganda
Client:	Food and Agricultural Organization of the United Nations (FAO)
Main project features:	The GCP/INT/166/SWI "Strengthening Agricultural Water Efficiency and Productivity on the African and Global Level" has the aim of improving AWM practices and mainstreaming AWM in national agricultural strategies
Positions held:	National Consultant Water Resource Management – Rapid Water Accounting
Activities performed:	(1) Conduct a rapid assessment of the status of Uganda's water resources (both conventional and non-conventional); water demand (from all sectors); variability of flows; water quality; and the socio-economic, political and institutional factors influencing access to water and (2) Conduct a water balance analysis at major basin level for the country..
Name of assignment or project:	**Hydrological investigation of Rivers Sindira, Ndugutu and Nyamughasani, Western Uganda for purposes of developing hydropower schemes on them**
Year:	June 2014 – August 2014
Location:	Western Uganda
Client:	KMR Infrastructure
Main project features:	The project focused on the feasibility studies for the Hydropower site identified on River Sindira, Ndugutu and Nyamughasani in Western Uganda.
Positions held:	Hydrologist
Activities performed:	Assessed the hydropower sites' discharge patterns, including their low and high flows.
Name of assignment or project:	**Water Management and Development Project: Consulting services for Design Review, Feasibility study, Detailed engineering Designs and Construction Supervision for the Small Towns Lot 1 (Pallisa, Busia, Ngora-Nyero-Kumi)**
Year:	April 2014 – April 2015
Location:	Eastern Uganda, Uganda
Client:	Ministry of Water and Environment
Main project features:	Water provision and management project for the respective towns.
Positions held:	Hydrologist with M&E consultants
Activities performed:	Provided Hydrology support to the project, in particular the Water Resources assessment of the water supply sources.
Name of assignment or project:	**Hydrological investigation of River Siroko, Eastern Uganda for purposes of developing a hydropower scheme on the river**
Year:	December 2013 – January 2014
Location:	Sironko District, Uganda
Client:	Eco Power Holdings Limited (EPHL)
Main project features:	The project focused on the feasibility studies for the Hydropower site identifies on River Siroko, in Sironko District, Eastern Uganda.
Positions held:	Hydrologist
Activities performed:	Assessed the hydropower site discharge patterns, including its low and high flows.

Reference to prior work consulting assignments	
Name of assignment or project:	**Review and Update of the Engineering designs of Roads (9.2km) Junctions (6no.) and Nalukolongo Drainage System (8km) on the Kampala Institutional And Infrastructure Development Project (KIIDP - 2), Credit No.4367-UG**
Year:	June – November 2013
Location:	Kampala, Uganda
Client:	Kampala Capital City Authority
Main project features:	The project focused on the design review and redesigning, where necessary, of various infrastructures in Kampala Capital City namely (a) Upgrading 9.2 km of roads including dualling, upgrading to dual carriageway standard and reconstruction; (b) Upgrading 6 junctions by remodelling the flow patterns, signalization, pavement upgrade / reconstruction and (c) Upgrading 8 km of Nalukolongo primary and secondary drains by improving flow capacity through channel expansion, realignment, lining and capacity expansion of road crossings.
Positions held:	Principal Drainage Engineer with PEC Engineers
Activities performed:	Performed all the Hydrological investigations, analysis and drainage designs for the project.
Name of assignment or project:	**Feasibility Study, Detailed Engineering Design and Tendering Documentation for Water Supply and Sanitation Systems for Barr RGC**
Year:	Feb 2013 – Jun 2013
Location:	Barr Sub-County, Lira District, Uganda
Client:	Ministry of Water and Environment
Main project features:	Water provision project for Bar Sub County
Positions held:	Hydrologist with Warner Associates
Activities performed:	Hydrological Investigation
Name of assignment or project:	**2013 GIZ Uganda Water Program review**
Year:	April – May 2013
Location:	Kampala, Uganda
Client:	GIZ
Main project features:	As required by GIZ processes, we carried out a Project progress review and appraisal for preparation of the commission for a follow-on measure of the Reform of the Urban Water and Sanitation Sector Programme (RUWASS). RUWASS is a GIZ support program to the Water Sector, Government of Uganda.
Positions held:	Water Resources Consultant
Activities performed:	Program review of the GIZ support to the Directorate of Water Resources Management and Department of Meteorology
Name of assignment or project:	**Hydrological Investigation of River Kanyampara, Western Uganda for purposes of developing a hydropower scheme on the river**
Year:	October – December 2012
Location:	Kasese District, Uganda
Client:	Eco Power Holdings Limited (EPHL)
Main project features:	The project focused on the pre-feasibility studies for the Hydropower site identified on River Kanyampara, Western Uganda
Positions held:	Hydrologist
Activities performed:	Hydrological investigation
Name of assignment or project:	**Water Balance study for the River Ruizi**
Year:	October 2012
Location:	Mbarara, Uganda
Client:	SABMiller / Nile Breweries Limited
Main project features:	Nile Breweries Ltd commissioned this study to better understand how adequate the Ruizi Catchment flows are given that they anticipated to commission a new brewery in Mbarara using the Ruizi as their raw water source while at the same time the Ruizi is the water source for NWSC – Mbarara as well.
Positions held:	Hydrologist / Water Resources Engineer
Activities performed:	Water Balance for the Ruizi catchment

Reference to prior work consulting assignments	
Name of assignment or project:	**Detailed Identification Study of Potential Large dams in the Kagera River basin**
Year:	Jan 2012 –November 2012
Location:	Kagera basin (Rwanda, Burundi, Uganda)
Client:	Nile Equatorial Lakes Subsidiary Action Program (NELSAP)
Main project features:	The overall objective of this study was to undertake detailed identification studies for nine potential large dam sites within the Kagera Basin and prepare produce Initial Environmental and Social Evaluation (IESE) report as well as technical reports on nine sites in Kagera River Basin spread in the three partner states of Burundi, Rwanda and Uganda.
Positions held:	Principal Consultant
Activities performed:	All the Water Resources assessment for the selected nine sites.
Name of assignment or project:	**GIZ programme appraisal mission for the new proposal "The African Water Stewardship Initiative – Catalysing collective action for climate resilient water management"**
Year:	August 2012 – October 2012
Location:	Uganda, Zambia, Botswana, Kenya and Tanzania
Client:	GIZ
Main project features:	The Proposal focussed on the improvement of the sustainable management of water resources at the watershed level, promoted by the collective action between the public sector, private sector and civil society, thereby increasing the adaptability of all user groups to climate change
Positions held:	Regional Consultant
Activities performed:	Program review of the new proposed GIZ program
Name of assignment or project:	**Flood and Drainage Assessment for the Kyagalanyi Plot, Namanve Industrial Park**
Year:	June 2012
Location:	Namanve, Uganda
Client:	M&E; Developer: Kyagalanyi Coffee Ltd.
Main project features:	Client wanted to know the 100yr flood level line at his property site in the Industrial park so as to design his structures appropriately
Positions held:	Hydrologist
Activities performed:	Hydrology investigations and analysis
Name of assignment or project:	**Assessment of the River Ruizi 100-year flood and associated flood line for the Mbarara Nile Brewery Project area**
Year:	April 2012
Location:	Uganda
Client:	Aurecon-Uganda/ Nile Breweries
Main project features:	Client wanted to know the 100yr flood level line at his property site so as to design his structures appropriately
Positions held:	Hydrologist
Activities performed:	Hydrology investigations and analysis
Name of assignment or project:	**Additional hydrological studies to support the final engineering design and construction for the 14 MW hydropower project**
Year:	February 2012 – May 2012
Location:	Uganda
Client:	Africa EMS Nyamwamba Ltd.
Main project features:	Typical Mini-Hydropower scheme
Positions held:	Hydrologist
Activities performed:	Installation of relevant Hydrometric stations. Periodic monitoring, data collection and complete assessment and interpretation.
Name of assignment or project:	**Review of the Hydrology designs for the Design And Build Contract - Upgrading Of Mbarara-Kikagati-Murongo Bridge Road To Paved (Bitumen) Standards**
Year:	August 2012
Location:	Uganda
Client:	M&E / Multiplan consulting engineers
Main project features:	The drainage review aimed at assessing different aspects of the Design Consultant's Hydrological and Hydraulics Studies. The specific objectives of this review were to: a) Review the appropriateness of the Design Consultant's methodology and assumptions; b) Review the sizing of the drainage facilities and c) Review the drainage design drawings
Positions held:	Hydrologist
Activities performed:	Hydrology assessments

Reference to prior work consulting assignments	
Name of assignment or project:	**Consultancy services for the assessment and mapping of water use in Lake Victoria basin (Lot 1) Ref No: MWE/SRVCS/08-09/00489**
Year:	April 2011 – April 2012
Location:	Uganda
Client:	Ministry of Water and Environment
Main project features:	The Directorate of Water Resources Management (DWRM) initiated this consultancy to establish the current water use in each river catchment for various economic activities i.e. for hydropower development, agriculture, industrial, water supplies etc. and also to establish the existing water demand against the available resource.
Positions held:	Water Resources Engineer and Team leader
Activities performed:	Water Resources Assessments, Team management and coordination
Name of assignment or project:	**Rehabilitation of the Arua NWSC water works**
Year:	June 2011
Location:	Uganda
Client:	M&E
Main project features:	Advisory services on how to increase the capacity of the Arua NWSC plant.
Positions held:	Hydrologist
Activities performed:	Situational Water Resources Assessment
Name of assignment or project:	**Hydrological investigation of R. Rulmi and R. Lubilia, Western Uganda for purposes of developing a hydropower scheme on the rivers**
Year:	February – March 2011
Location:	Uganda
Client:	VS-Hydro
Main project features:	The project focused on the feasibility studies for the Hydropower sites identified on the respective Rivers
Positions held:	Hydrologist
Activities performed:	Hydrological investigation
Name of assignment or project:	**Consultancy services for Feasibility Study, Detailed design and construction supervision of the Expanded Water Supply System for Rukungiri, Katwe-Kabatooro, Lyantonde**
Year:	December 2010 – February 2011
Location:	Uganda
Client:	Directorate of Water Development
Main project features:	Water Supply scheme designs
Positions held:	Hydrologist (with M&E)
Activities performed:	Hydrology investigations and analysis; water source identification
Name of assignment or project:	**Consultancy services for Feasibility Study, Detailed design and construction supervision of the Expanded Water Supply System for Budaka and Busia**
Year:	December 2010 – February 2011
Location:	Uganda
Client:	Directorate of Water Development
Main project features:	Water Supply scheme designs
Positions held:	Hydrologist (with M&E)
Activities performed:	Hydrology investigations and analysis; water source identification
Name of assignment or project:	**Rapid identification and assessment of potential sites for multi-purpose storage reservoirs in the Kagera River Basin**
Year:	October 2010 to January 2011
Location:	Kigali, Rwanda
Client:	Nile Equatorial Lakes Subsidiary Action Program (NELSAP)
Main project features:	Assessment of potential sites for multi-purpose water storage in the Kagera Basin
Positions held:	Principal Consultant
Activities performed:	Water Resources Assessments

Reference to prior work consulting assignments	
Name of assignment or project:	**Preparation of Knowledge Products and Project Completion Report (PCR) for the project on "Support to the Creation of the Volta Basin Authority"**
Year:	July –August 2010
Location:	Tunis, Ouagadougou and Accra
Client:	African Development Bank (AfDB)
Main project features:	Support to the creation of the River Basin Organisation (RBO) for the River Volta
Positions held:	Consultant
Activities performed:	Interviews. Process evaluation, preparation of the Project Completion Report for the Volta project, Documentation of Key project interventions and results.
Name of assignment or project:	**Pre-feasibility studies for the development of multi-purpose storage reservoirs in the Sio-Malaba-Malakisi river catchment**
Year:	February 2010 – August 2010
Location:	Uganda, Kenya
Client:	Nile Equatorial Lakes Subsidiary Action Program (NELSAP)
Main project features:	Development of multi-purpose storage reservoirs in the Sio-Malaba-Malakisi river catchment
Positions held:	Water Resources Engineer/Planner – Team Leader.
Activities performed:	Water Resources Assessments, Team management and coordination
Name of assignment or project:	**Hydrological Investigation of R. Nyamwamba, Western Uganda for purposes of developing a hydropower scheme on the river**
Year:	April 2010
Location:	Uganda
Client:	VS-Hydro
Main project features:	The project focused on the pre-feasibility studies for the Hydropower site identified on the River
Positions held:	Hydrologist
Activities performed:	Hydrological investigation
Name of assignment or project:	**Consultancy services for developing a feasible and cost effective plan for rehabilitation and maintenance of 99 Dams and valley tanks in the selected districts of the water stressed areas of Uganda**
Year:	August 2009 to November 2009
Location:	Uganda
Client:	Directorate of Water Development
Main project features:	Rehabilitation and maintenance of 99 Dams and valley tanks in the selected districts of the water stressed areas of Uganda
Positions held:	Hydrologist with Warner Consultants
Activities performed:	Hydrology Analysis
Name of assignment or project:	**Preparation of the State of Environment Report,**
Year:	August 2011
Location:	Uganda
Client:	NEMA
Activities performed:	Reviewed the Freshwater and Wetlands Chapter of the SoE
Name of assignment or project:	**Joint Mid-term Review of the Joint Water and Sanitation Sector Programme Support (JWSSPS)**
Year:	December 2009
Location:	Ministry of Water and Environment
Client:	NEMA
Position	Water for Production Expert, in Association with NIRAS and We-Consults
Activities performed:	Reviewed the water for Production subsector component of the JWSSPS
Name of assignment or project:	**Preparation of the State of Environment Report,**
Year:	August 2008
Location:	Uganda
Client:	NEMA
Activities performed:	Prepared the Freshwater and Wetlands Chapter of the SoE

Reference to prior work consulting assignments	
Name of assignment or project:	**Preparation of a Draft Paper for AFRA,**
Year:	October, 2007
Location:	Vienna, Austria
Client:	International Atomic Energy Agency (IAEA)
Activities performed:	Prepared a draft paper on the strategic directions and interventions in the thematic area of Water Resources for the African Regional co-operative Agreement for research, development and training related to nuclear science and technology
Name of assignment or project:	**Second Africa Environment Outlook report (AEO-2).**
Year:	Nov 2004 -Jan 2005
Location:	Uganda, Kenya
Client:	NEMA/UNEP
Activities performed:	On request of National Environment Management Authority (NEMA), I was part of the team that prepared the Freshwater and Wetlands write-up for Eastern Africa, as part of the second Africa Environment Outlook report (AEO-2).
Name of assignment or project:	**Assessment of R. Lwakhakha Water Resources for Lwakhakha and Tororo Gravity flow scheme – Eastern Uganda**
Year:	July 2009
Location:	Uganda
Client:	Directorate of Water Development
Main project features:	Water Supply scheme designs
Positions held:	Hydrologist (with M&E)
Activities performed:	Hydrology investigations and analysis; water source identification
Name of assignment or project:	**Rehabilitation of 66 bridges in Northern Uganda**
Year:	Nov 2002 to June 2003
Location:	Uganda
Client:	Ministry of Works Housing and Communication
Main project features:	The overall objective of this study was to enable the Financier, the Arab Bank for Economic Development in Africa (BADEA) to appraise the proposed rehabilitation program of 66 bridges in Northern Uganda. The consultant made preliminary assessment and recommendations regarding the hydrology and hydraulics of the selected bridge/culvert sites.
Positions held:	Hydrologist (with Arab Consulting Engineers)
Activities performed:	Field visit to all the sites plus the subsequent hydraulic and Hydrology analysis for the sites
Name of assignment or project:	**Upgrading of the Olwiyo –Packwach Road**
Year:	Nov 2002 to March 2003
Location:	Uganda
Client:	Ministry of Works Housing and Communication
Main project features:	Upgrading of a murrum road to Bitumen class road.
Positions held:	Hydrologist/Drainage Engineer with Prome Consultants
Activities performed:	Reviewed the drainage designs for the 62km road.

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the assignment
2007 - date	**Vala Associates Ltd** Senior partner and managing director **For references:** Dorothy. Kayondo, T:+256-753-807525, E: info@vala.biz	Uganda	• Overall management of the company's activities as its Managing Director • Responsible for quality assuring all the Water Resources assessment studies undertaken by the company. • Identifies sub-consultants for various consultancy assignments for the company.
Jun 2007 - Dec 2008	**GTZ project "Cooperation among River Basins in Africa"** Project coordinator **For references:** Dr. Thomas Schild Transboundary Water Managament in SADC	Uganda but with Africa-wide operations	• Provided technical support to the Africa Transboundary Basin Organisations as well as the African Ministers' Council on Water

LE

RN

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the assignment
Jul 2005 - May 2007	Fairgrounds, Plot 50362, Private Bag X12 (Village) Gaborone, Botswana T +267 310 2520 e-mail: thomas.schild@giz.de **On secondment to the German Technical Cooperation (Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH)** Integrated Water Resources Management (IWRM) Specialist **For references:** Dr. Thomas Schild Transboundary Water Management in SADC Fairgrounds, Plot 50362,Private Bag X12 (Village) Gaborone, Botswana T +267 310 2520 e-mail: thomas.schild@giz.de	Uganda but with Africa-wide operations	• Technical Support to the African Ministers Council on Water (AMCOW)
Nov 2004 - May 2007	**African Ministers' Council on Water (AMCOW)** Head of the Support Office of the President and Chairperson of the Technical Advisory Committee of AMCOW **For references:** Hon. Minister Maria Mutagamba, past president of AMCOW, Ex-Minister of Water and Environment, and now Minister of Tourism and Wildlife, Republic of Uganda – Tel. 256 414 504621	Uganda but with Africa-wide operations	• Provided the AMCOW President with the necessary support to run the affairs of the AMCOW institution including the preparation of reports and documentation • Coordinated the preparation and costing of the AMCOW work-program 2007-2009 and subsequently to the leveraging of €2.6m from the EU commission to fund the work program. (July 2005 – Jan 2006) • Coordinated the collation and eventual submission of AMCOW's technical input to the African Development Bank (AfDB) towards the further refinement of the procedures of the African Water Facility (Dec 2006 – May 2007) • Initiated dialogue among African River and Lake basins by coordinating the arrangement of two meetings of the executive heads of River and Lake basins in the continent (June 2005 and October 2006). • Coordinated the technical input from AMCOW in preparation for its engagement with the United Nations Secretary General Advisory Board on Water Supply and Sanitation (UNSGAB), Dec 2006 • Arranged the first ever Business – Water Partnership Forum in Uganda during which delegates from the International Business Community, GTZ, World Economic Forum and representatives from Uganda government and public enterprises met in Munyonyo, Uganda 26th – 27th May 2005 to brainstorm on how the Business community could contribute on the achievement of the Water related Millennium Development Goals (MDGs) in Africa (May. 2006) • As Uganda's AMCOW TAC member, together with German experts, I co-authored the Concept Proposal document for the German G8-NEPAD Transboundary initiative on "Strengthening the Capacity of Water Management in Africa through the Co-operation among River Basin Organisations Cooperation". I led the process of consultations on the proposal among other TAC members from other African Governments. I presented the proposal to the General Council of African Ministers of Water who eventually adopted it. The German Government subsequently commissioned the Project in April 2005. • Served on the Steering committee of the Africa – TIGER initiative. TIGER is an

RN

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the assignment
			initiative by the European Space Agency aiming at assisting African countries to improve the deficiencies and lacks in the collection, analysis and dissemination of water related geo-information by using Earth Observations (EO) from space. (July 2005 – May 2007) • Member of the Task Force to set up the African NEPAD Centres of Excellence in Water Sciences and Technology.
Jan 2003 – May 2007	**Department of Water Resources, Ministry of Water, Lands and Environment** Assistant Commissioner-Water Resources – Water Resources Assessment Division. **For references:** Directorate of Water Resources Management P.O. Box 19, Entebbe	Uganda	In charge of monitoring and assessment of Surface and Ground water as well as transboundary water resources of Uganda. Aside from the routine tasks of supervising 47 technical and professional staff involved in the monitoring of water resources, I was privileged to carry out the following tasks: • Coordinated the compilation of a portfolio of priority Water Infrastructure Projects for Eastern Africa for eventual submission to the Pan African Conference on Water (PANAFCON) Dec, 2003. • Representative of Uganda to the FRIEND/Nile Project Steering Committee • Member of the Uganda Delegation negotiating the Nile River Basin Cooperative Framework. Elected to serve as Rapporteur for the 4th Negotiation Committee Meeting. Sept. 2004 and 6th Negotiation Committee, May 2nd –6th 2005. • Chairperson of the Water for Production Thematic Working group; a team created to discuss and advise on policy relating to water use in irrigation, livestock needs, aquaculture and rural industries in Uganda. Oct 2004 - June 2005 • Uganda's representative to the Steering Committee of the Applied Training Project under the Nile Basin Initiative. Shared Vision Program. Ten Nile basin countries are participating in the NBI project in order to bring about sustainable socio-economic development through the equitable utilization of the common Nile Basin water resources. Feb 2003 – June 2005 • Uganda's representative to the Steering Committee of the Regional Power Interconnection project under the Nile Equatorial Lakes Subsidiary Action Projects (NELSAP). July 2004 – June 2005 • Chairman, Water Resources Sub Committee on the Egypt – Uganda Aquatic Weed removal project on Lake Kyoga. Mar 2003 – June 2005
May 2002 – Jan 2003	**Institute of Computer Science, Makerere University** Deputy Director (Ag) **For references:** Office of the Dean, **School of Computing and Informatics Technology (CIT),** Makerere University, P.O.Box 7062, Kampala, Uganda Telephone: +256-414-540628/534560/9	Uganda	- Provided Academic leadership

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the assignment
Feb 1994 – Jan 2003	**Faculty of Technology, Makerere University** Lecturer, Dept. of Civil Engineering **For references:** Deputy Vice Chancellor (Prof. Barnabas Nawangwe) Makerere University P.O.Box 7062, Kampala, Uganda Telephone: +256772366430 Email: nawangwe@tech.mak.ac.ug	Uganda	• Responsible for both hydraulics and hydrology courses at postgraduate and undergraduate levels. • Supervised student dissertations in a variety of water resources research (for both final year undergraduate and postgraduate students).
Sep 1996 - Jun 2001	**University of Alberta, Canada** PhD Commonwealth scholar **For references:** Professor Thian Gan University of Alberta 3-033 Markin/CNRL Natural Resources Engineering Facility Edmonton, Alberta, Canada T6G 2W2 Phone: (780) 492-9376 E-mail: tgan@ualberta.ca	Canada	• Title of Research: "Analysis and prediction of droughts in East Africa"
Sep 2000 – Jun 2001	**University of Alberta, Edmonton, Canada** Graduate assistant / Research fellow **For references:** Professor Thian Gan University of Alberta 3-033 Markin/CNRL Natural Resources Engineering Facility Edmonton, Alberta, Canada T6G 2W2 Phone: (780) 492-9376 E-mail: tgan@ualberta.ca	Canada	• Assisted with the delivery of the Hydrology course to final year Civil Engineering students of the University of Alberta.
Jan 1995 – Feb 1995	**Gatsby-Small scale enterprises project course titled "Plan Development, Blue print reading and Bills of quantities appraisal"** Resource Person (Lecturer) **For references:** Assoc. Prof. J.K. Byaruhanga Director, Uganda Gatsby Trust Tel: 0772-647364 Email: gatsby@tech.mak.ac.ug	Uganda	• Handled the aspect of development and integration of plans of various kinds.
Jul 1993 – May 1994	**WaterAid, a British charity organization whose objective is to provide safe water to rural communities** Engineer with WaterAid **For references:** WaterAid Uganda Plot 90, Luthuli Avenue, Bugolobi, P.O. Box 11759 Kampala, Tel: +256- 414 -505795/7, Email: wauganda@waterald.org,	Uganda	• Monitored and evaluated the Mbale and Rukungiri Spring protection programs. • Headed a task force which tested the water quality, established yields and gauged the workmanship and maintenance of more than 300 springs. • Obtained their geographical positioning using GPS units. • Started up a database of the springs for the NGO. • Acted as project Engineer for the Kabarole Hand dug shallow well program. • Surveyed, designed and supervised the construction of a gravity water supply scheme for Rusese Parish (13 Km. pipe length). • Setting up of the local community based organizations (local water committees) which eventually took over the ownership of the Water supply scheme
Sep 1991 – May 1993	**University of Dar es Salaam** UNESCO – ANSTI Scholar	Tanzania	• Undertook graduate courses in hydraulics and hydrology.

Period	Employing organization and your title/position. Contact information for references	Country	Summary of activities performed relevant to the assignment
	For references: Prof. Felix Mtalo University Dar es Salaam Department of Water Resources Engineering P. O. Box 35 131, Dar es Salaam, Tanzania E-mail: felix.mtalo@iwmnet.eu Phone (office): +255 2 22 41 07 52		• Carried out a technical audit of Ubungo waste stabilization ponds.
Jun 1990 – Sep 1991	**Dept. of Civil Engineering, Faculty of Technology** Teaching assistant **For references:** Deputy Vice Chancellor (Prof. Barnabas Nawangwe) Makerere University P.O.Box 7062, Kampala, Uganda Telephone: +256772366430 Email: nawangwe@tech.mak.ac.ug	Uganda	• Handling Public Health Engineering I for third year years

Language skills (indicate only languages in which you can work):

Language	Reading	Speaking	Writing
English	Excellent	Excellent	Excellent
Luganda	Excellent	Excellent	Excellent
Swahili	Good	Good	Good
French	Good	Fair	Fair

Graduate theses I have supervised.

Type of Degree	Student
MSc and MEng Degrees	1. Kizza, Michael, 2003. "Regional Flood Frequency Analysis for Northern Uganda". Master of Science in Civil Engineering Dissertation, Faculty of Technology, Makerere University. 2. Ronald, Ekyalimpa, 2006. Simulation of a Flood for a potential Dam Break – case study of Nalubaale Dam. Master of Science in Civil Engineering Dissertation, Faculty of Technology, Makerere University. 3. Januarius, T. Bagahamuhunda, 2007. "Constraints on Domestic Roof Water Harvesting Uptake for water stressed areas of Kabale District. Master of Engineering Dissertation, Faculty of Technology, Makerere University. 4. Benjamin Ssekamuli, 2007. "Drought Analysis In Uganda". Master of Science in Civil Engineering Dissertation, Faculty of Technology, Makerere University.
PhD Degree	1. Kizza, Michael, 2012. "Uncertainty Assessment in Water Balance Modelling for Lake Victoria

Publications

Peer Reviewed Publications

Ntale, H. K., (2001). *The analysis and prediction of droughts in East Africa*, PhD dissertation, University of Alberta, Edmonton, 178p.

Ntale, H. K., and Gan, T.Y., Mwale, D., (2003). Prediction of East African Seasonal Rainfall Using Canonical Correlation Analysis, *J. of Climate*, 16(12), p. 2105-2112.

Ntale, H. K., and Gan, T.Y., (2003). Drought indices and their application to East Africa, *International J. of Climatology*, Vol 23 (11), p. 1335-1357

Ntale, H. K., and Gan, T.Y., (2004). East African Rainfall Anomaly Patterns in Association with El Niño/Southern Oscillation, *J. Hydrologic Eng., ASCE*, Vol 9, (4), pp. 257-268

Kizza, M., Rodhe A., Xu C., **Ntale, H. K.**, Halldin, S., (2009) "Temporal rainfall variability in the Lake Victoria Basin in East Africa during the Twentieth Century. *Theoretical Applied Climatology*, Vol. 98 (1) pp.119-135

Kizza, M., Rodhe, A., Xu, C.-Y. and **Ntale, H.K.**, (2011). Modelling catchment inflows into Lake Victoria: Uncertainties in rain-runoff modelling for Nzoia River. *Hydrological Sciences Journal*, 56(7): 1210-1226.

Kizza, M., Westerberg, I., Rodhe, A. and **Ntale, H. K.**, (2012). Estimating areal rainfall over Lake Victoria and its basin using ground-based and satellite data. *Journal of Hydrology*, Vol. 464–465, 25 September 2012, pp. 401–411.

Kizza, M., Guerrero J.-L., Rodhe, A., Xu C.-Y., and **Ntale H. K.**, (2012). Modelling catchment inflows into Lake Victoria: Regionalisation of the parameters of a conceptual water balance model, *Hydrology Research*, IWA Publishing, doi:10.2166/nh.2012.152

LE

Conference Publications:

Ntale, H. K. (1995)"The Use of GPS System In The Water Sector", *Proceedings, 21st WEDC International Conference* held in Sept. 95, Kampala, pp.142 -143

Ntale, H. K. (1996) "Lake Kyoga, The Nile Green Lake that is dying unnoticed." *Proceedings, IVth Nile 2002 conference* held Feb. 96, Kampala.

Ntale, H. K. (1996) "The potential of Rain Harvesting in the Suburbs of Uganda". *Proceedings, First African Regional Congress of the IAHR*, Suncity, South Africa

Ntale H. K., and Gan, Y. T. **(1999)**. Prediction of seasonal drought in Eastern Africa using Canonical Correlation Analysis (CCA) and Projection Pursuit Regression (PPR). *Eighth Conference on Climate Variations, American Meteorological Society*, Denver, Colorado, pp. 184 – 188.

Ntale, H. K., and Gan, T. Y., **(2002)**. " ENSO impacts on the moisture regime of the Upper Nile countries of Uganda, Kenya and Tanzania.." *Proceedings, 9th Nile 2002 conference* held 7th-9th October, Mbagathi, Nairobi, Kenya.

Ntale, H. K., and Nyakaana, M., August **(2003)**. "Improving The Quality Of Harvested Rainwater By Using First Flush Interceptors/Retainer", in the *11th International Rainwater Catchment Systems* Texcoco, Mexico.

Ntale, H.K., Naturinda, D. N., Rubarenzya, M. H. and Kasingye, K. **(2005)** "The Rainwater Harvesting Strategy for Uganda", *Proceedings, 31st WEDC international Conference* held Oct. 2005, Kampala.

Kizza M., **Ntale H.K.**, Rugumayo A., Kigobe M. **(2006)**. Regional Flood Frequency Analysis for Northern Uganda, International Conference on Advances In Engineering And Technology, Entebbe, Uganda

Kizza, M., Rhode A., C-Xu, **Ntale H. K.**, and Halldin S., **(2009)**. "Modelling of catchment flows into Lake Victoria: Uncertainties in rain-runoff modelling for Nzoia River". European Geosciences Union (EGU) General Assembly.

Kizza, M., Westerberg, A., Ntale, H.K. and Rhode, A. **(2011)** Estimating Areal Rainfall over the Lake Victoria and its Basin using Ground-based and Satellite Data. Advances in Engineering and Technology, Contribution of Scientific Research in Development. Held at Imperial Resort Beach Hotel, Entebbe, Uganda, January 30 – February 1, 2011.

Referees:

No. 1 Eng. Dr. Charles Wana-Elyem Warner Consultants Ltd. Susie House, 1st Floor Ggaba Road, Nsambya P. O. Box 16225, Kampala, Uganda Tel. +256-414-267071 Mob. +256-772746952	No. 2 Professor Jackson Mwakali, Department of Civil Engineering, Faculty of Technology, Makerere Univ. P. O. Box 7062, Kampala, Uganda Mobile No. 256-772-420502 Email: mwakali@tech.mak.ac.ug
No. 3 Dr. Thomas Schild Transboundary Water Management in SADC Fairgrounds, Plot 50362,Private Bag X12 (Village) Gaborone, Botswana T +267 310 2520 e-mail: thomas.schild@giz.de	

Expert's contact information: (email, phone)

Tel: +256-(702/776/751)-746384

Email: hntale@gmail.com; hntale@vala.biz

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification, dismissal and/or sanctions by the Client.

Dr Henry K. Ntale *Date:* **Thursday, 15 January 2015**

CV-6: Water & Wastewater Specialist - KABENGE Isa, PhD

Position	Water and Wastewater Specialist
Name of Expert	KABENGE Isa
Date of Birth	11-September-1974
Country of citizenship / Residence	Uganda

Education and key qualifications:

2008-	20011	Doctor of Philosophy-University of Nebraska, USA – Biological Systems Engineering
2000-	2001	Master of Agricultural Engineering – University of Pretoria, South Africa – Water and Wastewater Engineering.
2005-	2006	Postgraduate Diploma in Project Planning and Management - Uganda Management Institute.
1994-	1998	B.Sc. Eng. (Agric.) Upper Second Honors - Makerere University, Uganda– Soil and water engineering.

Employment record relevant to the assignment

Period	Employing organization and your title/ position. Contract info for references	country	Summary of activities performed relevant to the assignment
2002-Date	Organization Air Water Earth (AWE) Ltd Position Held Founder, COO and water and wastewater expert	Uganda	Technical Evaluation of Masindi and Holma National Water and Sewerage Corporation (NWSC) Sewerage Treatment Plants Position Held: GIS and Wastewater expert Activities performed Preparation of as-built drawings, design review, Wastewater sampling and preparation of reports.
			Natural & Environmental Survey for the Preparatory Survey on Ayago Hydropower Project in Nwoya district." Position Held : Project coordinator Activities performed Environmental Baseline Site Survey and Preparation of field reports
			Environmental and social impact assessment for West Nile Package Wells and Camp (Well sites Omuka-A, Riwu-A, Alwala-A, Okuma-A and Ondyek-A. Client: TOTAL E&P Uganda Position Held : Project coordinator Activities performed: Project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.
			Air quality modelling for change of engine fuel (from HFO to crude) for Jacobsen Uganda Power

Period	Employing organization and your tittle/ position. Contract info for references	country	Summary of activities performed relevant to the assignment
			Plant Co. Ltd (JUPPCL at Namanve Thermal Power Plant (NTPP). Position Held : Project coordinator Activities performed entailed: Emissions modelling, data analysis.
			Development of the National Climate Change Policy and Implementation strategy for Uganda Government (under MWLE)&Belgian Development Agency (BTC) Position Held : Project coordinator Activities performed: ▪ Review impacts of floods, landslides, droughts and other climate change episodes in Uganda during the last 30 years especially on infrastructure; ▪ Develop potential prototype designs that best respond to anticipated impacts of climate change including on highlands; ▪ Develop potential prototype designs that can form suitable emergency response measures under various conditions e.g. settlements, highlands, rivers, lakes, wetlands ▪ Identify key policy objectives and actions in natural resources, ecosystems and socio-economic sectors including constraints and gaps and possible intervention areas; ▪ Participate in thematic workshops to discuss specific issues as may be identified during the process; ▪ Prepare a report, clearly outlining background information on the area of responsibility, policy objectives and actions; ▪ Contribute to preparation of the climate change policy; ▪ Assist in development of a budgeted action plan and implementation strategy
			Programmatic Environmental Impact Assessment (PEA) of Energy Efficient Commercial and Residential Lighting Program s in Uganda. CDM programmes to reduce national energy demand for Cool nrg International Pty Ltd (Australia) Position Held : Project coordinator Activities performed: Team leadership including preparation of a national stakeholder consultation workshop, carbon reduction estimates and energy demand reductions.
			Environmental Audit of SADOLIN Paints (U) LTD factory, Kampala Industrial Area.

Period	Employing organization and your title/ position. Contract info for references	country	Summary of activities performed relevant to the assignment
			Position Held : Project coordinator **Activities performed entailed:** Led baseline air quality, noise levels and analysed impacts associated with plant operations, led report development and its quality assurance.
			Environmental Audit of Namanve Thermal Power Plant (NTPP) Jacobsen Uganda Power Plant Co. Ltd (JUPPCL) **Position Held** : Project coordinator **Activities performed entailed:** Led air quality surveys in the plant, noise levels and analysed impacts associated with plant operations, led report development and its quality assurance.
			ESIA for proposed Ngege Field appraisal for Tullow Uganda Operations PTY LTD. **Position Held** : Project coordinator **Activities performed entailed:** Led baseline air quality, noise levels and analysed impacts, led stakeholder engagement
			Initial Environmental Assessment (IEE) for Feasibility Study for Development of Pipelines and Storage Facilities for Crude Oil and Gas in Uganda. **Position Held** : Project coordinator **Activities performed:** Undertook initial environmental assessment (IEE) for the feasibility a study.
			Environmental Impact assessment for Expansion of Northern Bypass **Position Held** : Water/wastewater engineer **Activities performed:** Analysed the wetland hydrology and evaluated flooding risk. I was involved in social surveys, quality control and project planning and management.

Period	Employing organization and your tittle/ position. Contract info for references	country	Summary of activities performed relevant to the assignment
			Environmental impact assessment for Kalangala Infrastructure Project. **Position Held** : Water/wastewater engineer **Activities performed:** Water/wastewater engineer for the project responsible for environmental baseline documentation of the different projects' sites, impacts identification, characterization and ranking, mitigation measures development and developing of environmental and social monitoring plan with SMART indicators. I undertook social surveys, quality control and project planning and management.
			Environmental impact & risk assessment for proposed plant expansion works at Coca-Cola, Namanve bottling plant, **Position Held :** Water/wastewater engineer **Activities performed entailed:** Was responsible for prepare the EIA and RA reports for plant expansion works.
			Environmental & social impact assessment for a proposed chromated copper arsenate (cca) pole treatment plant and Kara sawmill on plots 79-83 Industrial Estate road, Jinja. **Position Held** : Water/wastewater engineer **Activities performed entailed:** Was water/ wastewater engineer responsible water samples collection for analysis, hydrological analysis, water demand and wastewater production evaluation, water contamination, appropriate mitigation measures development and quality control.
			Environmental & social impact assessment for the 4 proposed MTN regional switching Centres in Mbuya, Tororo, Masindi and Mbarara **Position Held** : Water/wastewater engineer **Activities performed entailed:** Led baseline air quality, noise levels and analysed impacts associated with plant operations, led report development and its quality assurance

Period	Employing organization and your tittle/ position. Contract info for references	country	Summary of activities performed relevant to the assignment
			Environmental Audit of Coca-Cola bottling plant, Namanve Industrial Area **Position Held** : Environmental engineer **Activities performed entailed:** Led baseline air quality, noise levels and analyzed impacts associated with plant operations, led report development and its quality assurance.
			Environmental & social impact assessment and resettlement action plan, RAP for proposed upgrade of Fort Portal-Kamwenge Road 66.2 km road- to bituminous standards. **Position Held:** Project Director **Activities performed entailed:** Led engineering, environmental, and social teams to collect additional baseline data, undertake more robust impact analyses, and engage additional key stakeholders and designing income restoration measures.
			Environmental & social impact assessment for proposed optical fibre loop in Kampala City for WARID TELECOM UGANDA LIMITED **Position Held:** Project Director **Activities performed entailed:** Team leadership, baseline assays, stakeholder consultation.
			Design of sewage collection network, sewage treatment plant, water supply system and road network for Lubowa-80 Housing Estate for National Housing & Construction Company LTD (NHCCL) **Position Held:** Water/ wastewater engineer **Activities performed entailed:** Led the design of lagoons and was responsible for technical and economic evaluation of lagoons against a package plant to advise on the best (technically and financially) sewage management option.
			Environmental impact assessment and design optimization for proposed Waste Stabilization Ponds (WSP) at school campus. **Position Held:** Water/ wastewater engineer **Activities performed entailed:** Environmental impact assessment and design optimization for proposed Waste Stabilization Ponds (WSP) at school campus.

Period	Employing organization and your title/ position. Contract info for references	country	Summary of activities performed relevant to the assignment
			EIA and Socio-economic Impact Assessment for selected Infrastructure in 13 AAMP Districts in Western Uganda for Ministry of Local Government **Position Held** : Water/ wastewater engineer **Activities performed:** Onsite water quality analysis, prediction of construction-phase and operation-phase impact and analysis, stakeholder consultation, development of mitigation recommendations, EMP development and report writing.

Membership in Professional Societies:

- Member American Society of Agricultural and Biological Engineers (ASABE).
- Graduate member, Uganda Institution of professional Engineers (UIPE).
- Student member, South African Institute of Agricultural Engineers (SAIAE).
- Graduate member, Water Institute of Southern Africa (WISA).
- Member of the Uganda Association for Impact Assessment (UAIA)
- NEMA-registered & certified Environmental Auditor.
- NEMA-registered & certified Environmental Impact Assessment Practitioner.

Adequacy for the assignment

Detailed Tasks assigned on Consultant's team of experts:	Reference to prior work/ assignments that best illustrates capability to handle the assigned Task
· Project Coordination and overall supervision/Team management · Quality Assurance · Report development and client liaison. · Impact characterization and determination of significance · Risk assessment and ranking	Dr. Isa kabenge has worked and studied on a number of water related projects. He holds a Ph.D. in Bio-Systems Engineering (University of Nebraska – Lincoln), a Master of Engineering (University of Pretoria, South Africa) and a B.Sc. (Hon) Eng. Degree in Agricultural Engineering of Makerere University. His masters training focused on water resources management, water & industrial wastewater engineering (design and optimization), Sanitation and project management. For his bachelor's degree, Dr.Kabenge specialized in Soil & Water Engineering. As part of his continuous carrier development, Isa has undertaken training in Action Monitoring for Effectiveness (AME): improving community based water supply and environmental sanitation projects/programmes, facilitated by NetWas International - Nairobi. In addition Mr. Kabenge has completed training in Planning and Management of Water and Sanitation Technologies for Low Income Communities a course offered by Uganda Management Institute in collaboration with WEDC, Loughborough University, UK. Isa has been trained in Environmental management Systems. Some relevant assignments demonstrating his suitability for this task include: • Acquiring excellent skills in conducting technical evaluation and performance optimization of water and wastewater handling and sanitation systems. • Was the water/wastewater engineer for the projects

RN LK

LK

TE

	responsible for environmental baseline documentation of the different projects' sites, wetlands impacts identification, characterization and ranking, mitigation measures development and developing of environmental and social monitoring plan with SMART Indicators. He analyzed the wetland hydrology and evaluated flooding risk. I was involved in social surveys, quality control and project planning and management.
List all deliverables/ tasks as in tech-5 in which the experts will be involved • Inception report • Draft ESIA report • Final ESIA report • Draft ESIA report • Final ESIA report	

Expert's contacts information **Email:** i.kabenge@awe-engineers.com
isakabenge@gmail.com **Phone:** +256772377172

	Speaking	Writing	Reading
English	Excellent	Excellent	Excellent
Luganda	Mother tongue	Excellent	Excellent
Swahili	Good	Good	Good

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

24/10/24

Dr. Isa **KABENGE**

Name of Expert [Signature] **Date**

Eng. Lammeck **KAJUBI**

Name of authorized Representative of the Consultant: [Signature] **Date**

CV-1: Musa Manga; Msc Eng (Env Eng), BSc Const. Mgt - Wastewater Specialist

1. Qualification: Wastewater Specialist
2. Name of firm: Air Water Earth (AWE) LTD
3. Address: M1, Plot 27 Binayomba Road
P.O Box 22428, Kamplala, Uganda
Tel: +256-41-4268466
Mobile: +256-702965158
musansubuga@yahoo.com/ musamanga@cedat.mak.ug
www.awe-engineers.com

3. Name of staff: Musa Manga
4. Date of birth: 08th February 1981 Nationality: Ugandan

5. Education and key qualifications:

	2011	**Awarded Best Student** MSc (Eng) Environmental Engineering and Project Management for 2010-2011 Academic year, School of Civil Engineering, University of Leeds, UK.
2010-	2011	Master of Engineering Science **(Distinction)** in Environmental Engineering and Project Management, University of Leeds, UK.
2006-	2009	BSc (Hons) Construction Management **(First Class Degree)**, Makerere University, Kampala, Uganda.
2001-	2003	Ordinary National Diploma in Architectural Design And Draughtsmanship (ADD), Uganda Technical College, Masaka, Uganda **(Credit Diploma)**
1999-	2000	Uganda Advanced Certificate of Education (UACE)
1995-	1998	Uganda Certificate of Education (UCE) **(First Grade)**

6. Areas of professional practice

a. Wastewater Engineering,
b. Sanitation Engineering
c. Water Engineering
d. Solid Waste Treatment and Management
e. Environment/social impact studies (ESIAs).
f. Environmental audits,
g. OHS audits,
h. Noise and Air pollution engineering,
i. Water Quality Management & pollution Control
j. Strategic environmental assessment;
k. Hazardous-waste management
l. Environmental impact of proposed projects, analyze scientific data, and perform quality-control checks.
m. Environmental regulations and policy
n. Project Management;
o. Public Health engineering;

RN

7. Key Experience profile:

Musa holds MSc Eng (Distinction) in Environmental Engineering and Project Management of the University of Leeds (School of Civil Engineering) - United Kingdom and a B.Sc. (First Class Honors) degree in Construction Management (Makerere University). Musa was awarded Best Student MSc (Eng) Environmental Engineering and project Management for 2010-2011 Academic year by the School of Civil Engineering, University of Leeds. He also merged as the Second Best Student BSc. Construction Management for 2006-2009 Academic year. Musa holds a Uganda National Ordinary Diploma (Credit) in Architectural Design and Draughtsmanship (ADD).

Musa has more than eight years professional experience in the field of Civil and Environmental/ Sanitation Engineering with experience covering the various facets of Civil/ Environmental and Building Construction, Project Procurement and Management including inception of civil and environment/ sanitation engineering projects: feasibility studies; designing, drafting and construction of various civil engineering projects which include buildings; water supply, distribution systems and treatment plants; sewerage systems and treatment plants; and low-cost sanitation technologies. He has been part of teams as a Sanitation/ Environmental engineer that have conducted a number of Environmental impact assessment and Environmental audit studies for the oil and gas industry, Hydropower sector, transmission lines, roads, landfills, water and wastewater treatment plants, which included preparation of Environmental Impact assessment and Environmental audit reports.

Musa has more than three years lecturing experience as an Assistant Lecturer in the Department of Construction Economics and Management, (College of Engineering, Design, Art& Technology) Makerere University and Apart-time Lecturer in the Department of Civil Engineering (Faculty of Engineering), Ndejje University. He lectures sanitation and environmental engineering related course units.

8. Membership in Professional Societies:

- NEMA Registered and Certified Environmental Impact Assessment (EIA) Practitioner
- Member, Uganda Association of Impact Assessment Practitioners (UAIA)
- Member, Chartered Institution of Water and Environmental Management (CIWEM) (Member No. 38095)

9. Countries of Work Experience: Uganda, Rwanda and Sudan

10. Languages:

	Speaking	Writing	Reading
English	Excellent	Excellent	Excellent
Luganda	Mother tongue	Excellent	Excellent
Swahili	Fair	Fair	Fair

11. Employment Record:

- From 2012 - To date

Employer: *Air Water Earth (AWE) Ltd, Civil and Environmental Engineering Consultants*
Position Held: Water, Sanitation, and Environmental Engineer

- From 2012 - To date

Employer: *Department of Construction Economics and Management, (College of Engineering, Design Art & Technology) Makerere University*
Position Held: Assistant Lecturer of Environmental Engineering, Construction Technology, Design and Measurement Appraisal, Construction Materials, Building Science, Construction Management .etc.

UG

RN

- From 2007 to 2011

Employer: M&E Associates Ltd Consulting Engineers
Position Held: Assistant Environmental Engineer

- From 2005 to 2007

Employer: Petrocity (U) Enterprise Ltd
Position Held: Technical/ Construction Manager.

- From 2003- 2004

Employer: Gepoka Associates Ltd, Architects & Consulting Engineers
Position Held: Architectural Assistant

12. Detailed Tasks Assigned:

- Design of water and wastewater projects.
- Environment/social impact studies (ESIAs).
- Environmental audits.
- Air pollution engineering.
- Solid waste management.
- Hazardous-waste management.
- Design of municipal and industrial water and wastewater treatment systems
- Environmental impacts of proposed projects, analyze scientific data, and perform quality-control checks.
- Environmental regulations and policy
- Team leadership, lead factory inspection and measurements, report quality assurance.
- Quality control of construction works and materials, including laboratory testing
- Carry out Project Management work including Preliminary Site and Soil investigation surveys,
- Carry out Building and Civil Engineering Designs; these including Water supply and distribution systems.

13. Selected Past Assignments:

Name of assignment:	*Design of sewage collection network, sewage treatment plant and water supply system for Naalya Pride Housing Estate.*
Year:	2014 - on going
Client:	National Housing & Construction Company LTD (NHCCL)
Main project features:	
	The assignment aims to design intra-estate water supply pipe network and sewerage system (collection and treatment plant). Lagoons are designed and evaluated against a package treatment plant for cost and technical feasibility.
Position held:	**Wastewater and Environmental engineer**
Activities performed	Design of lagoons, sewage collection network and water supply system. Participated in the technical and economic evaluation of lagoons against a package plant to advise on the best (technically and financially) sewage management option.

Name of assignment:	*Preliminary Technical Evaluation of Masindi and Hoima National Water and Sewerage Corporation (NWSC) Sewerage Treatment Plants*
Year:	2012 – 2013

RN

TE

LM

Location:	Hoima and Masindi District
Client:	Tullow Uganda Operations PTY Ltd
Main project features:	Tullow Uganda Operations PTY Ltd to undertake the preliminary technical evaluation of Masindi and Hoima NWSC Sewerage Treatment Plants before deciding to use them for treatment and disposal of its sewage, if they have capability (process capability and hydraulic capacity) to handle the anticipated additional sewage.
Position held:	**Water, Sanitation and Environmental Engineer**
Activities performed:	Preparation of as-built drawings, design review, Wastewater sampling and preparation of design reports

Name of assignment	*Environmental Audit of Kampala Capital City Authority (KCCA) Landfill at Kiteezi.*
Year:	2013
Location:	Kampala District, Uganda
Client:	*Kampala Capital City Authority (KCCA)*
Main project features:	The assignment involved description of the current physical, biological and socio-cultural conditions for Mpererwe landfill; review of previous Environmental Impact Assessments for the landfill; assessment of landfill compliance with, (i) National Environment Management Authority (NEMA) approval conditions and or applicable national standards and regulations; (ii) International Development Agency (IDA) safeguard policies, especially recommendations of the Environmental Impact Assessment (EIA) and mitigation measures in the Environmental & Social Management Plan (ESMP) as well as the World Bank Group Environmental Health & Safety (EHS) guidelines; and (iii) international good practice; assessment of the capacity of the landfill operator in effectively complying with environmental and social requirements for operating the landfill and capacity of KCCA to ensure landfill activities comply with environmental and social requirements; and development of an Environmental Compliance Improvement Plan for Mpererwe Sanitary landfill.
Position held:	**Water, Sanitation and Environmental Engineer**
Activities performed:	Participated in environmental and social baseline surveys, participated in stakeholder consultations, assessed environmental and social impacts, developed mitigation measures, developed environment compliance improvement plan and compilation of the final ESIA report.

Name of assignment:	*Environmental and Social Impact Assessment (ESIA) for Kingfisher-4 well in Kingfisher Discovery Area.*
Year:	2013
Location:	Hoima District, Uganda
Client:	CNOOC Uganda Ltd. (CUL)
Main project features:	The assignment sought to assess the environmental and social impacts and develop mitigation measures of drilling Kingfisher-4 well in the former Kingfisher-2 well pad. The extended-reach well project sought to use Synthetic Based Muds (with Shell Saraline 185V as the base fluid), the first of its kind in Uganda
Position held:	**Water, Sanitation and Environmental Engineer**

RN

Activities performed:	Participated in environmental and social baseline surveys, participated in stakeholder consultations, assessed environmental and social impacts, assessed project alternatives, developed mitigation measures, developed environment and social monitoring plan and compilation of the final ESIA report.
Name of assignment:	*Resettlement Policy Framework and Environmental and Social Management Framework for Kampala Institutional & Infrastructure Development Project (KIIDP).*
Year:	2013
Location:	Kampala District
Client:	Kampala Capital City Authority (KCCA)
Main project features:	The assignment involved development of a Resettlement Policy Framework (RPF) and Environmental and Social Management Framework (ESMF) for the proposed project components under KIIDP II to be implemented by KCCA
Position held:	**Water, Sanitation and Environmental Engineer**
Activities performed:	I coordinated project activities, participated in project disclosure and stakeholder consultation, socio-environmental impact analyses, report development.
Name of assignment:	*Environmental and Social Impact Assessment (ESIA) and RAP Scoping Report for Isimba Hydropower Dam Project.*
Year:	2011-2013
Location:	Districts of Kayunga, Kamuli and Buikwe.
Client:	Ministry of Energy and Mineral Development.
Main project features:	The Power Station will be located at Isimba, on Victoria Nile about 40 km downstream of Bujagali Power Station currently under construction, but upstream of Kalagala Falls. The dam will be constructed across River Nile with one part in Kayunga District (Left Bank) and another in Kamuli District (Right Bank). On the left bank part of the dam will be located in Nampanyi Sub-county while on the right bank it will lie in Bugumira and Kisozi Sub-counties. Isimba HPP will impound a reservoir 1-2 km wide extending 16 km upstream at Full Supply Level, which is considered to be at elevation 1057 meters above mean seal level. The substation associated with Isimba HPP shall be located on the western bank of the river.
Position held:	**Water, Sanitation and Environmental Engineer**
Activities performed:	Participated in the ESIS and RAP studies both field work and report development and its quality assurance. The ESIS and RAP study involved several specialists. I also led water quality measurement and analysis; Soil quality sampling, profiling and analysis; Air quality measurements, Noise and Vibration measurements, impact identification and assessment as well preparation of the ESIS. I also participated in analysis of impacts associated with power station operation.
Name of assignment:	*ESIA and RAP Studies for Proposed Muzizi Hydropower Project.*
Year:	2012 – 2013
Location:	Kyenjojo District, Kibaale District
Client:	Uganda Electricity Generation Company Limited

Main project features:	The dam will be constructed across River Muzizi with one part in Kyenjojo District and another in Kibaale District; will have a dam height of about 7 meters high with a length of 60 meters. Muzizi HPP will impound a reservoir ± 155,000 m³ in volume with a gross head of approximately 455m, a tailrace canal of about 160 m and installed capacity of 40-60 MW.
Position held:	**Water, Sanitation and Environmental Engineer**
Activities performed:	Participated in the ESIS and RAP studies both field work and report development and its quality assurance. The ESIS and RAP study involved several specialists. I also led water quality measurement and analysis; Soil quality sampling, profiling and analysis; Air quality measurements, Noise and Vibration measurements impact identification and assessment and preparation of the ESIS. Participated in analysis of impacts associated with power station operation
Name of assignment:	*"Natural & Environmental Survey for the Preparatory Survey on Ayago Hydropower Project."*
Year.	2012 -2013
Location:	Nebbi District
Client:	Uganda Electricity Generation Company Limited (UEGCL)
Main project features:	The main objectives were to conduct; a) physical environment baseline surveys which included air quality, Noise and Vibration, Water quality, Transportation, and Natural disaster; b) Biological environment baseline surveys which included Plant, Mammal, Bird, Reptile/ Amphibian, Insect and Fish survey; c) Brief environmental survey along the access road and transmission line.
Position held:	**Water, Sanitation and Environmental Engineer**
Activities performed:	I led the monthly Water quality measurements and analysis; Soil quality sampling, profiling and analysis, Air quality measurements, Noise and Vibration measurements; and Preparation of monthly field reports.
Name of assignment:	*Environmental and Social Impact Assessment (ESIA) for the proposed Omuka-A, Ondyek-A, Riwu-A, Alwala-A and Okuma-A and Pakech camp exploration well located in West Nile, Nebbi District.*
Year:	2012
Location:	Nebbi District
Client:	Total Exploration & Production Uganda (TEPU)
Main project features:	Total Exploration & Production Uganda to undertake Oil exploration and production in Nebbi district
Position held:	**Water, Sanitation and Environmental Engineer**
Activities performed:	Participated in environmental and social baseline surveys (ie. Water quality measurements and analysis; Soil quality sampling, profiling and analysis, Air quality measurements, Noise and Vibration measurements), participated in stakeholder consultations, assessed environmental and social impacts, assessed project alternatives, developed mitigation measures, developed environment and social monitoring plan and compilation of the final ESIA report.
Name of assignment:	*Environmental noise monitoring for Mpyo-1 drill pad*
Year:	2012

Location:	Bulisa District
Client.	Total Exploration & Production Uganda (TEPU)
Main project features:	Total Exploration & Production Uganda is required to undertake Environmental Noise levels during well testing of all its wells.
Position held.	Environmental Engineer
Activities performed.	Noise measurement and report writing

Name of assignment	*Design and Construction of Kampala Integrated Environment Management Project (KIEMP)*
Year:	2008 - 2010
Location:	Kampala
Client:	Kampala City Council Local Government
Main project features:	It involved construction of 2km of paved asphalt access roads, 13000 square metres of Drainage channels, 32 No. water stand posts, 35 No. VIP Toilets and Laying 3Km water mains
Position held:	**Assistant Environmental Engineer**
Activities performed:	Prepared construction drawings, Construction Supervision, Quantification and Certification of completed works.

Name of assignment.	*Design review of Tororo Railways Gravity Flow Scheme*
Year:	2009 - 2010
Location:	Tororo District.
Client:	Directorate of Water Development (DWD), Ministry of Water and Environment.
Main project features:	Technical designs involved design of a river intake, water treatment plant with capacity of 1170m3/day, 49Km of pipeline, storage facilities, and Sanitation systems.
Position held:	**Assistant Environmental Engineer**
Activities performed	Participated in preparation of designs, tender documents, drawings and site supervision.

Name of assignment:	*Design Review of Mayuge Town Water Supply System*
Year.	2010
Location.	Mayuge
Client:	Directorate of Water Development (DWD), Ministry of Water and Environment.
Main project features:	Prepared a detailed design that involved 2.2Km pumping main, 16Km transmission main, and 14.5 Km distribution pipe work, storage reservoirs, pumping station
Position held:	**Assistant Environmental Engineer**
Activities performed:	Construction Supervision, Quantification and Certification of completed works,

Name of assignment:	*Feasibility Studies, Detailed Designs and Construction Supervision of Butaleja-Busolwe, Tirinyi-Kibuku, Pallisa Town, Katovu, and Lukaya Water Supply Systems*
Year	2009-2010

RN

Location:	Butaleja, Paliisa and Masaka Districts
Client:	Directorate of Water Development (DWD), Ministry of Water and Environment.
Main project features:	It involved construction of 2km of paved asphalt access roads, 13000 square metres of Drainage channels, 32 No. water stand posts, 35 No. VIP Toilets and Laying 3Km water mains
Position held.	**Assistant Environmental Engineer**
Activities performed:	Participated in preparation of designs, tender documents, drawings and site supervision.

18. Selected Publications and Presentations

- Manga, M., Evans B., Camargo-Valero, M. A., Horan, N., 2014. *Can Co-composting be a viable way of Inactivating Pathogens and Recovering nutrients from faecal sludge in Urban Africa?* In the 15th SanCop Event Conference proceeding, 4th November 2014, Leeds, UK.

- Manga, M., Evans B., Camargo-Valero, M. A., Horan, N., 2014. *Can Co-composting be a feasible upscale method of Treating Faecal sludge in Urban Africa?* In: proceeding of the 4th PGR Conference, *9-10th September, 2014*, Leeds, United Kingdom.

- Manga, M., and Evans, B., 2013. *Assessment of Lifecycle costs for low cost sanitation technologies in the informal settlement and slum areas (Case study: Soweto – South Africa)*. Water, Sanitation and Hygiene for Development Journal- IWA publishing (Submitted for review).

- Manga, M., Beltran, E., Zambesi, L, and Evans, B. 2011. *Financial Assessment Tool for Urban Sanitation in Soweto, Johannesburg*. Presented at the 8th Community of Sanitation Practice International Meeting, 16th May 2011, Leeds, UK. The Theme of the conference was 'Urban Sanitation Planning: How to Think about Scale from the Start".

- Manga, M., 2009. *Investigation of the Most Appropriate Concrete Mix Design Method for the Local Construction Materials in Kampala*. Unpublished BSc. Dissertation, Faculty of Technology, Makerere University, Uganda.

19. Selected Prizes or Awards

- 2011: Prize of Best Student (1/23), MSc (Eng) Environmental Engineering and Project Management (2010 – 2011), School of Civil Engineering, University of Leeds, UK

- 2010 -2011: AGA KHAN FOUNDATION International Scholarship for MSc. Environmental Engineering and Project Management at the University of Leeds, UK.

- 2001-2003: National Scholarship from the Government of Uganda for the ordinary diploma in Architectural Design and Draughtsmanship.

20. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describes me, my qualifications, and my experience.

.....
(Signature of staff member)
Full name of staff member: ***Musa Manga***

Date: 16/01/2025
(Day/Month/Year)

.....
(Authorized representative of the firm)
Full name of authorized representative: Eng. Lammeck Kajubi

Date: .....
(Day/Month/Year)

RN

CV-7: Valuer - SSALI K. Nicholas

Position	Valuer
Name of Expert	SSALI K. Nicholas
Date of Birth:	1st April, 1954
Country of Citizenship/ Residence	Uganda

Education

Institution	Dated attended	Award
University of Nairobi	1973 - 1976	B.A. Land Economics (Hons)

Employment record relevant to the assignment:

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
1981-Date	**Organization** Katuramu and Company **Position Held** Valuation surveyor, Director. **Reference:** Mr. Edward Muteesa Social Safeguards Officer, Uganda Electricity Transmission Company LTD (UETCL) Email: edward.muteesa@uetcl.com Tel: 075 2 334 244	Uganda	Kawanda -Masaka Transmission line feasibility study **Position Held:** Project valuer **Activities performed** Revision of Property Valuation Report- 2010-ongoing.
			Kawanda -Karuma 440Kv- Transmission line feasibility study **Position Held:** Project valuer **Activities performed** Environment Impact Assessment and resettlement action plan (length of project line 250km)-Preparation of Property Valuation Report- 2010-ongoing.
			Hoima Kaiso Tonya (Mpula) Fort Portal-Nkenda. Transmission line feasibility study. **Position Held** Project valuer **Activities performed** Environment Impact Assessment and resettlement action plan (length of project line 220km)-Preparation of Property Valuation Report- 2008-ongoing
			MBARARA-Nkenda. Transmission line feasibility study . **Position Held** Project valuer **Activities performed** Environment Impact Assessment and resettlement action plan (length of project line 160km)-Preparation of Property

			Valuation Report- 2009
			NTUNGAMO-KAKITUMBA Road upgrading project. **Position Held** Project valuer **Activities performed** Survey and valuation of Land and Developments falling within the Road reserve of 34km-Valuation Report (2009 ongoing)
			RUKUNGIRI-KIHIHI- ISHAKA Road upgrading project **Position Held** Project valuer **Activities performed** Survey and valuation of Land and Developments falling within the Road reserve of 76km-Valuation Report (2009 ongoing) **Reference**:
			Kabale-Kisoro Bunagana/Kyanika Road upgrading project. **Position Held** Project valuer **Activity** Survey and valuation of Land and Developments falling within the Road reserve of 98.7km-Valuation Report (2007 ongoing) **Reference**
			NYAKAHITA IBANDA KAZO Road upgrading project. **Position Held** Project valuer **Activities** Survey and valuation of Land and Developments falling within the Road reserve of 210km-Valuation Report (completed)
			Consultancy services for expropriation of land for the road reserve for the Northern corridor route. **Position held** Project valuer **Activities performed** Masaka Mbarara Section 148.8km and Masaka Kyotera section 5.5km, 2006-2008

			Feasibility study and detailed engineering design for upgrading to Bituminous standards Soroti Dokolo Lira Roads. **Position**: Project valuer **Activities**: Property valuation Report, length of project road 125km (2004-2005)
			Consultancy services for the implementation of Physical Road safety improvements at Identified black spots **Position Held** Project valuer; **Activities** Kampala Jinja Kampala Entebbe Road-Property Survey and Valuation Report-2005
			Lot A under the road development programme Phase 3 (RDPP3)-Katine Ochero (69km)Nebbi-Goli(14.4 km) and Ochoko Inde(32.8 km) **Client**: Uganda National Roads Authority, UNRA **Position**Project valuer **Activities**: Survey and valuation of Land and Developments falling within the Road reserve (2008-ongoing) .
			Consultancy services **Client**: Uganda National Roads Authority, UNRA **Position**: Project valuer **Activities**: the feasibility study and detailed engineering design and construction supervision of Matugga – Semuto-Kapeeka Road using innovative Technologies. Property valuation Report, length of project road 41km (2006-2007)
			Consultancy services **Client**: Ministry of Works and Transport **Position**: Project valuer **Activities**: a study to determine the cost of acquiring the right of way and relocating of services for the Improvement of trunk roads in Kampala (Bakuli Natete Road) 2002-2003-Property valuation report.
			Consultancy services **Client**: Ministry of Works and Transport **Position**: Project valuer **Activities**: a study to determine the cost of

			acquiring the right of way and relocating of services for the improvement of trunk roads in Kampala .Preparation of Land acquisition report (Nsambya Gaba Road) 2002-2003
			Survey and valuation **Client**: Ministry of Works and Transport **Position**: Team leader; EIA Leader **Activities**: Survey and valuation of Land and Developments falling within the Road reserve of Kafu Masindi Road length of Road 44 km (2003-2004).
			Consultancy services **Client**: UNRA **Position**: Project valuer **Activities**: feasibility study and detailed engineering design and construction supervision of Matugga – Semuto-Kapeeka Road using innovative Technologies. Property valuation Report, length of project road 41km (2006-2007).
			Lubigi sanitation project **Client**: National Water and Sewerage Corporation **Position**: Project valuer **Activities**: Line Clearance and valuation for way leaves Lubigi sanitation project-2010-ongoing.
			Entebbe Water supply and sanitation project **Client**: National Water and Sewerage Corporation **Position**: Project valuer **Activities**: Line Clearance and valuation for way leaves.
			Seeta Mukono water project **Client**: National Water and Sewerage Corporation **Position**: Project valuer **Activities**: Line Clearance and valuation for way leaves. Line Clearance and valuation for way leaves. Preparation of Land acquisition report.
			Entebbe Kajjansi Water project **Client**: National Water and Sewerage Corporation **Position**: Project valuer

			Activities: Line Clearance and valuation for way leaves. Line Clearance and valuation for way leaves. Preparation of Land acquisition report.
			Kampala Water supply and sanitation Programme **Client:** National Water and Sewerage Corporation **Position**: Project valuer **Activities**: Line Clearance and valuation for way leaves. Line Clearance and valuation for way leaves. Phase 1 Component 3: construction of Transmission mains. Valuation for wayleaves Kampala Water supply, Gaba Muyenga Transmission, Gaba Tankhill,and Muyenga Rubaga.

Membership In Professional Associations and Publications:

- Fellow Institution of Surveyors of Uganda

Language Skills:

Languages	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Luganda	Mother tongue		
Kiswahili	Fair	Fair	Fair

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team	**Reference to Prior Work Best Illustrating Capability to Handle Assigned Tasks**
▪ Project management and administration ▪ Mobilisation of staff and Coordination of activities for entire assignment ▪ Participate in initial site visits; ▪ Participate in stakeholder consultations; ▪ Responsible for the quality assurance ▪ Spear head valuation revision to survey report ▪ Prepare valuation data and report ▪ Coordination with the client team	
List all deliverables / tasks as in TECH 5 in which the expert will be involved ▪ Prepare valuation data and report ▪ Prepare Draft and final RAP report	▪ 1999 Valuation of Uganda Electricity Board properties in Uganda. ▪ 1999,2003,2005,2008 Aga Khan Foundation schools, residences and hostels. ▪ Valuation of all National Water and Sewerage

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Nicholas K. Ssali		21-Oct-2014
Name of expert	*Signature*	*Date*

Eng. Lammeck Kajubi		21 Oct 2014
Name of authorized Representative of Consultant	*Signature*	*Date*

RN

	Corporation properties In Uganda. 1991, 1993, 1997.Valuation of the same in association with Fichtner Consultants (2008). • Valuation of all properties located within the National Parks for Uganda Wildlife Authority (1997) • Asset Valuation Kakira Sugar Works Ltd, for Divestiture Privatisation Unit, Ministry of Finance. • Ministry of Finance 1996 Asset Valuation of Cable Corporation of Uganda, for Divestiture Privatization Unit, Ministry of Finance. • Ministry of Finance 1996 Asset Valuation of Uganda Associated Match Company Ltd, for Divestiture Privatisation Unit, Ministry of Finance. • 1990 Valuation of assets, including land, buildings, houses, plant and machinery for Sugar Corporation of Uganda (SCOUL)– sample valuation of assets. • Valuation for sale, mortgage, insurance and auction for private individuals banks and other organizations- (day-to-day) (approximately 150 assignments per year for the last 3 years)

Expert's contact information: email: ssali54@yahoo.com phone: 0772588301

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

NICHOLAS K. SSALI

Name of expert *Signature* *Date*

Eng.Lammeck Kajubi

Name of authorized Representative of Consultant *Signature* *Date*

DAUDA WAISWA BATEGA (PHD) CURRICULUM VITAE

Proposed Position:	RAP Specialist/Sociologist
Profession:	Sociologist
Date of Birth:	June 12, 1969
Nationality:	Ugandan
Telephone:	Tel (office): 0778-695-971
Email:	

Membership of Professional Associations:

- FASU (Fellow of the National Association of Sociologists of Uganda)

KEY QUALIFICATIONS:

Dr. Dauda Batega is a well qualified and experienced sociologist who has gained 20 years of experience with involvement in several development projects particularly in gender, poverty, health, environment, water resource management and systems.

Dr. Dauda Batega has through his consultancy and research experience developed an in depth understanding of dealing with communities in respect of mobilisation and sensitisation. He has also carried out social surveys and assessments for water resources sector, water supply and sanitation systems, road works, and research on labour, land issues, local governance, gender and HIV/AIDS among others.

He conducted socio-economic household surveys for Arua Water Supply Expansion and Sanitation Project as a Socio-Economist and worked as Team Leader/ Sociologist in charge of the team that prepared the Resettlement Action Plan (RAP). He has also worked on the Development of the National Strategic Action Plan for Land Sector Reform and Implementation of the Land Act 1998 (LSSP). He carried out the Social and Environmental Impact Assessment during the feasibility study and design for upgrading of Soroti-Lira Road, Kampala-Mpigi Road Project. He carried out the community sensitisation on the project goals and objectives and he also conducted a social baseline survey for project affected persons (PAP), Transport Poverty Observations Survey for Fortportal-Kamwenge Road and Fortportal-Bundibugyo Road.

He has publications such as Beyond water Governance: Settlement Patterns and Access to Safe Water in Kampala City: Published in Mawazo Vol 10. No 1 Jan 2011. The Challenges of Primary Health Care Delivery Uganda, recent experiences from Tororo District, published in L' Africa Ori'entale 2001, pp: 313-338 and his PhD Thesis was on Water Pollution and Household Burden of Disease in Uganda. Countries worked in: Uganda, Kenya, Rwanda, Nigeria and Switzerland.

EDUCATION:

RN

2006-2012: PhD (Sociology of Environment and Population Health), Makerere University Kampala.

1997-1999: Master of Arts (Sociology) of Makerere University, Kampala.

1989-1992: Bachelor of Arts (Social Sciences) of Makerere University Kampala.

Certificates attained:

2000: Pedagogical skills in University Teaching, Supervising and Examination-Faculty of Education, Makerere University, Kampala, Uganda.

1997: Focus Group Research Methodology in Health Research: (DISH project-USAID).

1997: Gender Focused Research Methodology, Department of Women and Gender Studies, Makerere University, Kampala, Uganda.

EMPLOYMENT RECORD:

2002 – 2013: Managing Partner-Consulting and Development Int Ltd.

1993 – To-date: Lecturer-Department of Sociology, Makerere University Kampala (Research Methods, Governance and Rural Development, Advanced Sociological Theory and Sociology of Environmental Planning and Management).

1996 - 2001: Visiting Lecturer - National University of Rwanda-Butare, Faculty of Social Sciences Economics and Mgt.

KEY CONSULTANCY ASSIGNMENTS CARRIED OUT:

- Consultant/Sociologist: Detailed feasibility study and detailed engineering designs of Kibbale, Namayingo, Mutufu And Binyiny Town Councils under lot 3 piped water supply and sanitation systems. Contract ref no. Mwe/Wsdf-E/Srvcs/13-14/00018/lot3 for the Ministry Of Water And Environment-Directorate Of Water Development: Water and Sanitation Development Facility – East (August-November 2014).
- Consultant/Socio-economist for the Second Transport Poverty Observations Survey/Evaluation for the Commissioned Forportal-Bundibugyo-Lamia Road to Bitumen Standards. Commissioned by Uganda National Authority under Contract to JBG/GAUFF Uganda-Germany. Sept- November 2013.
- Sociologist/RAP Specialist: Nyamagasani Hydropower Project-Kasese District-Update of Resettlement Action Plan (RAP), Kasese District executed by Atacama Consulting-Uganda December 2014
- Sociologist/RAP Specialist: Sindila and Ndugutu Hydropower Project-Bundibugyo District: Update of Resettlement Action Plan (RAP), Bundibugyo District executed by Atacama Consulting-Uganda September 2014
- Social and Gender Expert for Building Resilience to Climate Change in the Water and Sanitation Sector: Uganda 2014 Project: Preparation of Project Implementation Framework (PIF) Documents. Ministry of Water and

Enviroment-Climatic Change Unit: Under contract to Eco Consult (UK) Ltd & UNEP RISOE. May-August 2014.

- Consultant-Institutional Analysis Expert for the Feasibility and Institutional Analysis for Organic Waste Streams Recovery, Recycle and Reuse activities in Kampala. Funded by International Water Management Institute- Sri Lanka. Client: International Water Management Institute- Sri Lanka. February- April 2014.
- Sociologist/ Socio-economist for the Transport Poverty Observations Survey for Upgrading of Kamwenge- Forportal Road to Bitumen Standards. Commissioned by Uganda National Authority Contract to JBG/GAUFF Uganda-Germany. Sept- Dec 2013.
- Consultant/Sociologist: Oil, Gas and Power Market Survey in Uganda for CNOCC-Secondary Data Analysis> Contrcated to Worley Parsons and sub-contracted to Consulting and Development International (CDI) between February , 10th 2014 up-to March 19th 2014.
- Socio-economic Baseline Survey for The Design and Implementation of Arua Emergency Water and Sanitation Project for Arua Municipality (commissioned by: National Water and Sewerage Corporation and JBG/GAUFF/ Consulting Eng/World Bank-U-Ltd June 2011.
- Consultant: Policy Analyst for Water Sanitation Technology Options for the Urban Poor Project in Naivasha-Kenya and Masaka-Uganda. 2009/2010. Institute of Environment and Water/East African Wildlife Society-Nairobi/CIDA 2008/2010.
- Princ.Inv (PhD Thesis): Water Pollution, Social Construction of Risk and Household Burden of Disease in Urban Areas in Uganda. The Case Study of water Use and Abatement Measures in Nakawa and Makindye Division-Kampala City, 2006/2010.
- Team member, for the preparation of a Project Brief for Total Exploration and Production Uganda's planned Geophysical and Geotechnical surveys in EA1, Uganda. June 2013 – September 2013.
- 2013: Sociologist/RAP Specialist: Nyagaka III: Update of ESIA and Resettlement Action Plan (RAP) preparation, Zombo District for UEGCL. executed by Atacama Consulting-Uganda
- July 2013: Sociologist: Consultant/Sociologist Project Brief (PB) for the proposed geophysical and geotechnical surveys in Ngwedo sub-county, Buliisa District, Uganda, by Total E&P (U) Ltd. Executed by Atacama Consulting Contract for: Total E & P (U) Ltd
- August 2013: Consultant-Socioeconomist: Reconnaissance and Prefeasibility (Socio-Economic) Study of Proposed Small Hydro Power Project Sites in Hoima, Forportal, Bundibugyo, Kabale, Mbarara, Rukungiri, Bushenyi, Mitooma and Kisoro Districts: Employer: Royal Haskoning DHV-ORIO mini hydro power project in Western Uganda in partnership with BATUER Engineering and UECCC-Uganda.
- Sept- October 2013: Consultant: Transport Poverty Observations Survey for Upgrading of Kamwenge-Forportal Road to Bitumen Standards. Commissioned by Uganda National Authority Contract to JBG/GAUFF Uganda-Germany. Feb-April 2014: Consultant-Feasibility and Institutional Analysis for Organic Waste Streams Recovery, Recycle and Reuse activities in Kampala. Funded by International Water Management Institute- Sri Lanka.
- ESIA Team member for a Proposed Appraisal Drilling: Mpyo Field (south area): Mpyo-L, Mpyo-M and Mpyo-D; Jobi East Field: Jobi East-F, Jobi East-G and Jobi East-I; Gunya

Field: Gunya-B, Gunya-C and Gunya-E. Client; Total E&P Uganda. December 2012 to February 2013.

- Consultant/Sociologist: Social Impact Assessment and Resettlement Action Plan (RAP) Road Capacity Improvement of the Kibuye-Busega-Nsangi-Mpigi Road Project In Central Uganda. UNRA/GAUFF/GoU Consulting Eng-U-Ltd. September-November 2010 updated November 2014.
- Consultant: Baseline Survey for: Promoting Civic And Political Participation Of Women and Youth in the Informal Sector in Iganga, Kaliro, Bugiri, Dokolo and Amolatar Districts of Uganda Project. UNDP; June-December 2010. Civil and Political Participation of Informal Sector Workers in Uganda Project.
- Consultant: Situational Analysis of Project Affected Persons (PAP) and Vulnerable households affected by Bujagali Energy (Hydro Power) Project. Jinja/Mukono District March, 2008: BEL Consortium/GoU.
- Consultant: Uganda 2010-2011Survey (TPO Baseline) for upgrading Fortportal-Bundibugyo/Lamia Road to Bitumen Standards. UNRA/GAUFF Consulting Eng-U-Ltd/SICCO; Jan-April 2010
- Facilitator/Consultant: Uganda Participatory Poverty Appraisal Project. Ministry of Finance and Economic Planning and Development October 2011.
- Consultant: Documentation of Discrimination faced by Persons with Disabilities in the Employment Sector in Uganda. International Republican Institute IRI/PLA-Uganda Sept/Nov, 2009.
- Consultant: Situation Analysis of Challenges Faced by Pensioners in Accessing Pension Services from the Public Pensions Sub-Sector in Uganda: Iganga, Arua and Kampala districts. PLA/Social Security Coalition/MSO Kampala, 2009.
- Consultant: Rapid Assessment on Working conditions, Knowledge and Practices about HIV/AIDS among Informal Sector Workers in Iganga district, Uganda (AJWS/PLA).
- Consultant: Rights to the City Initiatives: Assessment of Safety and Security Access profile among the Urban Poor in Kampala slums (Action Aid Uganda April), 2008.
- Consultant: Reproductive Health Survey among Adolescents in Iganga district (UMSC/IIHC/TDH), 2008/2009.
- Princ Inv: Scaling up Access to Anti-Malarial Drugs among the Poor through the Private Sector in Rural Uganda-Nakasongola District. Support from WHO/TDR/MIM Geneva 2005/2008.
- Co. PI Urban Home Management of Fever in Uganda: Strategies for Strengthening Accessibility and Affordability to Anti-malarials under HMM in Urban areas in Uganda. Masindi Town Council study area. Masindi District. Support from WHO/TDR Geneva 2005-2010.
- Sociologist: Scoping Study for Designing a Management System and Development Strategy for communities around Rivers-Malakisi, Sio, Malaba Cross Boarder Water Basin in Kenya and Uganda (WREM/World Bank/GoU/GoK), 2006/2007.
- Co-PI: Operations Research for Enhancing Access to VCT Services among Adolescents in Fishing Communities in Kasensero, Rakai district Uganda (SOMA-Net/Sida/SAREC), 2005/2007.
- Consultant: Survey on Working Conditions of Female Workers in Agro-processing sector in Kampala and Wakiso district-Uganda (AJWS/PLA-Uganda), 2007.
- Consultant: Survey on Working Conditions of Adult Domestic Workers in Kampala, Iganga, Mbarara and Lira districts of Uganda (FORD foundation/PLA-Uganda), 2007.
- Consultant: Baseline Qualitative Study for Scaling up Accessibility to ARTs/ARVs among The Urban Poor in Kampala (Action Aid-Uganda Office), 2006/2007.

- Consultant: Working Conditions, Knowledge, Perceptions and Practices about HIV/AIDS among Informal Sector Workers in Kampala and Wakiso district, Uganda (ILO/PLA May-Sept 2005).
- Consultant: Documentation of Best Practices on Home Based Management of Fever/Malaria Strategy in Uganda. WHO/Geneva Office 2004 Dec/March 2005.
- Consultant/Team Leader: Evaluation of Community Implementation for the Home Based Management of Fever/Malaria (HBM) Strategy in Uganda (MoH/BASICS II/USAID Uganda), 2004.
- Consultant/Team Leader: Evaluation of Community Implementation for the Home Based Management of Fever/Malaria (HBM) Strategy in Uganda (MoH/BASICS II/USAID Uganda), 2004.
- Principle Investigator: Decentralization and Malaria Control in Uganda: Assessing Human Resource Management Challenges in Bugiri and Tororo district. Funding form WHO/AHPHSR Geneva 2003/2004
- Sociologist: Feasibility Study and Resettlement/Compensation Plan/Social and Environmental Impact Assessment for upgrading of Soroti-Lira road to Bitumen standard-(RAFU) thru: Gauff /JBG/UNRA Uganda/2004/2003
- Consultant: Rapid Appraisal of Child Domestic Workers Situation in Uganda; Tororo, Lira, Rakai (ILO/PLA Project-Min Gender Labor and Social welfare, 2002/2003.
- Sociologist: Team Leader Community consultations for Developing Land Sector Strategic Plan 2002-2007 for Min. of Water Land & Environment, Uganda, 2001/2002.
- Principle Inv (M.A Thesis): Decentralization and Challenges of Primary Health Care in Tororo, Uganda, 1998-1999.

LANGUAGES:

Language	Speaking	Writing	Reading
English	Excellent	Excellent	Excellent
Lusoga	Excellent	Excellent	Excellent
Luganda	Excellent	Excellent	Excellent
Swahili	Fair	Fair	Fair

CERTIFICATION:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describes me, my qualifications and my experience.

January 2015

CV-8: Valuer - MUKIRANE Benson Asiimwe

Position Title	Valuer
Name of Expert:	MUKIRANE Benson Asiimwe
Date of Birth:	3rd May 1981
Country of Citizenship/ Residence	Uganda

Education

Institution	Dated attended	Award
Makerere University- Kampala	2006 - 2009	B.Sc. (Hons) in Land Economics
Uganda Primary Mortgage market Initiative	27-28th November 2008	Certificate in International Valuation Standard Training (IVS)

Employment record relevant to the assignment:

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
August 2012-date	Name of organization Reilis, Kampala-Uganda Position Held Head of Valuation Consultancy/Director	Uganda	Activities performed: ▪ Supervising the Valuation Team ▪ Property inspection, market research and assessment of property values ▪ Design and updating of the valuation comparables database ▪ Assessment of disturbance allowance as applicable
June 2009-August 2012	Name of organization East African Consulting Surveyors, Kampala-Uganda Position Held Assistant Valuer	Uganda	Valuation for Mortgage, Compensation, and Sale, Purchase, Insurance, Rent Assessment, and Financial Activities performed: ▪ Site visits and comprehensive property inspection ▪ Verifying the plot boundaries applicable ▪ Measuring the gross areas of the buildings ▪ Describing construction style, materials and finishes, ▪ Assessing condition of all relevant buildings and improvements ▪ Describing relevant the property location details ▪ Analyzing alternative uses of properties ▪ Establishing highest and best use of subject properties/locations ▪ Counting any crops or other relevant improvements ▪ Establishing physical scope of the property affected by projects, encroachments or disputes ▪ Collecting comparable property data ▪ Choosing applicable valuation basis and methodology

			▪ Writing valuation reports and ▪ Assessment of the market value ▪ Assessment of disturbance allowance as applicable ▪ Assessment of forced sale value basing on the relevant factors relating to the subject property
			Real estate marketing and management **Activities performed:** • Assessment of the economic viability of optional property investment decisions

Membership in Professional Associations:

No.	Professional Association
	▪ Member, Institution of Surveyors of Uganda (M.I.S.U) ▪ Registered Surveyor of Uganda (RSU)

Language skills (Indicate only languages in which you can work):

Language	Reading	Speaking	Writing
English	Very Good	Very Good	Very Good
Runyankole	Mother tongue	Excellent	Excellent
Luganda	fair	fair	fair
Rutoro	Good	Good	Good

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team	Reference to Prior Work Best Illustrating Capability to Handle Assigned Tasks
▪ Participate in initial site visits; ▪ Participate in stakeholder consultations; ▪ Responsible for the quality assurance ▪ Spear head valuation revision to survey report ▪ Prepare valuation data and report	
List all deliverables / tasks as in TECH 5 in which the expert will be involved ▪ Prepare valuation data and report ▪ Prepare Draft and final RAP report	Mr. Mukirane has extensive experience in valuation. He has developed good understanding of local government regulations and valuation operations since 2009. This experience and skill was obtained through both formal training and field practice. From 2009, Benson has been opening plot boundaries and carrying out valuations of Land, Buildings, Plant and Machinery for the Banks, Accounting firms, Government entities such as UNRA and private Individuals. Benson has the managerial expertise needed to lead Valuation teams. For instance, He was leader of various valuation teams operating under the main consultant during the valuation for Uganda National Roads Authority (UNRA) road construction projects. Most notable are the valuation team that handled Extra Land Take (Addendum) Mbarara-

RN LL

LE

LL

	Ntungamo-Kabale-Kaluna Road (164Km). He also led the valuation team in the Mbarara Bypass Road (14Km) construction project. Other road construction projects in which he was leader of the valuation teams are Mbarara-Kikagati Road (67Km) and Kazo-Ibanda-Kamwenge Road (76Km). During each of these projects, he was charged with carrying out all activities of the kind necessary to successfully carry out this way leaves acquisition assignment; he liaised with the Chief Government Valuer (CGV) for supervision and keeping a record of all names and photos of the affected persons. He coordinated with UNRA authorized staff witnessing the valuation and liaised with district and sub county officials in generating rates/values of affected properties. Benson also computed values for affected properties according to approved valuation rates in the respective districts, and produced the final valuation reports with the main consultant for approval by the Chief Government Valuer (CGV). All these projects were concluded with great success within the planned periods and budgets. On the strength of his formal education and practical experience, Mr. Mukirane attained corporate membership of the Institution of Surveyors of Uganda (ISU) and registration with the Surveyors Registration Board, both qualifications being paramount to the his current position.

Expert's contact information: email: mukirqben2002@yahoo.co.uk phone: 0752585031/ 0772025829/ 0704268224

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Benson Asiimwe Mukirane

Name of expert *Signature* *Date*

Eng.Lammeck Kajubi

Name of authorized Representative of Consultant *Signature* *Date*

	Ntungamo-Kabale-Katuna Road (164Km). He also led the valuation team in the Mbarara Bypass Road (14Km) construction project. Other road construction projects in which he was leader of the valuation teams are Mbarara-Kikagati Road (67Km) and Kazo-Ibanda-Kamwenge Road (76Km). During each of these projects, he was charged with carrying out all activities of the kind necessary to successfully carry out this way leaves acquisition assignment; he liaised with the Chief Government Valuer (CGV) for supervision and keeping a record of all names and photos of the affected persons. He coordinated with UNRA authorized staff witnessing the valuation and liaised with district and sub county officials in generating rates/values of affected properties. Benson also computed values for affected properties according to approved valuation rates in the respective districts, and produced the final valuation reports with the main consultant for approval by the Chief Government Valuer (CGV). All these projects were concluded with great success within the planned periods and budgets. On the strength of his formal education and practical experience, Mr. Mukirane attained corporate membership of the Institution of Surveyors of Uganda (ISU) and registration with the Surveyors Registration Board, both qualifications being paramount to the his current position.

Expert's contact information: email: mukirabon2002@yahoo.co.uk phone: 0752585031/ 0772025829/ 0704268224

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Benson Asiimwe Mukirane — *Name of expert* — *Signature* — *Date* 22/10/2014

BENSON MUKIRANE (Hons) Land Econ. MISU SURVEYORS REGISTRATION BOARD SRB REGISTRATION NO:180

Eng.Lammeck Kajubi — *Name of authorized Representative of Consultant* — *Signature* — *Date* 21/02/2014

RN LK.

16

RN

CV-9: Surveyor – MUSINGUZI Moses, PhD

Position Title	Surveyor
Name of Expert:	MUSINGUZI Moses
Date of Birth:	20th July 1968
Country of Citizenship/ Residence	Uganda

Education

Institution	Dated attended	Award
Uppsala University (Sweden) and Makerere University	2004-2007	PhD Geo-informatics
University of Nottingham UK	1995- 1996	MSc (GIS)
Makerere University, Kampala	1990-1994	BSc (Land Surveying)

Employment record relevant to the assignment:

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
2010- date	Name of organization MBW Consulting Limited Position Held Senior Associate Consultant, Land and Topographical Surveying and GIS Reference:	Uganda	Cadastral and Topographical survey of 180 acres of land in Jinja Position Held Senior Surveyor Activities performed • GNSS Observation to extend controls to the site • Topographical Survey • Cadastral Survey • Processing of Title
			Kyambogo University Topographical Survey Position Held Senior Surveyor Activities performed • GNSS Observation to extend controls to the site • Topographical Survey (5 acres) • Digital Mapping
			Kyambogo University Cadastral Survey Position Held Senior Surveyor Activities performed • GNSS Observation to extend controls to the site • Topographical Survey (5 acres) • Land Title processing
			Construction of 4 Bridges in Northern Uganda Position Held Senior Surveyor Activities performed • GNSS Observation to extend controls to the site • Topographical survey
			Design of Kingfisher Access Road network

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
			Position Held Chief of Party/Senior Surveyor **Activities performed** ▪ GNSS Observation for 5 hours at each of the 2*2 primary points ▪ Setting out of selected route ▪ Detail survey of selected route ▪ Processing of digital map
			Makerere University Cross-cutting Laboratories Project **Position Held** Senior Surveyor **Activities performed** ▪ Establishment of control using Leica Promark 800 ▪ Topographical survey using Leica GS 09 and Topcon 3100 Total Station
			Extension of controls, Setting out and as built survey for Oil well heads and Drilling Pads **Position Held** Senior Surveyor **Activities performed** ▪ Establishment of control using Leica GS 09 Geodetic GNSS,Ashetch Promark 800 and Leica 500 ▪ Staking out the road and RTK survey of the roads ▪ Establishment and Documentation of benchmarks
			Topographical Survey of the proposed site (50 acres) for Establishment of an Oil Explosives facility and Access roads in albertine region. **Position Held** Senior Surveyor **Activities performed** ▪ Establishment of control using Leica GS 09 Geodetic GPS; ▪ Construction and documentation of 6 benchmarks at the site and along the road ▪ Digital Processing of maps in AutoCAD Land Development; ▪ Earthworks Computation etc.
			Establishment of 1st order geodetic points in Block 1 for Total EP Uganda **Position Held** Chief of Party/Senior Surveyor **Activities performed** ▪ GNSS Observation for 6 hours at each of the 2*4 primary points ▪ GNSS Observation for 2 hours at each of the 2*13 secondary points ▪ Team Management ▪ Adjustment and compilation of final report
			Cadastral and Topographical Surveys of 8 sites for secondary schools in Uganda

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
			Position Held Senior Surveyor **Activities performed** • Established of control using Leica GS 09 Geodetic GPS (6 controls on each site) • Topographical survey of the two sites using Leica TC 180 and Sokkia St 620 total stations • Cadastral Survey and processing of titles • Digital processing of maps in AutoCAD Land Development
			Cadastral and Topographical Surveys of 5 technical Institutes in Uganda **Position Held** Senior Surveyor **Activities performed** • Established of control using Leica GS 09 Geodetic GPS (6 controls on each site) • Topographical survey of the two sites using Topocon 3100 total station • Cadastral Survey and processing of titles • Digital processing of maps in AutoCAD Land Development
			Topographical Survey of Tangi Camp Extenelon and setting up of 6 Oil well pads **Position Held** Team Leader/Senior Surveyor **Activities performed** • Established of controls using Leica 500 Geodetic GPS • Topographical survey of the camp Extension using Sokkia Set 620 and Topcon 3100 • Setting out oil well centres using Total stations before installation of Oil drilling rigs • Digital Processing of maps in AutoCAD Land Development.
			Topographical survey of proposed camps at Base camps at Adundu, Pakech and site for crude oil storage **Position Held** Senior Surveyor **Activities performed** • Establishment of benchmarks on the site using GPS • Topographical survey of the site using Sokkia set 620 total station • Digital Processing of maps in AutoCAD Land Development
			Upgrade of Nakulabaye and Hoima Central Markets **Position Held** Surveyor **Activities performed** • Establishment of controls at the sites

Period	Employing Organization Title, and Contact information for Reference	Country	Summary of activities performed relevant to the assignment
			using GPS ▪ Topographical survey of the sites using Magellan Promark 3 GPS ▪ Digital processing of maps in AutoCAD Land Development; ▪ Setting out of the works; ▪ Level surveys to establish earthworks quantities
			Establishment of Survey and Mapping Standards for Liberia **Position Held** Consultant – Geo-spatial Data Standards **Activities performed** • Discussions with technical officers involved in surveying and mapping ▪ Drafting of standards ▪ Conducting two workshops to disseminate the standards ▪ Writing of an SDI Manual
			Drafting of Survey Act, Surveyors Registration Act and Land Information Systems Act **Position Held** Land Surveyor **Activities performed** Review of old Act, drafting new acts, stakeholder workshops
			7 Bridges Construction Project **Position Held** Surveyor **Activities performed** ▪ Established of Temporary benchmarks on the site using GPS ▪ Topographical survey of the bridge using Leica TC 180 total station ▪ Digital Processing of maps in AutoCAD Land Development
			Bridge site Survey - Lugogo swamp under the UNRA 9000Km project- Lot 1 Central Region **Position Held** Surveyor **Activities performed** ▪ Establishment of survey benchmarks on the site using GPS ▪ Topographical survey of the site using Leica TC 180 total station ▪ Digital Processing of maps in AutoCAD Land Development
			Ferry site Survey of Landing sites on Lake Bisina **Position Held** Surveyor **Activities performed** ▪ Establishment of benchmarks on the site using GPS-Leica 500 ▪ Topographical survey of the two sites

LE

RN

LK

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
			using Leica TC 180 total station • Carried out sounding to acquire bathymetric of the lake bed • Digital Processing of maps in Auto Cad Land Development
			Topographical Survey of Jinja – Kamuli Road (60km) Position Held Surveyor **Activities performed** • Extension and densification of geodetic control using GPS • Levelling the entire Road and establish Benchmarks 1km apart • Using a total station to pick x-sections at 25km interval • Plotting the data in AutoCAD Land Development
			Land Husbandry and Water Harvesting Project Position Held Consultant Land surveyor/GIS Analyst **Activities performed** • Obtaining SPOT statelite images • Extension and densification of geodetic control using GPS • Surveying for establishment of DEM for use on designing gravity water schemes • Analysis and interpretation of statelite images • Compilation of topographical maps at various sites • GIS database creation and analysis
			Entebbe- Kampala Road Project Position Held Land Surveyor **Activities performed** • Established of horizontal/vertical control • Using a total station, took x- section at an interval of 25m • Surveyed the centreline • Processed data and produced Drawings
			Entebbe Airport – Kibuye Road Project Position Held Surveyor **Activities performed** • Established of vertical/horizontal control along the road using GPS • Detailed survey of the road taking 50m x-sections at 25m interval • Processing and plotting of data in AutoCAD Land Development • Plotting of vertical and Horizontal alignment
			Rehabilitation of package 1 National Roads Position Held Surveyor **Activities performed**

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
			▪ Establishment vertical and horizontal control along the road using Magellan Promark 3 ▪ Undertook a detailed survey of the road taking at 25m interval ▪ Processed data in civil CAD ▪ Computed volumes of earthworks ▪ Set out the roads
			Area-based Agricultural Modernisation Programme (AAMP) Districts Roads Project **Position Held** Surveyor **Activities performed** ▪ Extended control along the roads using GPS ▪ Carried out topographical surveys along the road using Sokkia Total station ▪ Carried out cadastral properties and indentified affected properties ▪ Set out road alignment using total station ▪ Drew profiles of the road
			Strategic Bridge Rehabilitation Programme **Position Held** Surveyor **Activities performed** ▪ Established of Temporary benchmarks on the site using GPS ▪ Topographical survey of the bridge using Leica TC 180 total station ▪ Digital Processing of maps in AutoCAD Land Development
			Mapping of Arua Municipality **Position Held** Chief Surveyor **Activities performed** ▪ Topographical mapping using a Total station. A total station was used to collect enough points for ortho- rectification of a quick bird satellite image. It was also used to density elevation points for calibrating SRTM Digital Elevation model ▪ Contours were generated from SRTM and he surveyed points ▪ Map was submitted in Digital Form
		Uganda	**Guidelines for Systematic Demarcation of Land in Uganda** **Position Held** Surveyor/Team Leader **Activities performed** ▪ Carried out a document review surveying practices in other countries ▪ Organized meetings with surveyors and other stakeholders ▪ Undertook field work to developed test methods ▪ Compiled and presented a report

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
			Entebbe International Airport Position Held Surveyor **Activities performed** ▪ Extended control to the site using a Sokkia Total station ▪ Carried out a Topographical survey of the airport, including run way and facilities ▪ Generated a Digital Elevation mode: of the area on 10m*10m Grid ▪ Processed a digital map of the area

Membership in Professional Associations:

Professional Association	**Type of membership**
common Wealth Association Of Surveyors	Individual Associate Member
Institution of surveyors in Uganda	Professional Associate member
Geo-spatial community	Individual member
African Mountain Forum	Member

Language skills (Indicate only languages in which you can work):

Language	Reading	Speaking	Writing
English	Very Good	Very Good	Very Good

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team	Reference to Prior Work Best Illustrating Capability to Handle Assigned Tasks
List all deliverables / tasks as in TECH 5 in which the expert will be involved: ▪ Prepare valuation data and report ▪ Prepare Draft and final RAP report	Involved in feasibility studies, reviews, assessments and design and construction of water schemes, bridges and hydropower assignments including: ▪ Cadastral and Topographical survey of 180 acres of land in Jinja ▪ Kyambogo University Topographical Survey ▪ Kyambogo University Cadastral Survey ▪ Construction of 4 Bridges in Northern Uganda ▪ Design of Kingfisher Access Road network ▪ Makerere University Cross-cutting Laboratories Project ▪ Extension of controls, Setting out and as built survey for Oil well heads and Drilling Pads ▪ Topographical Survey of the proposed site (50 acres) for Establishment of an Oil Explosives facility and Access roads in albertine region. ▪ Establishment of 1st order geodetic points in Block 1 for Total EP Uganda ▪ Cadastral and Topographical Surveys of 8 sites for secondary schools in Uganda ▪ Cadastral and Topographical Surveys of 5 technical institutes in Uganda ▪ Topographical Survey of Tangi Camp Extension and setting up of 6 Oil well pads ▪ Topographical survey of proposed camps at Base camps at Adundu,Pakech and site for crude oil storage ▪ Upgrade of Nakulabaye and Hoima Central Markets ▪ Establishment of Survey and Mapping Standards for Liberia ▪ Drafting of Survey Act, Surveyors Registration Act and Land Information Systems Act

Detailed Tasks Assigned on Consultant's Team	Reference to Prior Work Best Illustrating Capability to Handle Assigned Tasks
	▪ 7 Bridges Construction Project ▪ Bridge site Survey - Lugogo swamp under the UNRA 9000Km project- Lot 1 Central Region ▪ Ferry site Survey of Landing sites on Lake Bisina ▪ Topographical Survey of Jinja – Kamuli Road (60km) ▪ Land Husbandry and Water Harvesting Project ▪ Entebbe- Kampala Road Project ▪ Entebbe Airport – Kibuye Road Project ▪ Rehabilitation of package 1 National Roads ▪ Area-based Agricultural Modernisation Programme (AAMP) Districts Roads Project ▪ Strategic Bridge Rehabilitation Programme ▪ Mapping of Arua Municipality ▪ Guidelines for Systematic Demarcation of Land in Uganda ▪ Entebbe International Airport

Expert's contact Information: Email: musinguzim@hotmail.com
Tel: +256772511119

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Name of expert *Signature* *Date*
Musinguzi Moses (PhD)

Eng. Lammeck KAJUBI
Name of authorized Representative of Consultant *Signature* *Date*

See next page

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

MUSINGUZI Moses		24/10/2014
Name of expert	*Signature*	*Date*
Eng. Lammeck KAJUBI		24/Oct/2014
Name of authorized Representative of Consultant	*Signature*	*Date*

LE

RN

THE REPUBLIC OF UGANDA

THE SURVEYORS REGISTRATION BOARD

(EST. UNDER THE SURVEYORS REG. ACT CAP 275)

PRACTICING CERTIFICATE FOR 2014

Name: Dr. Mutinguzi Moses

Practicing with: Department of Geomatics & Land Management, Makerere University

Is hereby licensed to practice as a: Land Surveyor

Under section 19 of the SURVEYORS REGISTRATION ACT CAP 275.

In witness thereof the common seal of the Board is hereunto affixed.

This 28th Day of April 2014

Chairman:

Registrar:

Licence No. 126/2014

The Licence shall remain valid until the thirty first day of December next after its issue and shall be Renewable annually on application being made in the prescribed form.

CV-10: Surveyor – ORENA-BILLA, John Charles

Position Title	Surveyor
Name of Expert:	ORENA-BILLA John Charles
Date of Birth:	07th June 1956
Country of Citizenship/ Residence	Uganda

Education

Institution	Dated attended	Award
Regional Centre for Services in Surveying, Mapping and Remote Sensing, Nairobi.	May 1991	Certificate in Mapping Using Spot Satellite Data
University of London.	09/87 – 09/88	M.Sc. Degree in Engineering in Surveying
University College London	09/86 – 09/87	Diploma in Surveying
Makerere University	10/83- 06/84	P.G.D.E
Makerere University	10/76 – 06/79	B.Sc. (Hon) in Physics

Employment record relevant to the assignment:

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
1999 – To date	Organization Associated Engineering Surveyors Limited Position Held Chairman/Consultant Surveyor	Uganda	**Karuma Interconnection Project.** **Position Held** Team Leader/Surveyor **Activities performed:** The assignment involved preparing RAP for (Karuma-Kawanda 400KV, Karuma-Lira 132 KV and Karuma-Oliwyo 132 KV) transmission line routes that traversed a different land tenure systems I managed a team of surveyors that carried out opening boundaries of titled land and land parcels along the corridor for preparation of the Resettlement Action Plan (RAP) for project-affected people along the line routes.
			Rukungiri, Kanungu Districts **Position Held:** Project Manager/Team Leader **Activities performed:** The study aimed to assess impact of converting a 74 km gravel road to paved carriageway. With a corridor of 30 meters, estimated land covered by entire road is 2.22 km². This would lead to involuntary resettlement, property and land take.

			Resettlement action plan, RAP for proposed upgrade of Hoima-Kyenjojo-Fort Portal, Kamwenge 240 km road to bituminous standards. **Position Held** Team Leader **Activities performed:** The study aimed to assess impact of converting a 240 km gravel road to bituminous standards. Although following existing alignment, the project had socio-environmental and resettlement impacts during both construction and road use.
			Cadastral survey of the Right of Way (ROW) of the Bujagali – Kawanda – Mutundwe Power Line. **Position Held** Project Manager **Activities performed:** Cadastral survey of the Right of Way (ROW) of the Bujagali –. Kawanda – Mutundwe Power Line. Production of Deed Plans and Certificates of Titles
			Topographical survey and cadastral survey **Position Held** Team Leader. **Activities performed:** Topographical Survey and preperation of strip maps for compensation of the affected persons on the proposed Kawanda - Masaka Power Line.
			Preliminary Design of the Luku / Kalangala / Mulabana Road with Gauff Ingenierure. **Position Held** Team Leader **Activities performed:** Establishment of control points (Bench Marks),Topographical Survey and preperation of profile drawings for Preliminary Design of the Luku / Kalangala / Mulabana Road with Gauff Ingenierure.
			Topographical Survey and preperation of strip maps **Position Held** Team Leader **Activity performed:** Topographical Survey and preperation of strip maps for compensation of the affected persons on the proposed Bujagaali, Kawanda Mutundwe Power Line. Establishment of control points (Bench Marks),Topographical Survey and preperation of profile drawings for Preliminary Design of the Proposed Commonwealth Road, Lweza - Munyonyo with Gauff Ingenierure. Establishment of control points (Bench Marks),Topographical Survey and preperation of profile drawings for Preliminary Design of Kampala –

			Entebbe Road with Kagga and Partners.
			Expropriation of Land for the Road Reserve. **Position Held** Consultant Surveyor **Activities performed:** Consultancy services for Expropriation of Land for the Road Reserve, Strengthening of the Northern Corridor route Masaka – Mbarara and Masaka – Kyotera Sections. Cadastral survey and the preparation of strip maps in association with Katuramu & Company.
			Topographical Survey and preperation of profile drawings **Position:** Team leader **Activities:** Establishment of control points (Bench Marks),Topographical Survey and preperation of profile drawings for Gabba Water and Sanitation Program, Phase 1 Component 3, Transmission Mains with Gauff Ingenierure.
			Topographical and cadastral survey of 125 km of road. **Position:** Consultant Surveyor/Team Leader **Activities** Topographical and cadastral survey of 125 km of road for the feasibility study and detailed engineering design for upgrading to paved (bitumen) standard of Soroti - Lira Road under Gauff Ingenieure

Membership in Professional Associations and Publications:

- FISU (Fellow of the Institution of Surveyors of Uganda)
- RSU (Registered Surveyor Uganda)

Language Skills:

Languages	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Kiswahili	Fair	Fair	Good
Italian	Fair	Fair	Fair
Ateso	Mother tongue		

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team	Reference to Prior Work Best Illustrating Capability to Handle Assigned Tasks
• Conduct the necessary topographic and cadastral Surveys. • Preparation of the required profile drawings and strip maps.	Mr. Orena-Billa has over 22 years' experience in the profession of Land Surveying. He has carried out several projects in both cadastral and topographical surveys and preparation of maps. He is currently a Director/Chairman, Associated Engineering Surveyors Ltd.

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Orena-Billa John Charles		21/10/2019
Name of expert	*Signature*	*Date*

Eng. Lammeck KAJUBI		21/02/2014
Name of authorized Representative of Consultant	*Signature*	*Date*

RN

LK

IE

LE

RN

	He has experience in working as a consultant with both national and international consultants. He has experience in: ▪ Electronic data capture, computer processing and digital data processing using home built software Cadcomp and Survcomp and other software such as AutoCAD, Auto Civil, Eagle Point and Arc view. ▪ Carrying out engineering surveys for construction of roads, bridges, railway lines, water supply systems etc. ▪ Cadastral surveys for the purposes of acquisition of the right of way for roads construction, railway lines, power lines, water supply systems etc. ▪ Surveying Transmission Line Way Leave for electric power transmission. ▪ Surveying using GPS equipment. ▪ Preparation of certificate of title. ▪ Training of Physical Planners. ▪ Use of LIS/GIS information systems. ▪ Cadastral and topographical surveys for development of agricultural schemes. ▪ Cadastral and topographical survey of Refugee Settlement Schemes.
List all deliverables / tasks as in TECH 5 in which the expert will be involved ▪ Prepare valuation data and report ▪ Prepare Draft and final RAP report	

Expert's contact information: email: orenabilla@yahoo.com Phone: 0776 235 484

Certification:
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Orena-Billa John Charles

Name of expert *Signature* *Date*

Eng. Lammeck KAJUBI

Name of authorized Representative of Consultant *Signature* *Date*

CV-11: Legal Expert - BITEBEKEZI Titus Francis

Position Title	Lawyer
Name of Expert:	BITEBEKEZI Titus Francis
Date of Birth:	02nd July 1974
Country of Citizenship/ Residence	Uganda

Education

Institution	Dated attended	Award
Uganda Management Institute	1991 - 1995	Post Graduate Diploma in Management Studies. (DIMA)
Uganda Management Institute	1997-1998	Diploma in Legal Practice (Dip. LP). Law Development Centre, Kampala
Makerere University, Kampala	1993-1997	Bachelor of Laws (LL.B)
Makerere High School, Kampala	1991-1993	Uganda Advanced Certificate of Education (UACE
Kiira College Butiki, Jinja	1987-1990	Uganda Certificate of Education (UCE)

Employment record relevant to the assignment:

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
March 2009-Date	Organization TFB ADVOCATES Position Held: Partner **Reference:** Mr. Edward Muteesa Social Safeguards Officer, Uganda Electricity Transmission Company LTD (UETCL) Email: edward.muteesa@uetcl.com Tel: 075 2 334 244	Uganda	▪ Land Transactions / Conveyancing on behalf of African Palliative Care Association. ▪ Management & supervision of Property development projects on behalf of property developers. ▪ Negotiating and Processing of land transactions including caveats and mortgages on behalf of E-20 Properties Limited and various other clientele. ▪ Company Registrations and company secretarial services to facilitate compliance with company filing and legal / administrative requirements under the company laws ▪ Registration of trademarks. ▪ Preparation and review business acquisition contracts ▪ Uganda Electricity Transmission Company Ltd. **Activities performed** The responsibility in this position involves the strategy oversight of the operations of the firm in addition to carrying various

Period	Employing Organization Title, and Contact information for Reference	Country	Summary of activities performed relevant to the assignment
October 2003 – March 2009	Organization: BUJAGALI PROJECT IMPLEMENTATION UNIT Position Held: Legal Officer	Uganda	Bujagali Project Implementation Unit Activities performed ▪ This position carried the responsibility for Legal issues relating to the Land Rights acquisition for the Bujagali Interconnection Project and in complying with various legal / environmental obligations and coordinating activities of external contractors. ▪ Review, analysis and implementation of legal and policy framework relating to acquisition of land rights for power transmission lines ▪ Developing Terms of Reference for implementation of legal issues required by Company projects. ▪ Negotiating for and Acquisition of land parcels for resettlement of persons affected by the company projects. ▪ Supervision of Legal Consultants performing services for the Company in relation to Implementation of projects and Resettlement Action Plan. ▪ Contract drafting and Negotiations. ▪ Coordinate internal query management system ▪ Review Valuation / Resettlement Report relating to the Kawanda – Masaka Interconnection Project. ▪ Recording of all Project Coordination Proceedings and records
Aug 2000 to Sept 2003	Organization: AES Nile Power Limited Position Held - Legal Officer		AES Nile Power Limited Joined AES Nile Power Ltd. to facilitate the process of Land Acquisition for the Bujagali Hydro Power Project and was part of the team that secured approximately 600 acres of land and negotiated transactions for amicable resettlement of over 2000 families under the Bujagali Hydro Power Project Activities performed : ▪ conduct of lands registry searches to verify ownership and register the company's interest/ title to land and way leaves acquired in relation with the Bujagali Project ▪ Negotiated, prepared and concluded agreements with 3rd parties on behalf of the company. ▪ Preparing legal opinions and periodic update briefs on the ongoing legal status. ▪ Acquiring, monitoring status and conditions and renewing relevant licenses and permits for the company. ▪ Liaison with appropriate Government departments and ministries to obtain their input/involvement on various project issues.

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
			• Coordinated dispute/ query resolution desk for project- affected person(s) disputes and queries. • supervised external lawyers and other contractors to ensure compliance their various contractual obligations
2000	Organization: Sam K. Njuba Advocates **Position Held** - Legal Associate **References**	Uganda	**Sam K. Njuba Advocates** **Activities performed:** My responsibilities as Legal Associate included; • Attending court to represent clients. • Due Diligence in land transactions. • Registration of various instruments in conveyancing of land • Interfacing with Clientele and preparing case files regarding their matters. • Drafting court papers and submissions to court. • Legal research • Supervising the support staff in the firm.
1998-1999	Organization: Sebalu and Lule Advocates and Legal Consultants **Position Held** - Legal Assistant **References**	Uganda	**Sebalu and Lule Advocates and Legal Consultants** **Activities performed** : • Reviewing case files and preparing legal documentation as appropriate. • Debt collection • Part of team that carried out a comprehensive legal audit on over eighteen (18) companies including a bank and various trading companies. • Company registry searches and registration of documents. • Incorporation of Companies and ensuring compliance with Companies Act. • Registering of Mortgages, Debentures, Charges, Caveats and other instruments in the appropriate registries. • Legal research and Legal opinions for various corporate clients. • Filing of Documents in the court registries. • Drafting and reviewing contracts

Membership in Professional Associations and Publications:

- Uganda Law Society
- East-African Law Society

Language Skills:

Language	Speaking	Reading	Writing
English	excellent	excellent	excellent
Rutooro	Good	Good	fair
Luganda	Good	Good	fair

	He has experience in working as a consultant with both national and international consultants. He has experience in: ▪ Electronic data capture, computer processing and digital data processing using home built software Cadcomp and Survcomp and other software such as AutoCAD, Auto Civil, Eagle Point and Arc view. ▪ Carrying out engineering surveys for construction of roads, bridges, railway lines, water supply systems etc. ▪ Cadastral surveys for the purposes of acquisition of the right of way for roads construction, railway lines, power lines, water supply systems etc. ▪ Surveying Transmission Line Way Leave for electric power transmission. ▪ Surveying using GPS equipment. ▪ Preparation of certificate of title. ▪ Training of Physical Planners. ▪ Use of LIS/GIS information systems. ▪ Cadastral and topographical surveys for development of agricultural schemes. ▪ Cadastral and topographical survey of Refugee Settlement Schemes.
List all deliverables / tasks as in TECH 5 in which the expert will be involved ▪ Prepare valuation data and report ▪ Prepare Draft and final RAP report	

Expert's contact information: email: orenabilla@yahoo.com Phone: 0776 235 484

Certification:
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Orena-Billa John Charles — *Name of expert* — *Signature* — 21/10/2014 *Date*

Eng. Lemmeck KAJUBI — *Name of authorized Representative of Consultant* — *Signature* — 21/10/2014 *Date*

	He has experience in working as a consultant with both national and international consultants. He has experience in: ▪ Electronic data capture, computer processing and digital data processing using home built software Cadcomp and Survcomp and other software such as AutoCAD, Auto Civil, Eagle Point and Arc view. ▪ Carrying out engineering surveys for construction of roads, bridges, railway lines, water supply systems etc. ▪ Cadastral surveys for the purposes of acquisition of the right of way for roads construction, railway lines, power lines, water supply systems etc. ▪ Surveying Transmission Line Way Leave for electric power transmission. ▪ Surveying using GPS equipment. ▪ Preparation of certificate of title. ▪ Training of Physical Planners. ▪ Use of LIS/GIS information systems. ▪ Cadastral and topographical surveys for development of agricultural schemes. ▪ Cadastral and topographical survey of Refugee Settlement Schemes.
List all deliverables / tasks as in TECH 5 in which the expert will be involved ▪ Prepare valuation data and report ▪ Prepare Draft and final RAP report	

Expert's contact information: email: orenabilla@yahoo.com Phone: 0776 235 484

Certification:
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Orena-Billa John Charles

Name of expert *Signature* *Date*

Eng. Lammeck KAJUBI

Name of authorized Representative of Consultant *Signature* *Date*

CV-11: Legal Expert - BITEBEKEZI Titus Francis

Position Title	Lawyer
Name of Expert:	BITEBEKEZI Titus Francis
Date of Birth:	02nd July 1974
Country of Citizenship/ Residence	Uganda

Education

Institution	Dated attended	Award
Uganda Management Institute	1991 - 1995	Post Graduate Diploma in Management Studies. (DIMA)
Uganda Management Institute	1997-1998	Diploma in Legal Practice (Dip. LP). Law Development Centre, Kampala
Makerere University, Kampala	1993-1997	Bachelor of Laws (LL.B)
Makerere High School, Kampala	1991-1993	Uganda Advanced Certificate of Education (UACE
Kiira College Butiki, Jinja	1987-1990	Uganda Certificate of Education (UCE)

Employment record relevant to the assignment:

Period	Employing Organization Title, and Contact Information for Reference	Country	Summary of activities performed relevant to the assignment
March 2009-Date	Organization TFB ADVOCATES Position Held: Partner Reference: Mr. Edward Muleesa Social Safeguards Officer, Uganda Electricity Transmission Company LTD (UETCL) Email: edward.muleesa@uetcl.com Tel: 075 2 334 244	Uganda	▪ Land Transactions / Conveyancing on behalf of African Palliative Care Association. ▪ Management & supervision of Property development projects on behalf of property developers. ▪ Negotiating and Processing of land transactions including caveats and mortgages on behalf of E-20 Properties Limited and various other clientele. ▪ Company Registrations and company secretarial services to facilitate compliance with company filing and legal / administrative requirements under the company laws ▪ Registration of trademarks. ▪ Preparation and review business acquisition contracts ▪ Uganda Electricity Transmission Company Ltd. Activities performed The responsibility in this position involves the strategy oversight of the operations of the firm in addition to carrying various

RN LK

LK

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team	Reference to Prior Work Best Illustrating Capability to Handle Assigned Tasks
• Titus will offer legal services to the project including assisting in preparation of leases, preparation of titles and registration of easements	
List all deliverables / tasks as in TECH 5 in which the expert will be involved	Mr. Bikebekezi has over 11 years' experience in legal profession and over nine years since enrolment as an Advocate of the High Court of Uganda. He has worked for 9-years as the Legal point person in charge of the legal aspects of land rights acquisition on the World Bank funded Bujagali Hydro Power and Bujagali Interconnection Projects. Has also previously worked with the private law firms of Sebalu & Lule Advocates and Legal Consultants, and Sam K. Njuba Advocates. He is currently engaged in a Private Law Practice focusing on Land Transactions/Conveyancing, Business/Commercial Law and Family. Through this employment various professional training programmes, he has gained hands-on experience in Implementation of Resettlement Action Plans, Compensation and Involuntary Resettlement Programs the various key issues relating to interests of Project Affected Persons and Project Developers. He has experience in: • Implementation of Land Rights Acquisition for Infrastructure Projects. • Negotiation for Land acquisitions with large commercial land owners, private individual land owners, and processing of land transactions. • Family law and succession issues. • Processing of various legal documentation for Project Affected Persons in order to facilitate Land Acquisition for Power Transmission Lines. • Review, analysis and implementation of legal and policy framework relating to acquisition of land rights for power transmission lines • Developing Terms of Reference for implementation of legal issues required by the projects. • Supervision of various Consultants performing various services for the Company in relation to Implementation of projects and Resettlement Action Plan. • Coordinating query management system for and Land related disputes and the appropriate resolution mechanisms. • Witnessing and Recording of Project Land Acquisition Proceedings and records.

Expert's contact information: email: titusfb@gmail.com phone: +256 75 6 277 003

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Titus F. Bitebekezi

Name of expert *Signature* *Date*

Eng. Lammeck KAJUBI

Name of authorized Representative of Consultant *Signature* *Date*

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the client, and/or sanctions by the Bank.

Titus F. Bitebekezi	TITUS F. BITEBEKEZI ADVOCATE P.O. BOX 7351, KAMPALA UGANDA	21/10/2014
Name of expert	*Signature*	*Date*

Eng. Lammeck KAJUBI		21 Oct 2014
Name of authorized Representative of Consultant	*Signature*	*Date*

RN

1E

RN

TECH-8 COPIES OF STATUTORY DOCUMENTS

Attached below is a list of documentation that shows AWE's eligibility;

- Income tax clearance certificate
- Power of attorney

A. Income Tax Clearance

Uganda Revenue Authority

URA

Head Office: Plot M193/M194 Nakawa Industrial Area
P.O.Box 7279, Kampala, Uganda
Tel: (256) 41 7092097
Fax: (256) 41 433419
Toll Free Line: 0800 117000
Email: info@ura.go.ug

Our Ref: URA/DTD/CM/KE/1000128179

Domestic Taxes Department;
Kampala East
1st Floor UAP Building,
Nakawa Business Park
Plot 1-3 New Port Bell Road
P.O Box 862;
Kampala
Tel: 0417444600/1/19
Email: knatukunda @ura.go.ug

27/08/2014

NATIONAL WATER & SEWERAGE CORPORATION .

RE: TAX CLEARANCE FOR AIRWATER EARTH (AWE) LTD

Reference is made to the above taxpayer's application for Tax Clearance Certificate, from Uganda Revenue Authority.

We have examined the company's tax affairs and found it compliant with all its tax obligations and thus have no objection to its being granted the facility applied for.

For any further inquiries and information, please do not hesitate to contact the undersigned or email our service desk on services@ura.go.ug or call our toll free call centre number - 0800117000

Yours faithfully,

Karen.N. Ampwera

For: COMMISSIONER DOMESTIC TAXES.

http://ura.go.ug urapage @urauganda

RN

IE

B. Power of attorney

THE REPUBLIC OF UGANDA

POWER OF ATTORNEY

KNOW ALL MEN WHOM IT MAY CONCERN:

THAT, M/S AIR WATER EARTH (AWE) LIMITED (hereinafter called "The Company") of P.O.BOX 22428 KAMPALA, PLOT 668 ENTEBBE ROAD, DO HEREBY GRANT, ORDAIN, NOMINATE AND APPOINT LAMMECK KAJUBI to be the Company's true and lawful ATTORNEY and/or AGENT with full power and authority in fact and in law for the Company in its name and on, its behalf to execute all or any acts, deeds and things as hereunder stated:-

1. To submit Tender bids.

2. To be signatory and sign all Tender and/or bid documents.

3. To execute all documents required for the foregoing purpose(s) and/or in connection therewith.

4. To engage in business transactions of any nature and to any extent not inconsistent with the letter of the law and scope of the objectives of the Company. The said attorney in fact shall have the power to undertake and perform any acts on behalf of the Company including but not limited to conducting business transactions intended to inure to the Company's benefit and interests and, any incidental acts that are reasonably required to carry out and perform the specific acts whose effect is to promote the Company's best financial or business interests.

5. This Power of Attorney shall be effective upon execution and may be revoked at anytime and shall be automatically revoked upon liquidation of the Company.

6. The Attorney in fact agrees to this appointment subject to its terms and agrees to act as the Company's fiduciary representative and in its best interests, as seems advisable to the best of his discretion and on the basis of prudence and better business Judgement,

7. For the purposes aforesaid to do every other act or thing or things incidental thereto as the Attorney may deem to be necessary or proper in the circumstances.

AND us and in our names to sign all such transfers and other instruments and do all such acts, matters and things as may be necessary or expedient for carrying out the powers hereby given and for recovering all sums of money that are now or may become due or owing to the Company.

TE

RN

DONE and DATED at Kampala this .....day of.....2008.

Signed, Sealed and Delivered by the said

HERBERT KALIBBALA

For and on behalf of the said

M/S AIR WATER EARTH (AWE) LTD

This .....day of 2008

DONOR/DIRECTOR

Signed, Sealed and Delivered by the said

LAMMECK KAJUBI

For and on behalf of the said

M/S AIR WATER EARTH (AWE) LTD

This .....day of 2008

DONOR/DIRECTOR

In the presence of: -

CERTIFICATE OF ATTESTATION

I.....Advocate and Commissioner for Oaths

DO HEREBY certify that the Directors of M/S AIR WATER EARTH (AWE) LTD have appeared before me and have signed this POWER OF ATTORNEY in my presence after reading the same and acknowledge its contents.

GIVEN under my HAND and SEAL of this .....day of .....2008.

ADVOCATE/COMMISSIONER FOR OATHS

PRAWN BY:
M/S BAKKIDDE, HANNAN & SSEKAANA ADVOCATES
PLOT 38 WILLIAM STREET
P.O. BOX 8911,
KAMPALA
TE: 256-41-252529
GEN/05 (HAK)

RN

TECHNICAL PROPOSAL

For Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Gulu, Mbale, Bushenyi and Arua Water Supply and Sanitation Projects:

Revised Training & Capacity Building, Monitoring and Evaluation Methodologies and Workplans

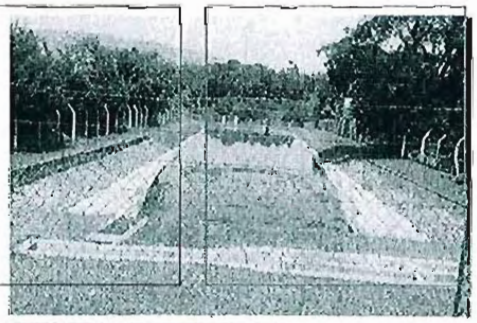
(RFP No: NWSC- HQRS/SRVCS/ 13-14/158804)

Submitted to:

The Manager Procurement
NATIONAL WATER AND SEWERAGE CORPORATION
Plot 43/49, 6th Street Industrial Area
Kampala, Uganda

By:

AIR WATER EARTH (AWE) LTD
Civil, Environmental Engineers & Project Management Consultants
M1. 27 Binayomba Road, Bugolobi
P. O. Box 22428, Kampala, UGANDA.
T: 041-4268466, Mob: 078-2580480
E: mail@awe-engineers.com
W: www.awe-engineers.com



January 2015

AWE is member of International Federation of Consulting Engineers (FIDIC-GAMA)

Uganda • Kenya • Rwanda • USA

Assignment: Environmental & Social Impact Assessments and Development of Resettlement Action Plans for Gulu and Mbale Water Supply and Sanitation projects
(Ref No.: NWSC -HQRS/SRVCS/13-14/158793)

Project: WATER MANAGEMENT AND DEVELOPMENT PROJECT (WMDP)
Client: NATIONAL WATER & SEWERAGE CORPORATION
Country. UGANDA

Arua, Bushenyi, Gulu and Mbale RAP Water Supply Project: Training & Capacity Building, Monitoring and Evaluation Methodologies

A: Monitoring and evaluation approach and methodology

1 Client requirements

Monitoring and evaluation will be undertaken by independent monitors as part of project implementation works. The monitors will be selected on criteria considered appropriate by the funding agency based on a monitoring and evaluation framework prepared by the consultant. The purpose of monitoring and evaluation will be to report on effectiveness of implementation of the RAP covering among others, the following:

- physical resettlement,
- disbursement of compensation
- effectiveness of public consultation.

The framework shall include the following:

i) A Management Information System (MIS) for collecting compensation data (baseline and post resettlement) for monitoring and evaluation purposes.
ii) A plan for monitoring and evaluation of the compensation package with indicators for measuring implementation performance, impacts and outcomes.
iii) Involvement of the affected persons in the monitoring process.
iv) The period monitoring and evaluation shall cover after completion of activities.
v) A review of the baseline survey results.
vi) The compensation complaints / grievance redress committee.
vii) Identification of alternative land for resettlement and farming.
viii) Adherence to compensation payment schedule.
ix) Movement and support of the PAPs and, in particular, the situation of small and marginal landholders, unskilled labourers, mobile vendors, migrant populations, ethnic minorities, women, children, and the elderly and disabled
x) persons.
xi) Reporting requirements for making the results of the monitoring work useful for subsequent projects.
xii) The plan shall provide for reviews of the regular progress reports to the implementing agency by stakeholders at national level, including the World Bank and at local levels.

2 Broad objectives of M&E plan

The objectives of the plan will be to:

- To describe concrete steps necessary to implement monitoring and evaluation of the RAP,
- To define organizational resources, budgets and logistical requirements for internal and external monitoring.

3 Methodology

The RAP monitoring process shall be set up to provide practical guidance and troubleshooting advice to the projects' management teams on how to solve problems that arise during the land acquisition and reinstatement process, rather than simply to identify areas of compliance and noncompliance.

3.1 Monitoring Framework

Monitoring will comprise the following three key areas:

- Internal monitoring by NWSC;
- Monitoring by independent expert consultants;
- RAP Completion Audit by expert consultants.

The scope of each type of monitoring is described in Section 4.

3.2 World Bank Performance Indicators

Monitoring will follow the system of input, output, process, outcome and impact performance indicators that have been adopted by the World Bank as outlined in the RAP. Specific indicators for the projects will be identified by independent expert consultants. To involve affected persons in monitoring from the start, these indicators will be field-tested in consultation with affected people and other stakeholders to ensure that they are effective and relevant to the RAP.

4 Development of specific monitoring tasks of internal and external monitoring

4.1 Internal Monitoring

4.1.1 Objectives

The objectives of internal monitoring will be designed to:

- measure and report progress against the RAP schedule,
- verify that agreed entitlements are delivered in full to affected people,
- identify any problems, issues or cases of hardship resulting from the resettlement process, and to develop appropriate corrective actions, or where problems are systemic refer them to the management team,
- monitor effectiveness of the grievance system, and
- periodically measure satisfaction of project affected people.

4.1.2 Activities

In the monitoring and evaluation plan, the following RAP aspects will be internally monitored:

i) Liaison with the Land Acquisition Team, construction contractor and project affected communities to review and report progress against the RAP;
ii) Verification that land acquisition and compensation entitlements are being delivered in accordance with the RAP;
iii) Verification that agreed measures to restore or enhance living standards are being implemented;
iv) Verification that agreed measures to restore or enhance livelihood are being implemented;
v) Identification of any problems, issues, or cases of hardship resulting from the resettlement process;
vi) Assessment project affected peoples' satisfaction with resettlement outcomes through informal village head and household interviews;
vii) Collation of records of grievances, follow- up that appropriate corrective actions have been undertaken and that outcomes are satisfactory;
viii) Preparation of brief quarterly progress and compliance reports for NWSC

4.1.3 Execution of internal monitoring

LL

LK

RN

LE

In the monitoring framework, time allocation for field and office activities will be proposed as well as specific activities to be undertaken therein. Typically internal monitoring teams activities might involve 30 percent of time in office and 70 percent of time in the field. Typical office review activities will entail:

i) Liaison with Land Acquisition Teams to collate up-to-date information on land acquisition progress such as agreement signing, compensation disbursement, RAP
ii) Funds milestones and disbursement, land areas under construction, land areas reinstated and the like;
iii) Review of grievance register and basic analysis of grievance types, numbers, and closures; and
iv) Report preparation.

Fieldwork activities might entail:

i) Liaison with the Construction Team Community Liaison officers to gather information about progress, incidents, grievances and issues;
ii) Spot checking on complainants who had lodged grievances to verify outcomes of corrective actions;
iii) Conduct semi-structured interviews with a cross-section of affected households including vulnerable groups to verify receipt of entitlements, review effectiveness of measures, assess satisfaction with outcomes;
iv) Conduct interviews with other key informants; and issues identification.

4.2 External/ Expert Monitoring

4.2.1 Objectives

Objectives for expert monitoring will be to:

- assess overall compliance with the RAP;
- verify that measures to restore or enhance project affected peoples' quality of life and livelihood are being implemented and to gauge their effectiveness; and
- assess the extent to which the quality of life and livelihoods of affected communities have been restored.

4.2.2 *Activities external monitoring*

The following activities will be proposed for expert monitoring:

i) Review of internal monitoring procedures and reporting to ascertain whether these are being undertaken in compliance with the RAP;
ii) Review internal monitoring records as a basis for identifying any areas of noncompliance, any recurrent problems, or potentially disadvantaged groups or households;
iii) Review grievance records for evidence of significant non-compliance or recurrent poor performance in resettlement implementation;
iv) Discussions with NWSC staff, and others involved in land acquisition, compensation disbursement or livelihood restoration to review progress and identify critical issues;
v) Survey affected households and enterprises to gauge the extent to which project affected people's standards of living and livelihood have been restored or enhanced as a result of the project;
vi) Assess overall compliance with the RAP requirements and world Bank requirements; and
vii) Prepare a summary compliance report for NWSC.

4.2.3 Execution of external monitoring

Execution plan for external monitoring will entail:

- Specific activities of external monitoring team will be specified.
- Duration of each activity in field and office will be specified
- Frequency for each activity in field and office will be specified

4.3 RAP Completion Audit

A key objective of the RAP is that resettlement actions and mitigatory measures should lead to sustainable restoration or enhancement of affected peoples' pre-project living standards and income levels. At such time as

affected peoples' quality of life and livelihood can be demonstrated to have been sustainably restored, the resettlement process can be deemed "complete".

Therefore the monitoring plan will specific duration for which monitoring shall be undertaken after completion of construction to establish that affected peoples' living standards and income levels have been fully restored.

5 **Reporting**

The M& E plan will provide:

- A summary of reporting requirements defined in the RAP
- Type of RAP monitoring reports (e.g. *Internal* M&E report; *External* M&E reports; *RAP Completion* report) to be produced and their frequency.

6 **Human Resources**

The M & E plan will provide a monitoring staffing organizational framework as agreed with NWSC.

7 **Logistics**

Logistical requirements for internal and external monitoring will be detailed in the M&E framework. These for example typically include (but not limited to):

- HSE and security inductions,
- In-country transport,
- Orientation / local guides – for locating particular land parcels or affected households
- or officials,
- Interpreting and occasional translation of documents,
- Field accommodation.

8 **Budget**

M&E budget amounts documented in the RAP will be collated in the monitoring and evaluation framework.

9 **Monitoring programme**

A schedule for internal and external monitoring will be developed to show:

- Monitoring event
- Period over which to monitor
- Expected report issue dates

B: Training approach and methodology

Training of the Client seconded staff in the ESIA and RAP studies shall be a continuous process. Training reports shall be prepared which will involve a regular presence and hands-on approach during all the phases of the project process. The selected staff shall be expected to attend all organised presentations as well as desk training. The trained personnel shall be expected to produce reports at the end of their training to evaluate their understanding of the project process. These shall in turn be submitted to the Client.

RW

WORKPLAN FOR ARUA WATER SUPPLY AND SANITATION PROJECT

No	Item	Unit	Quantity	2015 Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8
	DELIVERABLE 1 - Inception Report										
1	Kick off meetings	Days	1								
2	Inception Field mission	Days	1								
3	Drafting of inception reports	Weeks	1								
4	Submission of draft Inception Report	Books	4								
5	Review of Inception Report by Client	Days	5								
6	Review and incorporation of comments from client	Days	5								
7	Submission of Final Inception Report	Books	4								
	DELIVERABLE 2 - ESIA Report										
1	ESIA studies	Weeks									
4	Environmental Baseline Conditions	Weeks	6								
5	Archaeological and cultural heritage impact assessment	Weeks	3								
6	Terrestrial and river ecology surveys	Weeks	4								
7	Hydrology surveys	Weeks	4								
8	Environmental and Social Impact Assessment	Weeks	6								
9	Mitigation measures	Weeks	3								
10	Environmental and social Management Plan (EMP)	Weeks	4								
11	Report Internal Quality Assurance	Weeks	2								
	Submission of Draft ESIA Report	Books	4								
1	Review and Quality Assurance by client	Weeks	1								
2	Incorporation of Comments finalisation of Report	Weeks	2								
3	Submission of Final ESIA Report	Books	4								
	DELIVERABLE 3 - RAP Report										
1	Model for data collection for RAP	Weeks									
2	Output Census questionnaire and project brochure for public awareness	Books	1000								
3	Sensitization of Communities in Project affected Villages & District officials	Weeks	3								
4	RAP field study and administering of questionnaires	Weeks	7								
5	Data Analysis of questionnaires & all collected data	Weeks	6								
6	Drafting of RAP reports	Weeks	4								
7	Submission of Draft RAP Report	Weeks	4								
8	Review and Quality Assurance by client	Days	5								
9	Incorporation of Comments finalisation of Report	Weeks	2								
10	Submission of Final RAP Report	Books	4								
	DELIVERABLE 4 - Valuation & Survey Report										
1	Selection of Survey equipment and procedures	weeks	2								
2	Development of Valuation Methodology	Week	1								
3	Submission of Valuation Methodology to Chief Government Valuer	Books	3								
4	Review, quality assurance & Approval of Valuation Methodology by CGV	Weeks	2								
5	Survey and Valuation Field Mission	Weeks	3								
6	Drafting of strip maps & valuation reports	Weeks	5								
7	Submission of Draft strip maps & valuation reports	Books	3								
8	Review of Draft strip maps & valuation reports by Client	Week	1								
9	Incorporation of Comments finalisation of Reports	Weeks	2								
10	Final strip maps & valuation reports Submission	Books/CDs	14								

KEY

Field Work

Desk studies

Quality Assurance

No activity

RN

WORKPLAN FOR BUSHENYI WATER SUPPLY AND SANITATION PROJECT

No	Item	Unit	Quantity	2014 / 2015					
				Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
	DELIVERABLE 1 - Inception Report								
1	Kick off meetings	Days	1						
2	Inception Field mission	Days	1						
3	Drafting of inception reports	Weeks	1						
4	Submission of draft Inception Report	Books	4						
5	Review of Inception Report by Client	Days	5						
6	Review and incorporation of comments from client	Days	5						
7	Submission of Final Inception Report	Books	4						
	DELIVERABLE 2 - ESIA Report								
1	ESIA studies	Weeks							
2	Environmental scoping	Weeks	1						
3	Submission of Scoping Report	Books	4						
4	Environmental Baseline Conditions	Weeks	6						
5	Archaeological and cultural heritage impact assessment	Weeks	3						
6	Terrestrial and river ecology surveys	Weeks	6						
7	Hydrology surveys	Weeks	4						
8	Environmental and Social Impact Assessment	Weeks	6						
9	Mitigation measures	Weeks	3						
10	Environmental and social Management Plan (EMP)	Weeks	4						
11	Report Internal Quality Assurance	Weeks	2						
	Submission of Draft ESIA Report	Books	4						
1	Review and Quality Assurance by client	Weeks	1						
2	Incorporation of Comments finalisation of Report	Weeks	2						
3	Submission of Final ESIA Report	Books	6						
	DELIVERABLE 3 - RAP Report								
1	Model for data collection for RAP	Weeks							
2	Output Census questionnaire and project brochure for public awareness	Books	1000						
3	Sensitization of Communities in Project affected Villages & District officials	Weeks	3						
4	RAP field study and administering of questionnaires	Weeks	8						
5	Data Analysis of questionnaires & all collected data	Weeks	6						
6	Drafting of RAP reports	Weeks	4						
7	Submission of Draft RAP Report	Weeks	4						
8	Review and Quality Assurance by client	Days	5						
9	Incorporation of Comments finalisation of Report	Weeks	2						
10	Submission of Final RAP Report	Books	4						
	DELIVERABLE 4 - Valuation & Survey Report								
1	Selection of Survey equipment and procedures	weeks	2						
2	Development of Valuation Methodology	Week	1						
3	Submission of Valuation Methodology to Chief Government Valuer	Books	3						
4	Review, quality assurance & Approval of Valuation Methodology by CGV	Weeks	2						
5	Survey and Valuation Field Mission	Weeks	3						
6	Drafting of strip maps & valuation reports	Weeks	5						
7	Submission of Draft strip maps & valuation reports	Books	3						
8	Review of Draft strip maps & valuation reports by Client	Week	1						
9	Incorporation of Comments finalisation of Reports	Weeks	2						
10	Final strip maps & valuation reports Submission	Books/CDs	14						

KEY

Field Work

Desk studies

Quality Assurance

RN

WORKPLAN FOR GULU WATER SUPPLY AND SANITATION PROJECT

No	Item	Unit	Quantity	2014 / 2015 Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
	DELIVERABLE 1 - Inception Report								
1	Kick off meetings	Days	1						
2	Inception Field mission	Days	1						
3	Drafting of Inception reports	Weeks	1						
4	Submission of draft Inception Report	Books	4						
5	Review of Inception Report by Client	Days	5						
6	Review and incorpotion of comments from client	Days	5						
7	Submission of Final Inception Report	Books	4						
	DELIVERABLE 2 - ESIA Report								
1	ESIA studies	Weeks							
2	Environmental scoping	Weeks	1						
3	Submission of Scoping Report	Books	4						
4	Environmental Baseline Conditions	Weeks	6						
5	Archaeological and cultural heritage impact assessment	Weeks	3						
6	Terrestrial and river ecology surveys	Weeks	4						
7	Hydrology surveys	Weeks	4						
8	Environmental and Social Impact Assessment	Weeks	8						
9	Mitigation measures	Weeks	3						
10	Environmental and social Management Plan (EMP)	Weeks	4						
11	Report Internal Quality Assurance	Weeks	2						
	Submission of Draft ESIA Report	Books	4						
1	Review and Quality Assurance by client	Weeks	1						
2	Incorporation of Comments finalisation of Report	Weeks	2						
3	Submission of Final ESIA Report	Books	4						
	DELIVERABLE 3 - RAP Report								
1	Model for data collection for RAP	Weeks							
2	Output Census questionnaire and project brochure for public awareness	Books	1000						
3	Sensitization of Communities in Project affected Villages & District officials	Weeks	3						
4	RAP field study and administering of questionnaires	Weeks	8						
5	Data Analysis of questionnaires & all collected data	Weeks	6						
6	Drafting of RAP reports	Weeks	4						
7	Submission of Draft RAP Report	Weeks	4						
8	Review and Quality Assurance by client	Days	5						
9	Incorporation of Comments finalisation of Report	Weeks	2						
10	Submission of Final RAP Report	Books	4						
	DELIVERABLE 4 - Valuation & Survey Report								
1	Selection of Survey equipment and procedures	weeks	2						
2	Development of Valuation Methodology	Week	1						
3	Submission of Valuation Methodology to Chief Government Valuer	Books	3						
4	Review, quality assurance & Approval of Valuation Methodology by CGV	Weeks	2						
5	Survey and Valuation Field Mission	Weeks	3						
6	Drafting of strip maps & valuation reports	Weeks	5						
7	Submission of Draft strip maps & valuation reports	Books	3						
8	Review of Draft strip maps & valuation reports by Client	Week	1						
9	Incorporation of Comments finalisation of Reports	Weeks	2						
10	Final strip maps & valuation reports Submission	Books/CDs	14						

KEY

Field Work

Desk studies

Quality Assurance

RN

WORKPLAN FOR MBALE WATER SUPPLY AND SANITATION PROJECT

No	Item	Unit	Quantity	2014 - 2015 Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
	DELIVERABLE 1 - Inception Report								
1	Kick off meetings	Days	1						
2	Inception Field mission	Days	1						
3	Drafting of inception reports	Weeks	1						
4	Submission of draft Inception Report	Books	4						
5	Review of inception Report by Client	Days	5						
6	Review and incorporation of comments from client	Days	5						
7	Submission of Final Inception Report	Books	4						
	DELIVERABLE 2 - ESIA Report								
1	ESIA studies	Weeks							
2	Environmental scoping	Weeks	1						
3	Submission of Scoping Report	Books	4						
4	Environmental Baseline Conditions	Weeks	6						
5	Archaeological and cultural heritage impact assessment	Weeks	3						
6	Terrestrial and river ecology surveys	Weeks	4						
7	Hydrology surveys	Weeks	4						
8	Environmental and Social Impact Assessment	Weeks	6						
9	Mitigation measures	Weeks	3						
10	Environmental and social Management Plan (EMP)	Weeks	4						
11	Report Internal Quality Assurance	Weeks	2						
	Submission of Draft ESIA Report	Books	4						
1	Review and Quality Assurance by client	Weeks	1						
2	Incorporation of Comments, finalisation of Report	Weeks	2						
3	Submission of Final ESIA Report	Books	4						
	DELIVERABLE 3 - RAP Report								
1	Model for data collection for RAP	Weeks							
2	Output Census questionnaire and project brochure for public awareness	Books	1000						
3	Sensitization of Communities in Project affected Villages & District officials	Weeks	3						
4	RAP field visits and administering of questionnaires	Weeks	8						
5	Data Analysis of questionnaires & all collected data	Weeks	6						
6	Drafting of RAP reports	Weeks	4						
7	Submission of Draft RAP Report	Weeks	4						
8	Review and Quality Assurance by client	Days	5						
9	Incorporation of Comments, finalisation of Report	Weeks	2						
10	Submission of Final RAP Report	Books	4						
	DELIVERABLE 4 - Valuation & Survey Report								
1	Selection of Survey equipment and procedures	weeks	2						
2	Development of Valuation Methodology	Week	1						
3	Submission of Valuation Methodology to Chief Government Valuer	Books	3						
4	Review, quality assurance & Approval of Valuation Methodology by CGV	Weeks	2						
5	Survey and Valuation Field Mission	Weeks	3						
6	Drafting of strip maps & valuation reports	Weeks	5						
7	Submission of Draft strip maps & valuation reports	Books	3						
8	Review of Draft strip maps & valuation reports by Client	Week	1						
9	Incorporation of Comments, finalisation of Reports	Weeks	2						
10	Final strip maps & valuation reports Submission	Books/CDs	14						

KEY:

Field Work

Desk studies

Quality Assurance

APPENDIX B - KEY EXPERTS

Arua Water Supply and sanitation Project

Expert's input (in person/month) per each Deliverable (listed in TECH-5)												
No	Name	Position		D-1	D-2	D-3	D-4			Total time-input (in months) Home	Field	Total
	Key Experts											
K-1	Dr Herbert Maagi Kalibbala	Environmental specialist /Team Leader	[Home]	0.4	0.4					0.6		1.2
			[Field]	0.3	0.3						0.6	
K-2	Dr Dauda Waiswa Batega	RAP Specialist /Team leader	[Home]			0.3	0.3			0.6		1.2
			[Field]			0.3	0.3				0.6	
K-3	Pamela Tashobya	Sociologist	[Home]	0.3	0.3	0.3	0.3			0.8		2.0
			[Field]	0.3	0.3	0.3	0.3				1.2	
K-4	Dr Henry Ntale Kayondo	Hydrologist	[Home]	0.3	0.3					0.4		1.0
			[Field]	0.2	0.2						0.6	
K-5	Manga Musa	Water and wastewater specialist	[Home]	0.3	0.3					0.4		1.0
			[Field]	0.2	0.2						0.6	
K-6	Orena - Billa Charles	Surveyor	[Home]			0.3	0.3			0.4		1.0
			[Field]			0.2	0.2				0.6	
K-7	Nicholas K. Ssali	Valuer	[Home]			0.3	0.3			0.4		1.0
			[Field]			0.2	0.2				0.6	
K-8	Birebakezi Titus Francis	Legal Expert	[Home]			0.2	0.2			0.6		0.8
			[Field]			0.2	0.2				0.2	
								Subtotal		4.2	5.0	9.2
	Non-Key Experts											
N-1	Odoy Onyango Ginny Manuel	Assistant Land Valuer	[Home]			0.4	0.4			0.12		0.24
			[Field]			0.4	0.4				0.12	
N-2	Vivian Ocher	Environmental Engineer	[Home]	0.4	0.4					0		0.12
			[Field]	0.4	0.4						0.12	
N-3	Ivan Bamweyana	Cadastral Surveyor	[Home]			0.4	0.4			0.12		0.36
			[Field]	0.4	0.4	0.4	0.4				0.24	
								Subtotal		0.24	0.48	0.72
								Total		4.44	5.48	9.92

RN

Expert's input (in person/month) per each Deliverable (listed in TECH-5)												
N°	Name	Position		D-1	D-2	D-3	D-4			Total time-input (in months) Home	Field	Total
	Key Experts											
K-1	Eng. Lammeck Kajubi	Environmental specialist /Team Leader	[Home]	0.4	0.4					0.6		1.2
			[Field]	0.3	0.3						0.6	
K-2	Dr. Dauda Waiswa Batega	RAP Specialist /Team leader	[Home]			0.4	0.4			0.6		1.2
			[Field]			0.3	0.3				0.6	
K-3	Pamela Tashobya K	Sociologist	[Home]	0.2	0.2	0.2	0.2			0.8		2.0
			[Field]	0.3	0.3	0.3	0.3				1.2	
K-4	Dr. Henry Noble Kayondo	Hydrologist	[Home]	0.2	0.2					0.4		1.0
			[Field]	0.3	0.3						0.6	
K-5	Dr. Isa Kabenge	Water and wastewater specialist	[Home]	0.2	0.2					0.4		1.0
			[Field]	0.3	0.3						0.6	
K-6	Dr. Musinguzi Moses	Surveyor	[Home]			0.2	0.2			0.4		1.0
			[Field]			0.3	0.3				0.6	
K-7	Benson Asiimwe Mukirane	Valuer	[Home]			0.2	0.2			0.4		1.0
			[Field]			0.3	0.3				0.6	
K-8	Bitebekezi, Titus Francis	Legal Expert	[Home]			0.3	0.3			0.6		0.8
			[Field]			0.2	0.2				0.2	
								Subtotal		4.2	5	9.2
	Non-Key Experts											
N-1	Joseph B. Nsereko	Assistant Valuer	[Home]			0.4	0.4			0.12		0.24
			[Field]			0.4	0.4				0.12	
N-2	Charity Tushemereirwe	Environmental Engineer	[Home]	0.4	0.4					0		0.12
			[Field]	0.4	0.4						0.12	
N-3	Ivan Bamweyana	Cadastral Surveyor	[Home]			0.4	0.4			0.12		0.36
			[Field]	0.4	0.4	0.4	0.4				0.24	
								Subtotal		0.24	0.48	0.72
								Total		4.44	5.48	9.92

Gulu Water Supply and Sanitation Project

Expert's input (in person/month) per each Deliverable (listed in TECH-5)												
N°	Name	Position		D-1	D-2	D-3	D-4			Total time-input (in months) Home	Field	Total
	Key Experts											
K-1	Dr Herbert Mpagi Kalobala	Environmental specialist /Team Leader	[Home]	0.4	0.4					0.6		1.2
			[Field]	0.3	0.3						0.6	
K-2	Dr Dauda Waiswa Batega	RAP Specialist	[Home]			0.4	0.4			0.6		1.2
			[Field]			0.3	0.3				0.6	
K-3	Pamela Tashobya	Sociologist	[Home]	0.2	0.2	0.2	0.2			0.8		2
			[Field]	0.3	0.3	0.3	0.3				1.2	
K-4	Dr Henry Ntale Kayondo	Hydrologist	[Home]	0.2	0.2					0.4		1
			[Field]	0.3	0.3						0.6	
K-5	Manga Musa	Water and wastewater specialist	[Home]	0.2	0.2					0.4		1
			[Field]	0.3	0.3						0.6	
K-6	Orena - Billa Charles	Surveyor	[Home]			0.2	0.2			0.4		1
			[Field]			0.3	0.3				0.6	
K-7	Nicholas K. Ssali	Valuer	[Home]			0.2	0.2			0.4		1
			[Field]			0.3	0.3				0.6	
K-8	Bnebekezi, Titus Francis	Legal Expert	[Home]			0.3	0.3			0.6		0.8
			[Field]			0.1	0.1				0.2	
								Subtotal		4.2	5.0	9.2
	Non-Key Experts											
N-1	Oboy Onyango, Ginny Manuel	Assistant Land Valuer	[Home]			0.3	0.3			0.12		0.24
			[Field]			0.2	0.2				0.12	
N-2	Vivian Ochen	Environmental Engineer	[Home]	0.3	0.3					0		0.12
			[Field]	0.2	0.2						0.12	
N-3	Ivan Bamweyena	Cadastral Surveyor	[Home]			0.2	0.2			0.12		0.36
			[Field]	0.3	0.3	0.3	0.3				0.24	
								Subtotal		0.24	0.48	0.72
								Total		4.44	5.48	9.92

Mbale Water Supply and Sanitation Project

Expert's input (in person/month) per each Deliverable (listed in TECH-5)												
N°	Name	Position		D-1	D-2	D-3	D-4			Total time-input (in months) Home	Field	Total
	Key Experts											
K-1	Eng. Lammeck Kajubi	Environmental specialist /Team Leader	[Home]	0.3	0.3					0.6		1.2
			[Field]	0.3	0.3						0.6	
K-2	Dr. Dauda Waiswa Batega	RAP Specialist /Team leader	[Home]			0.3	0.3			0.6		1.2
			[Field]			0.3	0.3				0.6	
K-3	Pamela Tashobya	Sociologist	[Home]	0.2	0.2	0.2	0.2			0.8		2.0
			[Field]	0.3	0.3	0.3	0.3				1.2	
K-4	Dr. Henry Ntale Kayondo	Hydrologist	[Home]	0.2	0.2					0.4		1.0
			[Field]	0.3	0.3						0.6	
K-5	Dr. Isa Kabenge	Water and wastewater specialist	[Home]	0.2	0.2					0.4		1.0
			[Field]	0.3	0.3						0.6	
K-6	Dr. Musinguzi Moses	Surveyor	[Home]			0.2	0.2			0.4		1.0
			[Field]			0.3	0.3				0.6	
K-7	Benson A. Bakirane	Valuer	[Home]			0.2	0.2			0.4		1.0
			[Field]			0.3	0.3				0.6	
K-8	Bitebekezi, Titus Francis	Legal Expert	[Home]			0.3	0.3			0.6		0.8
			[Field]			0.1	0.1				0.2	
								Subtotal		4.2	5.0	9.2
	Non-Key Experts											
N-1	Joseph B. Nsereko	Assistant Valuer	[Home]			0.3	0.3			0.12		0.24
			[Field]			0.3	0.3				0.12	
N-2	Charity Tushemereirwe	Environmental Engineer	[Home]	0.3	0.3					0		0.12
			[Field]	0.3	0.3						0.12	
N-3	Ivan Bamweyana	Cadastral Surveyor	[Home]			0.3	0.3			0.12		0.35
			[Field]	0.3	0.3	0.3	0.3				0.24	
								Subtotal		0.24	0.48	0.72
								Total		4.44	5.48	9.92

RN

APPENDIX C – BREAKDOWN OF CONTRACT PRICE

FIN 2 SUMMARY OF COSTS

Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Arua, Bushenyi, Gulu and Mbale Water Supply and Sanitation Projects

Date: 12 February 2015

Submitted to:

The Manager Procurement
National Water and Sewerage Corporation
Plot 43/49, 6th Street Industrial Area
Kampala, Uganda

By:
(Consultant)

AIR WATER EARTH (AWE) LTD
Environmental, Civil Engineers & Project Management Consultants
Mf, Plot 27 Binayomba Road, Bugolobi
P. O. Box 22428, Kampala, UGANDA
E. mail@awe-engineers.com
W. www.awe-engineers.com

Summary of Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Arua, Bushenyi ,Gulu and Mbale Water Supply and Sanitation Projects Costs

Item	Cost in USD
Cost of the Financial Proposals	
(1) Costs for Arua	99,645
(2) Costs for Bushenyi	99,261
(3) Costs for Gulu	64,019
(4) Costs for Mbale	63,665
Total Cost of the Financial Proposal	**326,590**
Indirect Local Tax	
VAT (18%)	58,786
Total Estimate for Indirect Local Tax	**58,786**
Grand Total of Financial Proposal	**385,376**

Authorised by:

Eng. Lam KAJUBI
CEO

Date:12 February 2015

AWE is member of International Federation of Consulting Engineers (FIDIC GMBH)

ARUA

RN

SUMMARY OF COSTS

Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Arua Water Supply and Sanitation Projects

Date: 12 February 2015

Submitted to

The Manager Procurement
National Water and Sewerage Corporation
Plot 4349, 6th Street Industrial Area
Kampala, Uganda

By
Consultant
AIR WATER EARTH (AWE) LTD
Environmental, Civil Engineers & Project Management Consultants
M1, Plot 27 Binayomba Road, Bugolobi
P. O. Box 22428, Kampala, UGANDA.
E: mail@awe-engineers.com
W: www.awe-engineers.com

Item	Cost			
	Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for ARUA Sanitation Projects			
	(USD)	(Foreign Currency)	(Foreign Currency)	(Local Currency)
Cost of the Financial Proposal				
Remuneration	66,024			
Reimbursable Expenses	33,621			
Total Cost for Financial proposal	**99,645**	-	-	-

Authorised by:
Eng. Lammeck KAJUBI

Date: 12 February 2015

FIN -3 Remuneration.

Summary of Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for ARUA Water Supply and Sanitation Projects Costs

No.	Name	Position	Person-month Remuneration Rate		Time Input in Person/Month	US Dollars	Currency # 2	Currency # 3	Local currency
	Key Experts								
K-1	Dr. Herbert Mpagi Kalibbala	Environmental specialist /Team leader	[Home]	9,450	0.5	5,670			
			[Field]	9,450	0.5	5,670			
K-2	Dr. Dauda Waiswa Batega	RAP specialist /Team leader	[Home]	7,350	0.5	4,410			
			[Field]	7,350	0.5	4,410			
K-3	Pamela Tashobya K	Sociologist	[Home]	6,300	0.8	5,040			
			[Field]	6,300	1.2	7,560			
K-4	Dr. Henry Ntale Kayondo	Hydrologist	[Home]	6,300	0.4	2,520			
			[Field]	6,300	0.6	3,780			
K-5	Manga Musa	Water/ wastewater expert	[Home]	6,300	0.4	2,520			
			[Field]	6,300	0.6	3,780			
K-6	Orena-Bila John C.	Surveyor	[Home]	6,300	0.4	2,520			
			[Field]	6,300	0.6	3,780			
K-7	Nicholas K. Ssali	Valuer	[Home]	6,300	0.4	2,520			
			[Field]	6,300	0.6	3,780			
K-8	Bitebekezi Titus Francis	Legal Expert	[Home]	6,300	0.6	3,780			
			[Field]	6,300	0.2	1,260			
	Subtotal					**63,000**			
	Non-Key Experts								
N-1	Odoy Onyango Ginny Manuel	Assistant Land Valuer	[Home]	4,200	0.12	504			
			[Field]	4,200	0.12	504			
N-2	Vivian Ochen	Environmental Engineer	[Home]	4,200	0				
			[Field]	4,200	0.12	504			
N-3	Ivan Bamwayene	Cadastral Surveyor	[Home]	4,200	0.12	504			
			[Field]	4,200	0.24	1,008			
	Subtotal					**3,024**			
	Total					**66,024**	0	0	0

NB: The following Changes have been made to this submission:

1. The Rap Specialist/Team leader, Pamela Tashobya was replaced by Dr. Dauda Waiswa Batega
2. The Sociologist, Faith Mugerwa was replaced by Pamela Tashobya K.
3. The Hydrologist, Elphas Bunnya was replaced by Dr Henry Ntale Kayondo
4. The Water and Wastewater specialist, Vivian Ochen was replaced by Manga Musa.

RN

FIN 4 Reimbursable Expenses

Summary of Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for ARUA Water Supply and Sanitation Projects Costs

No	Type of Reimbursable Expenses	Unit	Unit Cost	Quantity	US Dollars	Currency # 2	Currency # 3	Local currency
			USD					
1	Local Transport Costs	Km	1.5	964	1,446			
2	mmunication costs between consultants head office and project	Hours	10	40	400			
3	Drafting & reproduction of reports	Books	100	20	2,000			
4	Miscellaneous travel expenses	Trip	1.5	150	225			
5	Drawings and Topographic Maps		100	40	4,000			
6	Test Sampling and analysis (Water Samples)		400	5	2,000			
7	Hiring and Purchase of Equipment							
	Casella CEL-62X	Equipment Days	60	15	900			
	Casella CEL-110/2	Equipment Days	60	15	900			
	Sensodyne GILAIR 5	Equipment Days	60	15	900			
	Casella MICRODUST PRO 880nm	Equipment Days	60	15	900			
	MX6 I-Brid (3)	Equipment Days	180	15	2,700			
	NASAL RANGER	Equipment Days	40	15	600			
	Kestrel 4500 NV	Equipment Days	40	15	600			
	CEM DT-8820	Equipment Days	40	15	600			
	Multiparameter Water Quality Meter	Equipment Days	30	15	450			
	GPS Units(1)	Equipment Days	30	15	450			
	Digital Camera(2)	Equipment Days	60	15	900			
8	Vehicle hire plus drive	Days	350	15	5,250			
9	Accommodation (8 persons)	Sum	1200	7	8,400			
				Total Cost	33,621			

NB: The Following Changes were made to this submission

1. The Quantity allocated to Accommodation (8 persons) was changed from 15 to 7

RN

BUSHENYI

SUMMARY OF COSTS

Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Bushenyi District Water Supply and Sanitation Projects

Date: 12 February 2015

Submitted to:

The Manager Procurement
National Water and Sewerage Corporation
Plot 43/49, 6th Street Industrial Area
Kampala, Uganda

By
Consultant

AIR WATER EARTH (AWE) LTD
Environmental, Civil Engineers & Project Management Consultants
M1, Plot 27 Binayomba Road, Bugoloobi
P. O. Box 22428, Kampala, UGANDA
E: mail@awe-engineers.com
W: www.awe-engineers.com

Item	Cost			
	Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Bushenyi District Sanitation Projects			
	(USD)	(Foreign Currency)	(Foreign Currency)	(Local Currency)
Cost of the Financial Proposal				
Remuneration	66,024			
Reimbursable Expenses	33,237			
Total Cost for Financial proposal	**99,261**	-	-	-

Authorised by
Eng. Lammeck KAJUBI

Date: 12 February 2015

FIN -3 Remuneration.

Summary of Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Bushenyi District Water Supply and Sanitation Projects Costs

No.	Name	Position		Person-month Remuneration Rate	Time Input in Person/Month	US Dollars	Currency # 2	Currency # 3	Local currency
	Key Experts								
K-1	Eng. Lammeck Kajubi	Environmental specialist /Team leader	(Home)	9,450	0.6	5,670			
			(Field)	9,450	0.6	5,670			
K-2	Dr. Dauda Waiswa Batega	RAP specialist	(Home)	7,350	0.6	4,410			
			(Field)	7,350	0.6	4,410			
K-3	Pamela Tashobya K.	Sociologist	(Home)	6,300	0.8	5,040			
			(Field)	6,300	1.2	7,560			
K-4	Dr. Henry Ntale Kayondo	Hycrologist	(Home)	6,300	0.4	2,520			
			(Field)	6,300	0.6	3,780			
K-5	Dr. Musinguzi Moses	Surveyor	(Home)	6,300	0.4	2,520			
			(Field)	6,300	0.6	3,780			
K-6	Dr. Isa Kabenge	Water/ wastewater expert	(Home)	6,300	0.4	2,520			
			(Field)	6,300	0.6	3,780			
K-7	Benson Asiimwe Mukirane	Valuer	(Home)	6,300	0.4	2,520			
			(Field)	6,300	0.6	3,780			
K-8	Bitebekezi. Titus Francis	Legal Expert	(Home)	6,300	0.6	3,780			
			(Field)	6,300	0.2	1,260			
	Subtotal (1)					**63,000**			
	Non-Key Experts								
N-1	Joseph B. Nsereko	Assistant Valuer	(Home)	4,200	0.12	504			
			(Field)	4,200	0.12	504			
N-2	Charity Tushemereirwe	Environmental Engineer	(Home)	4,200	0	-			
			(Field)	4,200	0.12	504			
N-3	Ivan Bamweyana	Cadastral Surveyor	(Home)	4,200	0.12	504			
			(Field)	4,200	0.24	1,008			
	Subtotal 2					**3,024**			
					Total Cost (1+2)	**66,024**	0	0	0

NB: The following changes have been to this submission

1. The Rap Specialist/Team leader, Pamela Tashobya was replaced by Dr. Dauda Waiswa Batega
2. The Sociologist, Faith Mugerwa was replaced by Pamela Tashobya K.
3. The Hydrologist, Iwadra Micheal was replaced by Dr Henry Ntale Kayondo

RN

FIN 4 Reimbursable Expenses

Summary of Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Bushenyi District Water Supply and Sanitation Projects

No	Type of Reimbursable Expenses	Unit	Unit Cost	Quantity	US Dollars	Currency # 2	Currency # 3	Local currency
			USD					
1	Local Transport Costs	Km	1.5	658	987			
2	Communication costs between consultants head office and project site	Hours	10	40	400			
3	Drafting & reproduction of reports	Books	100	20	2,000			
4	Miscellaneous travel expenses	Trip (km)	1.5	200	300			
5	Drawings and Topographic Maps		100	40	4,000			
6	Test Sampling and analysis (Water Samples)		400	5	2,000			
7	**Hiring and Purchase of Equipment**							
	Casella CEL-62X	Equipment Days	60	15	900			
	Casella CEL-110/2	Equipment Days	60	15	900			
	Sensodyne GILAIR 5	Equipment Days	60	15	900			
	Casella MICRODUST PRO 880nm	Equipment Days	60	15	900			
	MX6 I-Brid (3)	Equipment Days	180	15	2,700			
	NASAL RANGER	Equipment Days	40	15	600			
	Kestrel 4500 NV	Equipment Days	40	15	600			
	CEM DT-8820	Equipment Days	40	15	600			
	Multiparameter Water Quality Meter	Equipment Days	30	15	450			
	GPS Units(1)	Equipment Days	30	15	450			
	Digital Camera(2)	Equipment Days	60	15	900			
8	Vehicle hire plus drive	Days	350	15	5,250			
9	Accommodation (8 persons)	Sum	1200	7	8,400			
				Total Cost	**33,237**			

NB: The Following Changes were made to this submission

1. The Quantity allocated to Accommodation (8 persons) was changed from 15 to 7

RN

GULU

TE

RN

LU

SUMMARY OF COSTS

Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Gulu District Water Supply and Sanitation Projects

Date 12 February 2015

Submitted to:

The Manager Procurement
National Water and Sewerage Corporation
Plot 43/49, 6th Street Industrial Area
Kampala, Uganda

By
Consultant

AIR WATER EARTH (AWE) LTD
Environmental, Civil Engineers & Project Management Consultants
M1, Plot 27 Binayomba Road, Bugolobi
P. O. Box 22478, Kampala, UGANDA
E: mail@awe-engineers.com
W: www.awe-engineers.com

Item	Cost			
	Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Gulu District Sanitation Projects			
	(USD)	(Foreign Currency)	(Foreign Currency)	(Local Currency)
Cost of the Financial Proposal				
Remuneration	46,150			
Reimbursable Expenses	17,869			
Total Cost for Financial proposal	**64,019**	-	-	-

Authorised by
Eng. Lammeck KAJUBI

Date. 12 February 2015

AIR WATER EARTH (AWE) LTD

FIN -3 Remuneration.

Summary of Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Gulu District Water Supply and Sanitation Projects Costs

No.	Name	Position		Person-month Remuneration Rate	Time Input in Person/Month	US Dollars	Currency # 2	Currency # 3	Local currency
	Key Experts								
K-1	Dr Herbert Mpagi Kalibbala	Environmental specialist /Team leader	[Home]	7,350	0.6	4,410			
			[Field]	7,350	0.6	4,410			
K-2	Dr Dauda Waiswa Batega	RAP specialist	[Home]	6,300	0.6	3,780			
			[Field]	6,300	0.6	3,780			
K-3	Pamela Tashobya K	Sociologist	[Home]	4,200	0.8	3,360			
			[Field]	4,200	1.2	5,040			
K-4	Dr Henry Ntale Kayondo	Hydrologist	[Home]	4,200	0.4	1,680			
			[Field]	4,200	0.6	2,520			
K-5	Manga Musa	Water/ wastewater expert	[Home]	4,200	0.4	1,680			
			[Field]	4,200	0.6	2,520			
K-6	Orena-Bilo John C	Surveyor	[Home]	4,200	0.4	1,680			
			[Field]	4,200	0.6	2,520			
K-7	Nicholas K. Ssali	Valuer	[Home]	4,200	0.4	1,680			
			[Field]	4,200	0.6	2,520			
K-8	Bitebekezi, Titus Francis	Legal Expert	[Home]	4,200	0.5	2,520			
			[Field]	4,200	0.2	840			
	Subtotal (1)					**44,940**			
	Non-Key Experts								
N-1	Odoy Onyango, Ginny Manuel	Assistant land Valuer	[Home]	1,680	0.12	202			
			[Field]	1,680	0.12	202			
N-2	Vivian Ochen	Environmental Engineer	[Home]	1,680	0	-			
			[Field]	1,680	0.12	202			
N-3	Ivan Bamwayena	Cadastral Surveyor	[Home]	1,680	0.12	202			
			[Field]	1,680	0.24	403			
	Subtotal (2)					**1,210**			
					Total Cost	**46,150**	0	0	0

NB: The following changes have been to this submission

1. The Environmental specialist/Team leader was replaced by Dr. Herbert Mpagi Kalibbala
2. The Rap Specialist/Team leader, Pamela Tashobya was replaced by Dr. Dauda Waiswa Batega
3. The Sociologist, Faith Mugerwa was replaced by Pamela Tashobya K.
4. The Hydrologist, Iwadra Micheal was replaced by Dr Henry Ntale Kayondo

RN

FIN 4 Reimbursable Expenses

Summary of Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Gulu District Water Supply and Sanitation Projects Costs

No.	Type of Reimbursable Expenses	Unit	Unit Cost	Quantity	US Dollars	Currency # 2	Currency # 3	Local currency
			USD					
1	Local Transport Costs	Km	1.5	676	1,014			
2	Communication costs between consultants head office and project	Hours	10	25	250			
3	Drafting & reproduction of reports	Books	100	20	2,000			
4	Miscellaneous travel expenses	Trip (Km)	1.5	30	45			
5	Drawings and Topographic Maps		100	20	2,000			
6	Test Sampling and analysis (Water Samples)		400	5	2,000			
7	Hiring and Purchase of Equipment							
	Casella CEL-62X	Equipment Days	60	3	180			
	Casella CEL-110/2	Equipment Days	60	3	180			
	Sensodyne GILAIR 5	Equipment Days	60	3	180			
	Casella MICRODUST PRO 880nm	Equipment Days	60	3	180			
	MX6 I-Brid (3)	Equipment Days	180	3	540			
	NASAL RANGER	Equipment Days	40	3	120			
	Kestrel 4500 NV	Equipment Days	40	3	120			
	CEM DT-8820	Equipment Days	40	3	120			
	Multiparameter Water Quality Meter	Equipment Days	30	3	90			
	GPS Units(1)	Equipment Days	30	3	90			
	Digital Camera(2)	Equipment Days	60	3	180			
8	Vehicle hire plus drive	Days	300	3	900			
9	Accommodation (8 persons)	Sum	960	8	7,680			
				Total Cost	17,869			

NB: The Following Changes were made to this submission

1. The Quantity allocated to Accommodation (8 persons) was changed from 15 to 8

RN

MBALE

SUMMARY OF COSTS

Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Mbale District Water Supply and Sanitation Projects

Date: 12 February 2015

Submitted to:

The Manager Procurement
National Water and Sewerage Corporation
Plot 43/49, 6th Street Industrial Area
Kampala, Uganda

By
Consultant

AIR WATER EARTH (AWE) LTD
Environmental, Civil Engineers & Project Management Consultants
M1 Plot 27 Binayomba Road, Bugolobi
P. O. Box 22428, Kampala, UGANDA
E.mail@awe-engineers.com
W. www.awe-engineers.com

Item	Cost			
	Consultancy Services for Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Mbale District Sanitation Projects			
	(USD)	(Foreign Currency)	(Foreign Currency)	(Local Currency)
Cost of the Financial Proposal				
Remuneration	46,150			
Reimbursable Expenses	17,515			
Total Cost for Financial proposal	**63,665**	-	-	-

Authorised by
Eng. Lamneck KAJUBI

Date: 12 February 2015

AIR WATER EARTH (AWE) LTD

RN

LK

FIN -3 Remuneration.

Summary of Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Mbale district Water Supply and Sanitation Projects Costs

No.	Name	Position		Person-month Remuneration Rate	Time Input in Person/Month	US Dollars	Currency # 2	Currency # 3	Local currency
	Key Experts								
K-1	Eng. Lammeck Kajubi	Environmental specialist /Team leader	(Home)	7,350	0.6	4,410			
			(Field)	7,350	0.6	4,410			
K-2	Dr. Dauda Waiswa Batega	RAP specialist	(Home)	5,300	0.5	3,780			
			(Field)	5,300	0.5	3,780			
K-3	Pamela Tashobya	Sociologist	(Home)	4,200	0.8	3,360			
			(Field)	4,200	1.2	5,040			
K-4	Dr. Henry Ntale Kayondo	Hydrologist	(Home)	4,200	0.4	1,680			
			(Field)	4,200	0.6	2,520			
K-5	Dr. Isa Kabenge	Water/wastewater expert	(Home)	4,200	0.4	1,680			
			(Field)	4,200	0.6	2,520			
K-6	Dr. Moses Musinguzi	Surveyor	(Home)	4,200	0.4	1,680			
			(Field)	4,200	0.6	2,520			
K-7	Benslon A. Mukirane	Valuer	(Home)	4,200	0.4	1,680			
			(Field)	4,200	0.6	2,520			
K-8	Barebekezi, Titus Francis	Legal Expert	(Home)	4,200	0.5	2,520			
			(Field)	4,200	0.2	840			
	Subtotal 1					44,940			
	Non-Key Experts								
N-1	Joseph B. Nsereko	Assistant Valuer	(Home)	1,680	0.12	202			
			(Field)	1,680	0.12	202			
N-2	Charity Tushemereirwe	Environmental Engineer	(Home)	1,680	0	0			
			(Field)	1,680	0.12	202			
N-3	Ivan Bamweyana	Cadastral Surveyor	(Home)	1,680	0.12	202			
			(Field)	1,680	0.24	403			
	Subtotal 2					1,210			
					Total Cost(subtotal 1+2)	46,150	0	0	0

NB: The following changes have been to this submission

1. The Rap Specialist/Team leader, Pamela Tashobya was replaced by Dr. Dauda Waiswa Batega
2. The Sociologist, Faith Mugerwa was replaced by Pamela Tashobya K.
3. The Hydrologist, Iwadra Micheal was replaced by Dr Henry Ntale Kayondo

RN

FIN 4 Reimbursable Expenses

Summary of Environmental and Social Impact Assessment (ESIA) and Development of Resettlement Action Plan (RAP) for Mbale District Water Supply and Sanitation Projects Costs

No	Type of Reimbursable Expenses	Unit	Unit Cost	Quantity	US Dollars	Currency # 2	Currency # 3	Local currency
			USD					
1	Local Transport Costs	Km	1.5	440	660			
2	mmunication costs between consultants head office and project	Hours	10	25	250			
3	Drafting & reproduction of reports	Books	100	20	2,000			
4	Miscellaneous travel expenses	Trip(Km)	1.5	30	45			
5	Drawings and Topographic Maps		100	20	2,000			
6	Test Sampling and analysis (Water Samples)		400	5	2,000			
7	Hiring and Purchase of Equipment							
	Casella CEL-62X	Equipment Days	60	3	180			
	Casella CEL-110/2	Equipment Days	60	3	180			
	Sensodyne GILAIR 5	Equipment Days	60	3	180			
	Casella MICRODUST PRO 880nm	Equipment Days	60	3	180			
	MX6 MX6 Ibrid (3)	Equipment Days	180	3	540			
	NASAL RANGER	Equipment Days	40	3	120			
	Kestrel 4500 NV	Equipment Days	40	3	120			
	CEM DT-8820	Equipment Days	40	3	120			
	Multiparameter Water Quality Meter	Equipment Days	30	3	90			
	GPS Units(1)	Equipment Days	30	3	90			
	Digital Camera(2)	Equipment Days	60	3	180			
8	Vehicle hire plus drive	Days	300	3	900			
9	Accommodation (8 persons)	Sum	950	8	7,580			
				Total Cost	17,515			

NB: The Following Changes were made to this submission

1. The Quantity allocated to Accommodation (8 persons) was changed from 10 to 8

RN

APPENDIX D - FORM OF ADVANCE PAYMENTS GUARANTEE

[See Clause GCC 41.2.1 and SCC 41.2.1]

{Guarantor letterhead or SWIFT identifier code}

Bank Guarantee for Advance Payment

Guarantor: _____ *[insert commercial Bank's Name, and Address of Issuing Branch or Office]*

Beneficiary: _____ *[insert Name and Address of Client]*

Date: _____*[insert date]*____

ADVANCE PAYMENT GUARANTEE No.: _____*[insert number]*_____

We have been informed that _____ *[name of Consultant or a name of the Joint Venture, same as appears on the signed Contract]* (hereinafter called "the Consultant") has entered into Contract No. _____ *[reference number of the contract]* dated ___*[insert date]*_____ with the Beneficiary, for the provision of _____ *[brief description of Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum of _____ *[insert amount in figures]* (_____) *[amount in words]* is to be made against an advance payment guarantee.

At the request of the Consultant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ *[amount in figures]* (_____) *[amount in words]*[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's a written statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Consultant is in breach of their obligation under the Contract because the Consultant:

(a) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Consultant has failed to repay;

(b) has used the advance payment for purposes other than toward providing the Services under the Contract.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Consultant on their account number _____ at _____ *[name and address of bank]*.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Consultant as indicated in certified statements or

[1] The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Client.

RN

invoices marked as "paid" by the Client which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of the payment certificate or paid invoice indicating that the Consultant has made full repayment of the amount of the advance payment, or on the __ day of _*[month]*_____, *[year]*__,[2] whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 revision, ICC Publication No. 758.

_____
[signature(s)]

{Note: All italicized text is for indicative purposes only to assist in preparing this form and shall be deleted from the final product.}

[2] Insert the expected expiration date. In the event of an extension of the time for completion of the Contract, the Client would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Client might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Client's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

RN