



**Ministry of Energy and Public Utilities
Water Resources Unit**

**Invitation for Proposals through
Open Advertised Bidding**

for

Consultancy Services

***Project Name* : Dam Break Analysis of Mare
aux Vacoas, Midlands Dam, La Ferme, Mare
Longue & Piton du Milieu reservoirs in the
Republic of Mauritius**

Procurement Reference No: MEPU/OAB/16/17-18

FEBRUARY 2018

Ministry of Energy and Public Utilities
2nd Level, Sicom Tower, Wall Street, Ebene 72201
Telephone: (+230) 405 6701
Fax: 454 0743
mpu@govmu.org

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Section 1. Letter of Invitation

Procurement Reference N°:MEPU/OAB/16/17-18

Dear Sir/Madam

1. The Ministry of Energy and Public Utilities invites proposals to provide the following consulting services: **Dam Break Analysis of Mare aux Vacoas, Midlands Dam, La Ferme, Mare Longue & Piton du Milieu reservoirs in the Republic of Mauritius.** Details of the services are provided in the Terms of Reference.
2. A firm will be selected under *Quality and Cost based (QCBS) Selection Method* and procedures described in this RFP, in accordance with the policies and procedures for public procurement in the Republic of Mauritius.
3. The RFP includes the following documents:
 - Section 1 - Letter of Invitation
 - Section 2 - Instructions to Consultants (including Data Sheet)
 - Section 3 - Technical Proposal - Standard Forms
 - Section 4 - Financial Proposal - Standard Forms
 - Section 5 - Terms of Reference
 - Section 6 - Standard Form of Contract
4.
 - (a) Consultants operating in the construction sector have a statutory obligation to be registered with the Constructions Industry Development Board (CIDB) of Mauritius.
 - (b) Foreign consultants as defined in the CIDB Act will have to apply for and obtain a Provisional Registration prior to submitting proposals for this project. If the contract is awarded to a foreign consultant the latter shall have to apply for and obtain a Temporary Registration before starting the project.
 - (c) Consultants whether local or foreign under an existing or intended joint venture will be eligible as a joint venture if, in addition to their respective individual registration, they obtain a Provisional Registration for the joint venture prior to submitting proposals for this project. If an existing or intended joint venture is awarded the contract it shall have to apply for a Temporary Registration prior to starting the project.
 - (d) Sub-consultants undertaking assignments on behalf of main consultants are also subject to registration as applicable to consultants.

(e) Consultants are strongly advised to consult the website of the CIDB cidb.govmu.org for further details concerning registration of consultants.

Yours sincerely,

Mrs N. Nababsing
Senior Chief Executive
Ministry of Energy and Public Utilities

Section 2. Instructions to Consultants

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Instructions to Consultants

Definitions

- (a) “Client” means the Public Body with which the selected Consultant signs the Contract for the Services.
- (b) “Consultant” means any entity or person that may provide or provides the Services to the Client under the Contract.
- (c) “Contract” means the Contract signed by the Parties and all the attached documents listed in its Clause 1 that is the General Conditions (GC), the Special Conditions (SC), and the Appendices.
- (d) “**Data Sheet**” means such part of the Instructions to Consultants used to reflect specific country and assignment conditions.
- (e) “Day” means calendar day.
- (f) “Government” means the government of the Republic of Mauritius.
- (g) “Instructions to Consultants” (Section 2 of the RFP) means the document which provides Consultants with all information needed to prepare their Proposals.
- (h) “LOI” (Section 1 of the RFP) means the Letter of Invitation being sent by the Client to the Consultants.
- (i) “PPO” means the Procurement Policy Office of Mauritius.
- (j) “Personnel” means professionals and support staff provided by the Consultant or by any Sub-Consultant and assigned to perform the Services or any part thereof; “Foreign Personnel” means such professionals and support staff who at the time of being so provided had their domicile outside the Republic of Mauritius; “Local Personnel” means such professionals and support staff who at the time of being so provided had their domicile in the Republic of Mauritius.
- (k) “Proposal” means the Technical Proposal and the Financial Proposal.
- (l) “RFP” means the Request For Proposal to be prepared by the Client for the selection of Consultants following shortlisting and includes inviting proposals through Open Advertised Bidding method.
- (m) “Services” means the work to be performed by the Consultant pursuant to the Contract.

- (n) “Sub-Consultant” means any person or entity with whom the Consultant subcontracts any part of the Services.
- (o) “Terms of Reference” (TOR) means the document included in the RFP as Section 5 which explains the objectives, scope of work, activities, tasks to be performed, respective responsibilities of the Client and the Consultant, and expected results and deliverables of the assignment.

1. Introduction

- 1.1 The Client named in the **Data Sheet** will select a consulting firm/organization (the Consultant) in accordance with the method of selection specified in the **Data Sheet**.
- 1.2 The Consultants are invited to submit a Technical Proposal and a Financial Proposal, or a Technical Proposal only, as specified in the **Data Sheet**, for consulting services required for the assignment named in the **Data Sheet**. The Proposal will be the basis for contract negotiations and ultimately for a signed Contract with the selected Consultant.
- 1.3 Consultants should familiarize themselves with local conditions and take them into account in preparing their Proposals. To obtain first-hand information on the assignment and local conditions, Consultants are encouraged to visit the Client before submitting a proposal and to attend a pre-proposal conference if one is specified in the **Data Sheet**. Attending the pre-proposal conference is optional. Consultants should contact the Client’s representative named in the **Data Sheet** to arrange for their visit or to obtain additional information on the pre-proposal conference. Consultants should ensure that these officials are advised of the visit in adequate time to allow them to make appropriate arrangements.
- 1.4 The Client will timely provide at no cost to the Consultants the inputs and facilities specified in the **Data Sheet**, assist the firm in obtaining licenses and permits needed to carry out the services, and make available relevant project data and reports.
- 1.5 Consultants shall bear all costs associated with the preparation and submission of their proposals and contract negotiation. The Client is not bound to accept any proposal, and reserves the right to annul the selection process at any time prior to Contract award, without thereby incurring any liability to the Consultants.

Conflict of Interest

1.6 The Government of the Republic of Mauritius requires that Consultants provide professional, objective, and impartial advice and at all times hold the client's interests paramount, strictly avoid conflicts with other assignments or their own corporate interests and act without any consideration for future work.

1.6.1 Without limitation on the generality of the foregoing, Consultants, and any of their affiliates, shall be considered to have a conflict of interest and shall not be recruited, under any of the circumstances set forth below:

Conflicting activities

(i) A firm that has been engaged by the client to provide goods, works or services other than consulting services for a project, and any of its affiliates, shall be disqualified from providing consulting services related to those goods, works or services. Conversely, a firm hired to provide consulting services for the preparation or implementation of a project, and any of its affiliates, shall be disqualified from subsequently providing goods or works or services other than consulting services resulting from or directly related to the firm's consulting services for such preparation or implementation. For the purpose of this paragraph, services other than consulting services are defined as those leading to a measurable physical output, for example surveys, exploratory drilling, aerial photography, and satellite imagery.

Conflicting assignments

(ii) A Consultant (including its Personnel and Sub-Consultants) or any of its affiliates shall not be hired for any assignment that, by its nature, may be in conflict with another assignment of the Consultant to be executed for the same or for another Client. For example, a Consultant hired to prepare engineering design for an infrastructure project shall not be engaged to prepare an independent environmental assessment for the same project, and a Consultant assisting a Client in the privatization of public assets shall not purchase, nor advise purchasers of, such

assets. Similarly, a Consultant hired to prepare Terms of Reference for an assignment should not be hired for the assignment in question.

Conflicting relationships

- (iii) A Consultant (including its Personnel and Sub-Consultants) that has a business or family relationship with a member of the Client's staff who is directly or indirectly involved in any part of (i) the preparation of the Terms of Reference of the assignment, (ii) the selection process for such assignment, or (iii) supervision of the Contract, shall not be awarded a Contract, unless the conflict stemming from this relationship has been resolved in a manner acceptable to the Client throughout the selection process and the execution of the Contract.

1.6.2 Consultants 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.

1.6.3 No agency or current employees of the Client shall work as Consultants under their own ministries, departments or agencies. Recruiting former government employees of the Client to work for their former ministries, departments or agencies is acceptable provided no conflict of interest exists. When the Consultant nominates any government employee as Personnel in their technical proposal, such Personnel must have written certification from their government or employer confirming that they are on leave without pay from their official position and allowed to work full-time outside of their previous official position. Such certification shall be provided to the Client by the Consultant as part of his technical proposal.

**Unfair
Advantage**

1.6.4 If a Consultant could derive a competitive advantage for having provided consulting services related to the assignment in question, the Client shall make available to all Consultants together with this RFP all information that would in that respect give such Consultant any competitive advantage over competing Consultants.

**Fraud and
Corruption**

1.7 It is the policy of the Government of Mauritius to require Public Bodies, as well as consultants and their agents (whether declared or not), personnel, sub-contractors, sub-consultants, service providers and suppliers observe the highest standard of ethics during the selection and execution of contracts.¹ In pursuance of this policy, the Client:

- (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 party²;
 - (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 obligation³;
 - (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 party⁴;
 - (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

¹ In this context, any action taken by a consultant or a sub-consultant to influence the selection process or contract execution for undue advantage is improper.

² “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.

³ A “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.

⁴ “Parties” refers to participants in the procurement or selection process (including public officials) attempting to establish contract prices at artificial, non-competitive levels.

influence improperly the actions of a party⁵;

(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 the Client’s 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 Client’s inspection and audit rights provided for under paragraph 1.7.1 below.

(b) will reject a proposal for award if it determines that the consultant recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

(c) will sanction a firm or an individual at any time, in accordance with prevailing procedures, including by publicly declaring such firm or individual ineligible for a stated period of time: (i) to be awarded a public contract, and (ii) to be a nominated sub-consultant^b, sub-contractor, supplier, or service provider of an otherwise eligible firm being awarded a public contract.

1.7.1. In further pursuance of this policy, Consultants shall permit the Client to inspect their accounts and records and other documents relating to the submission of proposals and contract performance, and to have them audited by auditors appointed by the Client.

1.7.2 Consultants and public officials shall be also aware of the provisions stated in sections 51 and 52 of the Public

⁵ “Party” refers to a participant in the selection process or contract execution.

^b A nominated sub-consultant, supplier, or service provider is one which either has been (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 Client.

Procurement Act which can be consulted on the website of the Procurement Policy Office (PPO) : ppo.govmu.org.

1.7.3 Consultants shall furnish information on commissions and gratuities, if any, paid or to be paid to agents relating to this proposal and during execution of the assignment if the Consultant is awarded the Contract, as requested in the Financial Proposal submission form (Section 4).

1.7.4 The Clients commits itself to take all measures necessary to prevent fraud and corruption and ensures that none of its staff, personally or through his/her close relatives or through a third party, will in connection with the proposal for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to. If the Clients obtains information on the conduct of any of its employees which is a criminal offence under the relevant Anti-Corruption Laws of Mauritius or if there be a substantive suspicion in this regard, he will inform the relevant authority(ies)and in addition can initiate disciplinary actions. Furthermore, such proposal shall be rejected.

Eligibility

1.8 Consultants participating in this selection process shall ascertain that they satisfy the eligibility criteria mentioned hereunder.

1.8.1(a) In accordance with CIDB (Registration of Consultant and Contractors) Regulation 2014, Consultants currently operating in the construction sector have the statutory obligation to be registered with the Construction Industry Development Board (CIDB) accordingly.

(b) Foreign consultants as defined in the CIDB Act will have to apply for and obtain a Provisional Registration prior to submitting proposals for this project. If the contract is awarded to a foreign consultant the latter shall have to apply for and obtain a Temporary Registration before starting the project.

(c) Consultants whether local or foreign under an existing or intended joint venture will be eligible as a joint venture if, in addition to their respective individual registration, they obtain a Provisional Registration for the joint venture prior to submitting proposals for this project. If an existing or intended joint venture is awarded the contract it shall have to apply for a

Temporary Registration prior to starting the project.

(d) Sub-consultants undertaking assignments on behalf of main consultants are also subject to registration as applicable to consultants.

(e) Consultants are strongly advised to consult the website of the CIDB cidb.govmu.org for further details concerning registration of consultants.

1.8.2 (a) A firm or individual that has been sanctioned by the Government of the Republic of Mauritius in accordance with the above clause 1.7 shall be ineligible to be awarded a public contract, or benefit from a public contract during such period of time as determined by the Procurement Policy Office.

(b) A consultant that is under a declaration of ineligibility by the Government of Mauritius in accordance with applicable laws at the date of the deadline for bid submission and thereafter shall be disqualified.

(c) Proposals from consultants appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group shall be rejected.

Links for checking the ineligibility lists are available on the PPO's website: ppo.govmu.org.

(d) Furthermore, the Consultants shall be aware of the provisions on fraud and corruption stated in the specific clauses in the General Conditions of Contract.

**Eligibility of
Sub-
Consultants**

1.9 **Deleted**

**Origin of Goods
and Consulting
Services**

1.10 Goods supplied and Consulting Services provided under the Contract may originate from any country except if:

(i) as a matter of law or official regulation, the Republic of Mauritius prohibits commercial relations with that

country; or

- (ii) 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 Republic of Mauritius prohibits any imports of goods from that country or any payments to persons or entities in that country.

Only one Proposal

- 1.11 Consultants shall submit only one proposal. If a Consultant submits or participates in more than one proposal, such proposals shall be disqualified. However, this does not limit the participation of the same Sub-Consultant, including individual experts, to only one proposal.

Proposal Validity

- 1.12 The **Data Sheet** indicates how long Consultants' Proposals must remain valid after the submission date. During this period, Consultants shall maintain the availability of Professional staff nominated in the Proposal. The Client will make its best effort to complete negotiations within this period. However should the need arise, the Client may request Consultants to extend the validity period of their proposals. Consultants who agree to such extension shall confirm that they maintain the availability of the Professional staff nominated in the Proposal, or, in their confirmation of extension of validity of the Proposal, Consultants could submit new staff in replacement, who would be considered in the final evaluation for contract award. Consultants who do not agree have the right to refuse to extend the validity of their Proposals.

2. Clarification and Amendment of RFP Documents

- 2.1 Consultants may request a clarification of any of the RFP documents up to the number of days indicated in the **Data Sheet** before the proposal submission date. Any request for clarification must be sent in writing, or by standard electronic means to the Client's address indicated in the **Data Sheet**. The Client will respond in writing, or by standard electronic means and will send written copies of the response (including an explanation of the query but without identifying the source of inquiry) to all Consultants. Should the Client deem it necessary to amend the RFP as a result of a clarification, it shall do so following the procedure under para. 2.2.
- 2.2 At any time before the submission of Proposals, the Client may amend the RFP by issuing an addendum in writing or by standard electronic means. The addendum shall be sent to all Consultants and will be binding on them. Consultants shall

acknowledge receipt of all amendments. To give Consultants reasonable time in which to take an amendment into account in their Proposals the Client may, if the amendment is substantial, extend the deadline for the submission of Proposals.

3. Preparation of Proposals

3.1 (a) The Proposal (see para. 1.2), as well as all related correspondence exchanged by the Consultants and the Client, shall be written in English.

(b) Notwithstanding the above, documents in French submitted with the bid may be accepted without translation.

3.2 In preparing their Proposal, Consultants are expected to examine in detail the documents comprising the RFP. Material deficiencies in providing the information requested may result in rejection of a Proposal

3.3 While preparing the Technical Proposal, Consultants must give particular attention to the following:

(a) Consultants may associate with each other in the form of a joint venture or of a sub-consultancy agreement to complement their respective areas of expertise, strengthen the technical responsiveness of their proposals and make available bigger pools of experts, provide better approaches and methodologies.

In case of a joint venture, all partners shall be jointly and severally liable and shall indicate who will act as the leader of the joint venture.

For a Joint Venture to qualify for this assignment the lead member of the Joint Venture shall individually satisfy the experience criteria related to this assignment as defined by the Client.

The Client shall not require Consultants to form associations with any specific firm or group of firms or include any particular individual in their proposals, but may encourage association with qualified national firms.

- (b) The estimated number of Professional staff-months or the budget for executing the assignment shall be shown in the **Data Sheet**, but not both. However, the Proposal shall be based on the number of Professional staff-months or budget estimated by the Consultants.

For fixed-budget-based assignments, the available budget is given in the **Data Sheet**, and the Financial Proposal shall not exceed this budget, while the estimated number of Professional staff-months shall not be disclosed.

- (c) Alternative professional staff shall not be proposed, and only one curriculum vitae (CV) may be submitted for each position.
- (d) Documents to be issued by the Consultants as part of this assignment must be in English. It is desirable that the firm's Personnel have a working knowledge of English.

Technical Proposal 3.4
Format and
Content

Depending on the nature of the assignment, Consultants are required to submit a Full Technical Proposal (FTP), or a Simplified Technical Proposal (STP). The **Data Sheet** indicates the format of the Technical Proposal to be submitted. Submission of the wrong type of Technical Proposal will result in the Proposal being deemed non-responsive. The Technical Proposal shall provide the information indicated in the following paras from (a) to (g) using the attached Standard Forms (Section 3). Paragraph (c) (ii) indicates the recommended number of pages for the description of the approach, methodology and work plan of the STP. A page is considered to be one printed side of A4 or letter size paper.

(a) (i) For the FTP only: a brief description of the Consultants' organization and an outline of recent experience of the Consultants and, in the case of a joint venture, for each partner, on assignments of a similar nature is required in Form TECH-2 of Section 3. For each assignment, the outline should indicate the names of Sub-Consultants/ Professional staff who participated, duration of the assignment, contract amount, and Consultant's involvement. Information should be provided only for those assignments for which the Consultant was legally contracted by the Client as a corporation or as one of the major firms within a joint venture. Assignments completed by individual Professional staff working privately or through other consulting firms cannot be claimed as the experience of the Consultant, or that of the Consultant's associates, but can be claimed by the Professional staff themselves in their CVs. Consultants should be prepared to substantiate the claimed experience if so requested by the Client.

(ii) For the STP the above information is not required and Form TECH-2 of Section 3 shall not be used.

(b) (i) For the FTP only: comments and suggestions on the Terms of Reference including workable suggestions that could improve the quality/ effectiveness of the assignment; and on requirements for counterpart staff and facilities including: administrative support, office space, local transportation, equipment, data, etc. to be provided by the Client (Form TECH-3 of Section 3).

(ii) For the STP Form TECH-3 of Section 3 shall not be used; the above comments and suggestions, if any, should be incorporated into the description of the approach and methodology (refer to following sub-para. 3.4 (c) (ii)).

(c) (i) For the FTP, and STP: a description of the approach, methodology and work plan for performing the assignment covering the following subjects: technical approach and methodology, work plan, and organization and staffing schedule. Guidance on the content of this section of the Technical Proposals is provided under Form TECH-4 of Section 3. The work plan should be consistent with the Work Schedule (Form TECH-8 of Section 3) which will show in the form of a bar chart the timing proposed for each activity.

- (ii) For the STP only: the description of the approach, methodology and work plan should normally consist of 10 pages, including charts, diagrams, and comments and suggestions, if any, on Terms of Reference and counterpart staff and facilities.
 - (d) The list of the proposed Professional staff team by area of expertise, the position that would be assigned to each staff team member, and their tasks (Form TECH-5 of Section 3).
 - (e) Estimates of the staff input (staff-months of foreign and local professionals) needed to carry out the assignment (Form TECH-7 of Section 3). The staff-months input should be indicated separately for home office and field activities, and for foreign and local Professional staff.
 - (f) CVs of the Professional staff signed by the staff themselves or by the authorized representative of the Professional Staff (Form TECH-6 of Section 3).
 - (g) For the FTP only: a detailed description of the proposed methodology and staffing for training, if the **Data Sheet** specifies training as a specific component of the assignment.
- 3.5 The Technical Proposal shall **not** include any financial information. A Technical Proposal containing financial information may be declared non responsive.
- Financial Proposals**
- 3.6 The Financial Proposal shall be prepared using the attached Standard Forms (Section 4). It shall list all costs associated with the assignment, including (a) remuneration for staff (foreign and local, in the field and at the Consultants' home office), and (b) reimbursable expenses indicated in the **Data Sheet**. If appropriate, these costs should be broken down by activity and, if appropriate, into foreign and local expenditures. All activities and items described in the Technical Proposal must be priced separately; activities and items described in the Technical Proposal but not priced, shall be assumed to be included in the prices of other activities or items.
- Taxes**
- 3.7 The Consultant, other than Mauritian nationals, shall be subject to local taxes (such as: value added tax, social charges or income taxes on non-resident Foreign Personnel, duties,

fees, levies) on amounts payable by the Client under the Contract.

The Client will indicate the contact details of the Mauritius Revenue Authority in the Data Sheet to facilitate the Consultant from obtaining the relevant information in this respect. The Client shall also provide information in respect of taxes deductible at source if any on the fees payable to the Consultant.

3.8 Consultants, other than Mauritian nationals, may express the price of their services in a maximum of three freely convertible currencies, singly or in combination. The Client may require Consultants to state the portion of their price representing local cost in Mauritian Rupees if so indicated in the **Data Sheet**.

3.9 Commissions and gratuities, if any, paid or to be paid by Consultants and related to the assignment will be listed in the Financial Proposal Form FIN-1 of Section 4.

4. Submission, Receipt, and Opening of Proposals

4.1 The original proposal (Technical Proposal and, if required, Financial Proposal; see para. 1.2) shall contain no interlineations or overwriting, except as necessary to correct errors made by the Consultants themselves. The person who signed the proposal must initial such corrections. Submission letters for both Technical and Financial Proposals should respectively be in the format of TECH-1 of Section 3, and FIN-1 of Section 4.

4.2 An authorized representative of the Consultants, **as specified in the Data Sheet** shall initial all pages of the original Technical and Financial Proposals. The signed Technical and Financial Proposals shall be marked "ORIGINAL".

4.3 The Technical Proposal shall be marked "ORIGINAL" or "COPY" as appropriate. The Technical Proposals shall be sent to the addresses referred to in para. 4.5 and in the number of copies indicated in the **Data Sheet**. All required copies of the Technical Proposal are to be made from the original. If there is any discrepancy between the original and the copies of the Technical Proposal, the original governs.

4.4 The original and all copies of the Technical Proposal shall be placed in a sealed envelope clearly marked "TECHNICAL PROPOSAL" Similarly, the original Financial Proposal (if required under the selection method indicated in the **Data Sheet**) shall be placed in a sealed envelope clearly marked

“FINANCIAL PROPOSAL” followed by the Procurement reference number and the name of the assignment, and with a warning “**DO NOT OPEN WITH THE TECHNICAL PROPOSAL.**” The envelopes containing the Technical and Financial Proposals shall be placed into an outer envelope and sealed. This outer envelope shall bear the submission address and reference number, and be clearly marked “**DO NOT OPEN, EXCEPT IN PRESENCE OF THE OFFICIAL APPOINTED, BEFORE** [*insert the time and date of the submission deadline indicated in the **Data Sheet***]”. The Client shall not be responsible for misplacement, loss or premature opening if the outer envelope is not sealed and/or marked as stipulated. This circumstance may be case for Proposal rejection. If the Financial Proposal is not submitted in a separate sealed envelope duly marked as indicated above, this will constitute grounds for declaring the Proposal non-responsive.

4.5 The Proposals must be sent to the address/addresses indicated in the **Data Sheet** and received by the Client no later than the time and the date indicated in the **Data Sheet**, or any extension to this date in accordance with para. 2.2. Any proposal received by the Client after the deadline for submission shall be returned unopened.

4.6 The Client shall open the Technical Proposal immediately after the deadline for their submission. The envelopes with the Financial Proposal shall remain sealed and securely stored.

5. Proposal Evaluation

5.1 From the time the Proposals are opened to the time the Contract is awarded, the Consultants should not contact the Client on any matter related to its Technical and/or Financial Proposal. Any effort by Consultants to influence the Client in the examination, evaluation, ranking of Proposals, and recommendation for award of Contract may result in the rejection of the Consultants’ Proposal.

Evaluators of Technical Proposals shall have no access to the Financial Proposals until the technical evaluation is concluded.

Evaluation of Technical Proposals

5.2 The Evaluation Committee shall evaluate the Technical Proposals on the basis of their responsiveness to the Terms of Reference, applying the evaluation criteria, sub-criteria, and point system specified in the **Data Sheet**. Each responsive Proposal will be given a technical score (St). A Proposal shall

be rejected at this stage if it does not respond to important aspects of the RFP, and particularly the Terms of Reference or if it fails to achieve the minimum technical score indicated in the **Data Sheet**.

Financial Proposals for QBS

5.3 Following the ranking of technical Proposals, when selection is based on quality only (QBS), the first ranked Consultant is invited to negotiate its proposal and the Contract in accordance with the instructions given under para. 6 of these Instructions.

Public Opening and Evaluation of Financial Proposals (only for QCBS, FBS, and LCS)

5.4 After the technical evaluation is completed the Client shall inform the Consultants who have submitted proposals the technical scores obtained by their Technical Proposals, and shall notify those Consultants whose Proposals did not meet the minimum qualifying mark or were considered non responsive to the RFP and TOR, that their Financial Proposals will be returned unopened after completing the selection process. The Client shall simultaneously notify in writing Consultants that have secured the minimum qualifying mark, the date, time and location for opening the Financial Proposals. The opening date should allow Consultants sufficient time to make arrangements for attending the opening. Consultants' attendance at the opening of Financial Proposals is optional.

5.5 Financial Proposals shall be opened in the presence of the Consultants' representatives who choose to attend. The name of the consultants and the technical scores of the consultants shall be read aloud. The Financial Proposal of the Consultants who met the minimum qualifying mark will then be inspected to confirm that they have remained sealed and unopened. These Financial Proposals shall be then opened, and the total prices read aloud and recorded. Copy of the record shall be sent to all Consultants, upon request.

5.6 The Client will correct any computational error. When correcting computational errors, in case of discrepancy between a partial amount and the total amount, or between word and figures the formers will prevail. In addition to the above corrections, as indicated under para. 3.6, activities and items described in the Technical Proposal but not priced, shall be assumed to be included in the prices of other activities or items. In case an activity or line item is quantified in the Financial Proposal differently from the Technical Proposal, no corrections are applied to the

Financial Proposal in this respect. Prices shall be converted to Mauritian Rupees using the selling rates of exchange issued by the Bank of Mauritius, prevailing on the deadline for submission of proposals.

- 5.7 In case of QCBS, the lowest evaluated Financial Proposal (Fm) will be given the maximum financial score (Sf) of 100 points. The financial scores (Sf) of the other Financial Proposals will be computed as indicated in the **Data Sheet**. Proposals will be ranked according to their combined technical (St) and financial (Sf) scores using the weights (T = the weight given to the Technical Proposal; P = the weight given to the Financial Proposal; T + P = 1) indicated in the **Data Sheet**: $S = St \times T\% + Sf \times P\%$. The firm achieving the highest combined technical and financial score will be invited for negotiations.
- 5.8 In the case of Fixed-Budget Selection, the Client will select the firm that submitted the highest ranked Technical Proposal within the budget. Proposals that exceed the indicated budget will be rejected. In the case of the Least-Cost Selection, the Client will select the lowest proposal among those that passed the minimum technical score. In both cases the evaluated proposal price according to para. 5.6 shall be considered, and the selected firm is invited for negotiations.

6. Negotiations

- 6.1 Negotiations will be held on the date and at the address indicated in the **Data Sheet**. The invited Consultant will, as a pre-requisite for attendance at the negotiations, confirm availability of all Professional staff. Failure in satisfying such requirements may result in the Client proceeding to negotiate with the next-ranked Consultant. Representatives conducting negotiations on behalf of the Consultant must have written authority to negotiate and conclude a Contract.

Technical negotiations

- 6.2 Negotiations will include a discussion of the Technical Proposal, the proposed technical approach and methodology, work plan, and organization and staffing, and any suggestions made by the Consultant to improve the Terms of Reference. The Client and the Consultants will finalize the Terms of Reference, staffing schedule, work schedule, logistics, and reporting. These documents will then be incorporated in the Contract as "Description of Services". Special attention will be paid to clearly defining the inputs and facilities required from the Client to ensure satisfactory implementation of the assignment. The Client shall prepare minutes of negotiations

which will be signed by the Client and the Consultant.

Financial negotiations

6.3 If applicable, it is the responsibility of the Consultant, before starting financial negotiations, to contact the local tax authorities to determine the local tax amount to be paid by the Consultant under the Contract. The financial negotiations will include a clarification (if any) of the firm's tax liability in the Republic of Mauritius, and the manner in which it will be reflected in the Contract; and will reflect the agreed technical modifications in the cost of the services. In case of Quality and Cost Based Selection, Fixed-Budget Selection, or the Least-Cost Selection methods, unless there are exceptional reasons, the financial negotiations will involve neither the remuneration rates for staff nor other proposed unit rates. For other methods, Consultants will provide the Client with the information on remuneration rates described in the Appendix attached to Section 4 - Financial Proposal - Standard Forms of this RFP.

Availability of Professional staff/experts

6.4 Having selected the Consultant on the basis of, among other things, an evaluation of proposed Professional staff, the Client expects to negotiate a Contract on the basis of the Professional staff named in the Proposal. Before contract negotiations, the Client will require assurances that the Professional staff will be actually available. The Client will not consider substitutions during contract negotiations unless both parties agree that undue delay in the selection process makes such substitution unavoidable or for reasons such as death or medical incapacity. If this is not the case and if it is established that Professional staff were offered in the proposal without confirming their availability, the Consultant may be disqualified. Any proposed substitute shall have equivalent or better qualifications and experience than the original candidate and shall be submitted by the Consultant within the period of time specified in the letter of invitation to negotiate.

Conclusion of the negotiations

6.5 Negotiations will conclude with a review of the draft Contract. To complete negotiations the Client and the Consultant will initial the Contract. If negotiations fail, the Client will invite the Consultant whose Proposal received the second highest score to negotiate a Contract.

7. Award of Contract

- 7.1 The Consultant whose bid attains the highest score, in accordance with the criteria and selection method set forth in the request for proposals, or the one with the least cost in the case of the Least Cost method of selection, shall be selected for award, subject to satisfactory conclusion of negotiation.
- 7.2 For contract above the prescribed threshold, the Client shall notify the selected Consultant of its intention to award the contract and shall simultaneously notify all other short listed consultants of its decision.
- 7.3 For contracts not exceeding the prescribed threshold, the client shall issue the Letter of Award.
- 7.4 In the absence of a challenge by any other consultant within 7 days of the notice under section 7.2, the contract shall be awarded to the selected Consultant
- 7.5 Within seven days from the issue of Letter of Award, the Client shall publish on the Public Procurement Portal (publicprocurement.govmu.org) and the Client's website, the results of the RFP process identifying the:
- (i) name of the successful Consultant, and the price it offered, as well as the duration and summary scope of the assignment; and
 - (ii) an executive summary of the RFP Evaluation Report, for contracts above the prescribed threshold referred to in section 7.2.
- 7.6 After Contract signature, the Client shall return the unopened Financial Proposals to the unsuccessful Consultants.
- 7.7 The Consultant is expected to commence the assignment on the date and at the location specified in the **Data Sheet**.

8. Confidentiality

- 8.1 Information relating to evaluation of Proposals and recommendations concerning awards shall not be disclosed to the Consultants who submitted the Proposals or to other persons not officially concerned with the process until the publication of the award. The undue use by any Consultant of confidential information related to the process may result in the rejection of its Proposal and may be subject to the provisions of the Government's antifraud and corruption policy.

9. Debriefing

- 9.1 The client shall promptly attend to all requests for debriefing for the contract made in writing, and within 30 days from the date of the publication of the award or date the unsuccessful consultants are informed about the award, whichever is the case, by following regulation 9 of the public procurement Regulations 2008 as amended.

Instructions to Consultants – Data Sheet

Paragraph Reference	
1.1	<p>Name of the Client: Ministry of Energy and Public Utilities</p> <p>Method of selection: Quality and Cost Based Selection (QCBS) Method</p>
1.2	<p>Financial Proposal to be submitted together with Technical Proposal: Yes to be submitted in two separate envelopes both sealed in a single one.</p> <p>Name of the assignment is:</p> <p>Dam Break Analysis of Mare aux Vacoas, Midlands Dam, La Ferme, Mare Longue & Piton du Milieu reservoirs in the Republic of Mauritius</p>
1.3	<p>A pre-proposal conference will be held: Yes</p> <p>Date: 23 February 2018 Time: 09:30 hours Venue: Conference Room, Water Resources Unit, Level 3, Royal Commercial Complex, St Ignace, Rose-Hill, Mauritius</p> <p>A pre-proposal site visit will be held as per schedule below: Day 1 - 23 February 2018- Mare aux Vacoas, La Ferme & Mare Longue Day 2 - 26 February 2018 - Midlands Dam & Piton du Milieu</p> <p>The Client's representative is: The Director Address: Water Resources Unit, Level 3, Royal Commercial Complex, St Ignace Street, Rose-Hill, Mauritius Telephone: (230) 4035400 Facsimile: (230) 4657177 E-mail: wru@govmu.org</p>
1.4	<p>The Client will provide the following inputs and facilities:</p> <ul style="list-style-type: none"> • access to reports/documentations relevant to the Study. • assistance in seeking necessary visa, licences, work permits, other permits, Custom clearances, etc. for the consultant and any of his personnel, and where applicable, their dependents. • provide assistance in facilitating and expediting customs procedures in connection with importation of equipment and materials necessary for the consultant's services. • Flow data in Hydrology Yearbooks up to Year 2010; After 2010, some 25% of the flow data are in soft format with remaining lot in

	<p>paper format/charts.</p> <ul style="list-style-type: none"> • The Consultant shall be responsible for the acquisition of any additional data required for the purpose of the project. e.g. Meteorological data <p>Note: The reports and information provided to the Consultant shall be used solely for the purpose of this Project. No part or extracts shall be used for purposes other than that for this Project unless authorised by the Client.</p>
1.6.1	The Client envisages the need for continuity for downstream work: No
1.12	Proposals must remain valid 120 days after the submission date, i.e. until: 24 July 2018
1.8.1	<p>The Client shall not consider a proposal from a Consultant which do not satisfy the registration requirements as spelt out in this clause. The Bidders shall be registered with the Construction Industry Development Board (CIDB) in the field of Civil Engineering.</p> <p>Bidders are advised to contact the CIDB at early stages of bid preparation.</p>
2.1	<p>Clarifications may be requested not later than 21 days before the submission date.</p> <p>The address for requesting clarifications is:</p> <p>The Director Water Resources Unit Level 3 Royal Commercial Complex St Ignace Street Rose-Hill Mauritius</p> <p>Facsimile: (230) 4657177 E-mail: wru@govmu.org</p>
3.3 (b)	The estimated number of professional staff-months required for the assignment is: 30 Man months
3.4	The format of the Technical Proposal to be submitted is: FTP

	<p><u>For FULL TECHNICAL PROPOSAL (FTP):</u></p> <p>1st Inner Envelope with the Technical Proposal:</p> <ol style="list-style-type: none"> (1) Power of Attorney to sign the Proposal (2) TECH-1 (3) TECH-2 (4) TECH-3 (5) TECH-4 (6) TECH-5 (7) TECH-6 (8) TECH-7 (9) TECH-8 <p>AND</p> <p>2nd Inner Envelope with the Financial Proposal:</p> <ol style="list-style-type: none"> (1) FIN-1 (2) FIN-2 (3) FIN-3 (4) FIN-4 (5) FIN-5 (6) Statement of Undertaking (if required under Section 4.2 below) <p>Submission of the Technical Proposal in a wrong format may lead to the Proposal being deemed non-responsive to the RFP requirements.</p> <p>3.4 (a) (i) For this assignment:</p> <ol style="list-style-type: none"> (a) the Consultant, or the lead partner in case of a joint venture/consortium/association, shall have at least 20 years of experience in dam design and construction supervision; and (b) (i) in the case of a bid from a Consultant, the latter shall have undertaken at least two (2) dam break analysis of similar nature and complexity during the last twelve (12) years. (ii) in the case of a joint venture/consortium/association, all parties combined shall have undertaken at least two (2) dam break analysis of similar nature and complexity during the last twelve (12) years. The Lead Partner shall have undertaken at least one (1) dam break analysis of similar nature and complexity during the last twelve (12) years.
3.4 (g)	Training is a specific component of this assignment: Yes
3.6	There shall be no reimbursable expenses. In this respect, the Lump Sum price

	<p>shall be inclusive of all costs required for the provision of the Consultancy Services, including travel, accommodation and insurance covers.</p> <p>The Consultant shall include the items mentioned hereunder in its Lump sum price.</p> <ol style="list-style-type: none"> (1) a per diem allowance in respect of Personnel of the Consultant for every day in which the Personnel shall be absent from the home office and, as applicable, outside the Client's country for purposes of the Services; (2) cost of necessary travel, including transportation of the Personnel by the most appropriate means of transport and the most direct practicable route (Air fares shall be of Economy class); (3) cost of office accommodation, investigations and surveys; (4) cost of applicable international or local communications such as the use of telephone and facsimile required for the purpose of the Services; (5) cost, rental and freight of any instruments or equipment required to be provided by the Consultants for the purposes of the Services; (6) cost of printing and dispatching of the reports to be produced for the Services; (7) other allowances where applicable and provisional or fixed sums (if any); and (8) cost of such further items required for purposes of the Services not covered in the foregoing.
3.7	<p>The contact details are:</p> <p>Mauritius Revenue Authority Ehram Court, Cnr Mgr. Gonin & Sir Virgil Naz Streets, Port Louis, Mauritius</p> <ul style="list-style-type: none"> • Tel: +230 207 5912 • Fax: +230 207 6016 • Email: yamini.rangasamy@mra.mu • Website: http://mra.gov.mu

	Relevant information pertaining to Tax Deduction at Source is also available on the Mauritius Revenue Authority website.
3.8	Consultant to state local cost in the national currency: Yes
4.2	<p>(a) The Consultant shall specify the name of its authorized representative in a written authorization which shall be attached to its proposal</p> <p>(b) If the Consultant is a company, the written authorization shall either be in the form of-</p> <p style="padding-left: 40px;">(i) a resolution of the Board of a company, from the CEO, himself holding power from the Board; or</p> <p style="padding-left: 40px;">(ii) through a Power of Attorney of the company</p> <p>(c) If the Consultant is a joint venture/consortium/association, the members of the joint venture/consortium/association shall, through company resolutions or powers of attorney, authorize a Member to act on behalf of the joint venture/consortium/association.</p> <p>The name and position held by each person signing the authorization must be typed or printed below the signature.</p>
4.3	The Consultant must submit one (1) original and two (2) copies of the Technical proposal together with one (1) soft copy and one (1) original of the Financial Proposal.
4.5	<p>The Proposal submission address is:</p> <p>The Senior Chief Executive Ministry of Energy and Public Utilities Level 2, SICOM Tower, Wall Street, Ebène</p> <p>Proposals must be submitted not later than the following date and time: <u>26 March 2018 up to 13.30hrs (local time) at latest.</u></p> <p>The Technical proposals shall be opened on the same day as from 13.35 hours in the Conference Room of the Ministry of Energy and Public Utilities in presence of Bidders/Bidders' representatives who choose to attend. The Financial proposals shall be kept unopened.</p> <p>Electronic submission of bids shall not be accepted.</p>
5.2	Consultants may associate to enhance their qualifications and capabilities. In case of a joint venture/consortium/association, all the members will be evaluated jointly. The members of a joint venture shall be jointly and

severally liable for the assignment and shall sign the contract in case an award is made to that joint venture group. Consultants should clearly indicate the structure of their “*association*” and the duties of the partners and sub consultants in their bids. In case of joint venture/consortium/association, the applicant shall specify the Lead Partner.

Note :

For evaluation purposes, only the key experts mentioned at Clause 4.0 of the Terms of Reference at Section 5.0 shall be evaluated and markings allocated to them.

Criteria, sub-criteria, and point system for the evaluation of Full Technical Proposals are:

	<u>Points</u>
(i) Specific experience of the Consultants relevant to the assignment:	[10]
(ii) Adequacy of the proposed methodology and work plan in responding to the Terms of Reference:	
a) Technical approach and methodology	[15]
b) Work plan	[10]
c) Organization and staffing	[10]
Total points for criterion (ii):	[35]
(iii) Key professional staff qualifications and competence for the assignment:	
a) Team Leader –Senior Expert	[10]
b) Hydraulic Expert	[8]
c) Dam Engineer Expert	[8]
d) Hydrologist Expert	[8]
e) Geographic Information System/Remote Sensing Expert	[6]
f) Social Economist Expert	[5]
Total points for criterion (iii):	[45]

In the event the Team Leader –Senior Expert does not meet the stated minimum requirements, the firm shall automatically be disqualified.

The number of points to be assigned to each of the above positions or disciplines shall be determined considering the following three sub criteria and relevant percentage weights:

1) General qualifications	[30%]
2) Adequacy for the assignment	[60%]
3) Experience in region and language	[10%]
Total weight:	100%

(iv) Suitability of the transfer of knowledge (training) program:

	<p>a) Proposed training program [3] b) Approach and methodology for training [3]</p> <p style="text-align: right;">Total points for criterion (iv): [6]</p> <p>(v) Participation by nationals among proposed key staff [4]</p> <p style="text-align: right;">Total points for the five criteria: 100</p> <p>The minimum technical score S_t required to pass is: 70 Points</p> <p>Only Firms with Technical Proposals scoring at least 50% in each of the criteria (ii) and (iii) mentioned above and having a Technical Score of at least 70 Points will be considered for further financial evaluation. Any firm failing to score at least 50% in any one of the criteria (ii) and (iii) mentioned above will automatically be disqualified.</p> <p>The Financial Proposals of technically disqualified firms will be returned unopened.</p>
5.7	<p>The lowest evaluated Financial Proposal (F_m) is given the maximum financial score (S_f) of 100.</p> <p>The formula for determining the financial scores (S_f) of all other Proposals is calculated as follows:</p> <p>$S_f = 100 \times F_m / F$, in which S_f is the financial score, F_m is the lowest price and F the price of the proposal under consideration.</p> <p>The weights given to the Technical (T) and Financial (F) Proposals are: $T = 0.8$, and $P = 0.2$</p> <p>Proposals are ranked according to their combined technical (S_t) and financial (S_f) scores using the weights ($T =$ the weight given to the Technical Proposal; $P =$ the weight given to the Financial Proposal; $T + P = 1$) as following: $S = S_t \times T + S_f \times P$.</p>
6.1	<p>Expected date and address for contract negotiations: 2018; 10.00 hours (if applicable)</p> <p>At : Ministry of Energy and Public Utilities Level 2, SICOM Tower, Wall Street, Ebène, Mauritius</p>

7.7	<p>Expected date for commencement of consulting services: Fourteen (14) days from issue of Letter of Acceptance, or on such later date as the Parties may agree in writing.</p> <p>At:</p> <p>Ministry of Energy and Public Utilities Level 2, SICOM Tower, Wall Street, Ebène, Mauritius</p> <p>&</p> <p>Water Resources Unit Level 3, Royal Commercial Complex, St Ignace, Rose-Hill, Mauritius</p>
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Section 3. Technical Proposal - Standard Forms

Refer to Reference Paragraph 3.4 of the Data Sheet for format of Technical Proposal to be submitted, and paragraph 3.4 of Section 2 of the RFP for Standard Forms required and number of pages recommended.

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Form TECH-1: Technical Proposal Submission Form

[Location, Date]

To: [Name and address of Client]

Dear Sir/Madam:

- (a) We, the undersigned, offer to provide the consulting services for [Insert title of assignment] in accordance with your Invitation for Proposals dated [Insert Date] and our Proposal. We are hereby submitting our Proposal, which includes this Technical Proposal, and a Financial Proposal sealed under a separate envelope¹.
- (b) We are submitting our Proposal in association with: [Insert a list with full name and address of each associated Consultant]²
- (c) We hereby declare that all the information and statements made in this Proposal are true and accept that any misinterpretation contained in it may lead to our disqualification.
- (d) If negotiations are held during the period of validity of the Proposal, i.e., before the date indicated in Paragraph Reference 1.12 of the Data Sheet, we undertake to negotiate on the basis of the proposed staff. Our Proposal is binding upon us and subject to the modifications resulting from Contract negotiations.
- (e) We undertake, if our Proposal is accepted, to initiate the consulting services related to the assignment not later than the date indicated in Paragraph Reference 7.7 of the Data Sheet.
- (f) We have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption as per the principles described hereunder, during the bidding process and contract execution:
 - (i) We shall not, directly or through any other person or firm, offer, promise or give to any of the clients' employees involved in the bidding process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
 - (ii) We shall not enter with other Consultants into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-

submission of proposals or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.

- (iii) We shall not use falsified documents, erroneous data or deliberately not disclose requested facts to obtain a benefit in a procurement proceeding.

We understand that transgression of the above is a serious offence and appropriate actions will be taken against such consultants.

- (g) We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Authorized Signature [*In full and initials*]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Address: _____

-
- 1 [*In case Paragraph Reference 1.2 of the Data Sheet requires to submit a Technical Proposal only, replace this sentence with: “We are hereby submitting our Proposal, which includes this Technical Proposal only.”*]
2 [*Delete in case no association is foreseen.*]

Form TECH-2: Consultant's Organization and Experience

A - Consultant's Organization

[Provide here a brief (around two pages) description of the background and organization of your firm/entity and each associate for this assignment.]

B - Consultant's Experience

[Using the format below, provide information on each assignment for which your firm, and each associate for this assignment, was legally contracted either individually as a corporate entity or as one of the major companies within an association, for carrying out consulting services similar to the ones requested under this assignment. Use around 20 pages.]

Assignment name:	Approx. value of the contract (in current US\$ or Euro or MUR equivalent):
Country: Location within country:	Duration of assignment (months):
Name of Client:	Total N° of staff-months of the assignment:
Address:	Approx. value of the services provided by your firm under the contract (in current US\$ or Euro or MUR equivalent):
Start date (month/year): Completion date (month/year):	N° of professional staff-months provided by associated Consultants:
Name of associated Consultants, if any:	Name of senior professional staff of your firm involved and functions performed (indicate most significant profiles such as Project Director/Coordinator, Team Leader):
Narrative description of Project:	
Description of actual services provided by your staff within the assignment:	

Firm's Name: _____

Form TECH-3: Comments and Suggestions on the Terms of Reference and on Counterpart Staff and Facilities to be Provided by the Client

A - On the Terms of Reference

[Present and justify here any modifications or improvement to the Terms of Reference you are proposing to improve performance in carrying out the assignment (such as deleting some activities you consider unnecessary, or adding another, or proposing a different phasing of the activities). Such suggestions should be concise and to the point, and incorporated in your Proposal.]

B - On Counterpart Staff and Facilities

[Comment here on counterpart staff and facilities to be provided by the Client according to Paragraph Reference 1.4 of the Data Sheet including: administrative support, office space, local transportation, equipment, data, etc.]

Form TECH-4: Description of Approach, Methodology and Work Plan for Performing the Assignment

[Technical approach, methodology and work plan are key components of the Technical Proposal. You are suggested to present your Technical Proposal (about 50 pages, inclusive of charts and diagrams) divided into the following three chapters:

- a) Technical Approach and Methodology,*
- b) Work Plan, and*
- c) Organization and Staffing,*

a) Technical Approach and Methodology. In this chapter you should explain your understanding of the objectives of the assignment, approach to the services, methodology for carrying out the activities and obtaining the expected output, and the degree of detail of such output. You should highlight the problems being addressed and their importance, and explain the technical approach you would adopt to address them. You should also explain the methodologies you propose to adopt and highlight the compatibility of those methodologies with the proposed approach.

b) Work Plan. In this chapter you should propose the main activities of the assignment, their content and duration, phasing and interrelations, milestones (including interim approvals by the Client), and delivery dates of the reports. The proposed work plan should be consistent with the technical approach and methodology, showing understanding of the TOR and ability to translate them into a feasible working plan. A list of the final documents, including reports, drawings, and tables to be delivered as final output, should be included here. The work plan should be consistent with the Work Schedule of Form TECH-8.

c) Organization and Staffing. In this chapter you should propose the structure and composition of your team. You should list the main disciplines of the assignment, the key expert responsible, and proposed technical and support staff.]

Form TECH-6: Curriculum Vitae (CV) for Proposed Professional Staff

1. **Proposed Position** *[only one candidate shall be nominated for each position]:* _____

2. **Name of Firm** *[Insert name of firm proposing the staff]:* _____

3. **Name of Staff** *[Insert full name]:* _____

4. **Date of Birth:** _____ **Nationality:** _____

5. **Education** *[Indicate college/university and other specialized education of staff member, giving names of institutions, degrees obtained, and dates of obtainment]:* _____

6. **Membership of Professional Associations:** _____

7. **Other Training** *[Indicate significant training since degrees under 5 - Education were obtained]:* _____

8. **Countries of Work Experience:** *[List countries where staff has worked in the last ten years]:* _____

9. **Languages** *[For each language indicate proficiency: good, fair, or poor in speaking, reading, and writing]:* _____

10. **Employment Record** *[Starting with present position, list in reverse order every employment held by staff member since graduation, giving for each employment (see format here below): dates of employment, name of employing organization, positions held.]:*

From [Year]: _____ To [Year]: _____

Employer: _____

Positions held: _____

<p>11. Detailed Tasks Assigned</p> <p><i>[List all tasks to be performed under this assignment]</i></p>	<p>12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned</p> <p><i>[Among the assignments in which the staff has been involved, indicate the following information for those assignments that best illustrate staff capability to handle the tasks listed under point 11.]</i></p> <p>Name of assignment or project: _____</p> <p>Year: _____</p> <p>Location: _____</p> <p>Client: _____</p> <p>Main project features: _____</p> <p>Positions held: _____</p> <p>Activities performed: _____</p>
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13. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.



_____ Date: _____
[Signature of staff member or authorized representative of the staff] *Day/Month/Year*

Full name of authorized representative: _____

FormTECH-7: Staffing Schedule¹

N°	Name of Staff	Staff input (in the form of a bar chart) ²													Total staff-month input			
		1	2	3	4	5	6	7	8	9	10	11	12	n	Home	Field ³	Total	
Foreign																		
1		[Home]																
		[Field]																
2																		
3																		
n																		
										Subtotal								
Local																		
1		[Home]																
		[Field]																
2																		
n																		
										Subtotal								
										Total								

- 1 For Professional Staff the input should be indicated individually; for Support Staff it should be indicated by category (e.g.: draftsmen, clerical staff, etc.).
- 2 Months are counted from the start of the assignment. For each staff indicate separately staff input for home and field work.
- 3 Field work means work carried out at a place other than the Consultant's home office.

 Full time input
 Part time input

FormTECH-8 Work Schedule

N°	Activity ¹	Months ²												
		1	2	3	4	5	6	7	8	9	10	11	12	n
1														
2														
3														
4														
5														
n														

- 1 Indicate all main activities of the assignment, including delivery of reports (e.g.: inception, interim, and final reports), and other benchmarks such as Client approvals. For phased assignments indicate activities, delivery of reports, and benchmarks separately for each phase.
- 2 Duration of activities shall be indicated in the form of a bar chart.

Section 4. Financial Proposal - Standard Forms

[Comments in brackets [] provide guidance to the Consultants for the preparation of their Financial Proposals; they should not appear on the Financial Proposals to be submitted.]

Financial Proposal Standard Forms shall be used for the preparation of the Financial Proposal according to the instructions provided under para. 3.6 of Section 2. Such Forms are to be used whichever is the selection method indicated in para. 4 of the Letter of Invitation.

[The Appendix “Financial Negotiations - Breakdown of Remuneration Rates” is to be only used for financial negotiations when Quality-Based Selection, Selection Based on Qualifications, or Single-Source Selection method is adopted, according to the indications provided under para. 6.3 of Section 2.]

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Form FIN-1: Financial Proposal Submission Form

[Location, Date]

To: [Name and address of Client]

Dear Sir/Madam:

- (a) We, the undersigned, offer to provide the consulting services for [*Insert title of assignment*] in accordance with your Invitation for Proposal dated [*Insert Date*] and our Technical Proposal. Our attached Financial Proposal is for the lump sum of [*Insert amount(s) in words and figures*¹]. This amount is inclusive of the local taxes except VAT.
- (b) Our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal, i.e. before the date indicated in Paragraph Reference 1.12 of the Data Sheet.
- (c) Commissions and gratuities paid or to be paid by us to agents relating to this Proposal and Contract execution, if we are awarded the Contract, are listed below²:

Name and Address of Agents	Amount and Currency	Purpose of Commission or Gratuity

- (d) We have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption as per the principles described hereunder, during the bidding process and contract execution:
- i. We shall not, directly or through any other person or firm, offer, promise or give to any of the clients' employees involved in the bidding process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
 - ii. We shall not enter with other applicants into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.

iii. We shall not use falsified documents, erroneous data or deliberately not disclose requested facts to obtain a benefit in a procurement proceeding.

We understand that transgression of the above is a serious offence and appropriate actions will be taken against such applicants.

(e) We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Authorized Signature [*In full and initials*]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Address: _____

-
- 1 Amounts must coincide with the ones indicated under Total Cost of Financial proposal in Form FIN-2.
 - 2 If applicable, replace this paragraph with: “No commissions or gratuities have been or are to paid by us to agents relating to this Proposal and Contract execution.”

Form FIN-2: Summary of Costs

Item	Costs			
	<i>[Indicate Foreign Currency # 1]¹</i>	<i>[Indicate Foreign Currency # 2]¹</i>	<i>[Indicate Foreign Currency # 3]¹</i>	<i>[Indicate Mauritian Rupees]</i>
Total Costs of Financial Proposal ²				

- 1 Indicate between brackets the name of the foreign currency. Maximum of three currencies; use as many columns as needed, and delete the others.
- 2 Indicate the total costs, net of local taxes, to be paid by the Client in each currency. Such total costs must coincide with the sum of the relevant Subtotals indicated in all Forms FIN-3 provided with the Proposal.

Form FIN-3: Breakdown of Costs by Activity¹

Group of Activities (Phase):² _____ _____	Description:³ _____ _____			
Cost component	Costs			
	<i>[Indicate Foreign Currency # 1]⁴</i>	<i>[Indicate Foreign Currency # 2]⁴</i>	<i>[Indicate Foreign Currency # 3]⁴</i>	<i>[Indicate Mauritian Rupees]</i>
Remuneration ⁵				
Reimbursable Expenses ⁵				
Subtotals				

- 1 Form FIN-3 shall be filled at least for the whole assignment. In case some of the activities require different modes of billing and payment (e.g.: the assignment is phased, and each phase has a different payment schedule), the Consultant shall fill a separate Form FIN-3 for each group of activities. For each currency, the sum of the relevant Subtotals of all Forms FIN-3 provided must coincide with the Total Costs of Financial Proposal indicated in Form FIN-2.
- 2 Names of activities (phase) should be the same as, or correspond to the ones indicated in the second column of Form TECH-8.
- 3 Short description of the activities whose cost breakdown is provided in this Form.
- 4 Indicate between brackets the name of the foreign currency. Use the same columns and currencies of Form FIN-2.
- 5 For each currency, Remuneration and Reimbursable Expenses must respectively coincide with relevant Total Costs indicated in Forms FIN-4, and FIN-5.

Form FIN-4: Breakdown of Remuneration¹ (Lump-Sum)

(This Form FIN-4 shall only be used when the Lump-Sum Form of Contract has been included in the RFP. Information to be provided in this Form shall only be used to establish payments to the Consultant for possible additional services requested by the Client)

Name ²	Position ³	Staff-month Rate ⁴
Foreign Staff		
		[Home] ----- [Field]
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
Local Staff		
		[Home] ----- [Field]
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----
		----- ----- -----

- 1 Form FIN-4 shall be filled in for the same Professional and Support Staff listed in Form TECH-7.
- 2 Professional Staff should be indicated individually; Support Staff should be indicated per category (e.g.: draftsmen, clerical staff).
- 3 Positions of the Professional Staff shall coincide with the ones indicated in Form TECH-5.
- 4 Indicate separately staff-month rate and currency for home and field work.

Form FIN-5: Breakdown of Reimbursable Expenses (Lump-Sum)

(This Form FIN-5 shall only be used when the Lump-Sum Form of Contract has been included in the RFP. Information to be provided in this Form shall only be used to establish payments to the Consultant for possible additional services requested by the Client)

N°	Description ¹	Unit	Unit Cost ²
	Per diem allowances	Day	
	International flights ³	Trip	
	Miscellaneous travel expenses	Trip	
	Communication costs between [<i>Insert place</i>] and [<i>Insert place</i>]		
	Drafting, reproduction of reports		
	Equipment, instruments, materials, supplies, etc.		
	Shipment of personal effects	Trip	
	Use of computers, software		
	Laboratory tests.		
	Subcontracts		
	Local transportation costs		
	Office rent, clerical assistance		
	Training of the Client's personnel ⁴		

1 Delete items that are not applicable or add other items according to Paragraph Reference 3.6 of the Data Sheet.

2 Indicate unit cost and currency.

3 Indicate route of each flight, and if the trip is one- or two-ways.

4 Only if the training is a major component of the assignment, defined as such in the TOR.

Appendix: Financial Negotiations - Breakdown of Remuneration Rates – Not Applicable

(Not to be used when cost is a factor in the evaluation of Proposals)

1. Review of Remuneration Rates

- 1.1 The remuneration rates for staff are made up of salary, social costs, overheads, fee that is profit, and any premium or allowance paid for assignments away from headquarters. To assist the firm in preparing financial negotiations, a Sample Form giving a breakdown of rates is attached (no financial information should be included in the Technical Proposal). Agreed breakdown sheets shall form part of the negotiated contract.
- 1.2 The Client is charged with the custody of government funds and is expected to exercise prudence in the expenditure of these funds. The Client is, therefore, concerned with the reasonableness of the firm's Financial Proposal, and, during negotiations, it expects to be able to review audited financial statements backing up the firm's remuneration rates, certified by an independent auditor. The firm shall be prepared to disclose such audited financial statements for the last three years, to substantiate its rates, and accept that its proposed rates and other financial matters are subject to scrutiny. Rate details are discussed below.
- (i) **Salary**
This is the gross regular cash salary paid to the individual in the firm's home office. It shall not contain any premium for work away from headquarters or bonus (except where these are included by law or government regulations).
 - (ii) **Bonus**
Bonuses are normally paid out of profits. Because the Client does not wish to make double payments for the same item, staff bonuses shall not normally be included in the rates. Where the Consultant's accounting system is such that the percentages of social costs and overheads are based on total revenue, including bonuses, those percentages shall be adjusted downward accordingly. Where national policy requires that 13 months' pay be given for 12 months' work, the profit element need not be adjusted downward. Any discussions on bonuses shall be supported by audited documentation, which shall be treated as confidential.
 - (iii) **Social Costs**
Social costs are the costs to the firm of staff's non-monetary benefits. These items include, *inter alia*, social security including pension, medical and life insurance costs, and the cost of a staff member being sick or on vacation. In this regard, the cost of leave for public holidays is not an acceptable social cost nor is

the cost of leave taken during an assignment if no additional staff replacement has been provided. Additional leave taken at the end of an assignment in accordance with the firm's leave policy is acceptable as a social cost.

(iv) Cost of Leave

The principles of calculating the cost of total days leave per annum as a percentage of basic salary shall normally be as follows:

$$\text{Leave cost as percentage of salary}^1 = \frac{\text{total days leave} \times 100}{[365 - w - ph - v - s]}$$

It is important to note that leave can be considered a social cost only if the Client is not charged for the leave taken.

(v) Overheads

Overhead expenses are the firm's business costs that are not directly related to the execution of the assignment and shall not be reimbursed as separate items under the contract. Typical items are home office costs (partner's time, non-billable time, time of senior staff monitoring the project, rent, support staff, research, staff training, marketing, etc.), the cost of staff not currently employed on revenue-earning projects, taxes on business activities and business promotion costs. During negotiations, audited financial statements, certified as correct by an independent auditor and supporting the last three years' overheads, shall be available for discussion, together with detailed lists of items making up the overheads and the percentage by which each relates to basic salary. The Client does not accept an add-on margin for social charges, overhead expenses, etc., for staff who are not permanent employees of the firm. In such case, the firm shall be entitled only to administrative costs and fee on the monthly payments charged for subcontracted staff.

(vi) Fee or Profit

The fee or profit shall be based on the sum of the salary, social costs, and overhead. If any bonuses paid on a regular basis are listed, a corresponding reduction in the profit element shall be expected. Fee or profit shall not be allowed on travel or other reimbursable expenses, unless in the latter case an unusually large amount of procurement of equipment is required. The firm shall note that payments shall be made against an agreed estimated payment schedule as described in the draft form of the contract.

(vii) Away from Headquarters Allowance or Premium

Some Consultants pay allowances to staff working away from headquarters. Such allowances are calculated as a percentage of salary and shall not draw overheads or profit. Sometimes, by law, such allowances may draw social costs.

¹ Where w = weekends, ph = public holidays, v = vacation, and s = sick leave.

In this case, the amount of this social cost shall still be shown under social costs, with the net allowance shown separately. For concerned staff, this allowance, where paid, shall cover home education, etc.; these and similar items shall not be considered as reimbursable costs.

(viii) **Subsistence Allowances**

Subsistence allowances are not included in the rates, but are paid separately and in local currency. No additional subsistence is payable for dependents—the subsistence rate shall be the same for married and single team members.

UNDP standard rates for the particular country may be used as reference to determine subsistence allowances.

2. Reimbursable expenses

- 2.1 The financial negotiations shall further focus on such items as out-of-pocket expenses and other reimbursable expenses. These costs may include, but are not restricted to, cost of surveys, equipment, office rent, supplies, international and local travel, computer rental, mobilization and demobilization, insurance, and printing. These costs may be either unit rates or reimbursable on the presentation of invoices, in foreign or local currency.

3. Bank Guarantee

- 3.1 Payments to the firm, including payment of any advance based on cash flow projections covered by a bank guarantee, shall be made according to an agreed estimated schedule ensuring the firm regular payments in local and foreign currency, as long as the services proceed as planned.

Sample Form

Consulting Firm:

Country:

Assignment:

Date:

Consultant's Representations Regarding Costs and Charges

We hereby confirm that:

- (a) the basic salaries indicated in the attached table are taken from the firm's payroll records and reflect the current salaries of the staff members listed which have not been raised other than within the normal annual salary increase policy as applied to all the firm's staff;
- (b) attached are true copies of the latest salary slips of the staff members listed;
- (c) the away from headquarters allowances indicated below are those that the Consultants have agreed to pay for this assignment to the staff members listed;
- (d) the factors listed in the attached table for social charges and overhead are based on the firm's average cost experiences for the latest three years as represented by the firm's financial statements; and
- (e) said factors for overhead and social charges do not include any bonuses or other means of profit-sharing.

[Name of Consulting Firm]

Signature of Authorized Representative

Date

Name: _____

Title: _____

Consultant’s Representations Regarding Costs and Charges

(Expressed in *[insert name of currency]*)

Personnel		1	2	3	4	5	6	7	8
Name	Position	Basic Salary per Working Month/Day/Year	Social Charges ¹	Overhead ¹	Subtotal	Fee ²	Away from Headquarters Allowance	Proposed Fixed Rate per Working Month/Day/Hour	Proposed Fixed Rate per Working Month/Day/Hour ¹
Home Office									
Field									

1. Expressed as percentage of 1
2. Expressed as percentage of 4

Section 5. Terms of Reference

1.0 INTRODUCTION

The Ministry of Energy and Public Utilities of the Republic of Mauritius intends to appoint a Consultant for the “Consultancy Services for the dam break analysis of Mare aux Vacoas, Midlands Dam, La Ferme, Mare Longue & Piton du Milieu reservoirs in the Republic of Mauritius”. For each of the above named reservoirs, the project consists mainly of the following:

- Dam Break Study to determine the water level in all areas located downstream of the dam and along their respective rivers to the sea.
- River training/hydraulic study of river(s) concerned to determine the water levels in the river(s) in case of reservoir opening through outlet gates and also in case of spilling over the spillway(s).
- Predict the water level in the river(s) for different discharges and to develop an appropriate warning system

1.1 General Information on the Island of Mauritius

1.1.1 Location

Mauritius, a volcanic island of about 1865 km², is situated between latitudes 19°18'S and 20°52'S and between longitudes 57°18'E and 57°46'E, at a distance of about 890 km east of Madagascar.

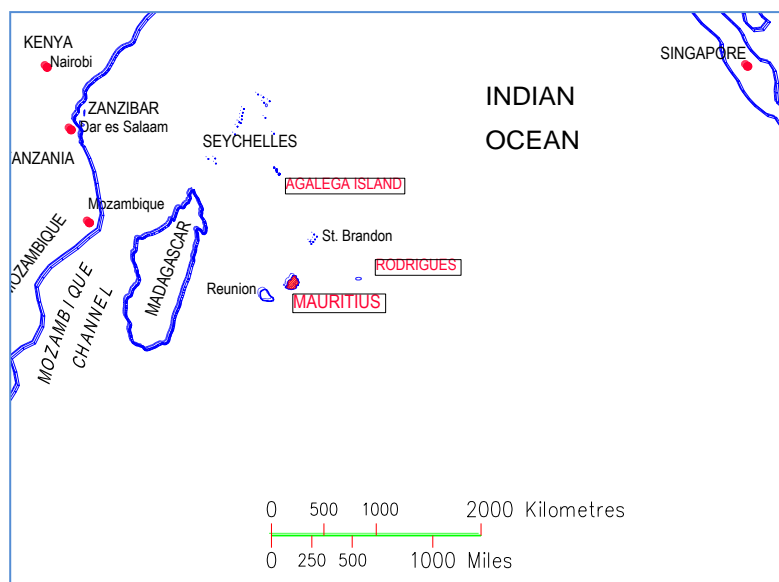


Figure 1

1.1.2 Climate

Mauritius enjoys a tropical maritime climate with two seasons - summer and winter. Summer, from November to April, is the rainy season, February being the wettest month. Winter, from May to October, is the drier period, October being the driest month. Summer is also the season during which cyclones occur, with gusts reaching up to about 250 km/hr. The average annual rainfall over Mauritius is 2100 mm, ranging from 1500 mm on the East coast (windward side) to about 3800 mm on the Central Plateau and 900 mm on the West coast (leeward side).

Mean annual temperature varies between 20⁰C and 25⁰C. Extreme temperatures are of the order of about 10⁰C at night in winter and 35⁰C during the day in summer. Relative humidity varies between about 60% and 90%.

1.1.3 Hydrology

Most of the rivers in Mauritius are perennial and spring from the Central Plateau to flow radially to the sea. The Island has been divided into 25 major river basins and 22 minor ones. Drainage areas vary from 3 to 164 km².

There are approximately 300 rain gauge stations, spread all over the Island, measuring the total daily rainfall. In addition, about 15 continuous recording stations provide data about intensity and duration of rainfall. However, these recording stations are unevenly distributed. Although Mauritius occupies an area of only 1865 km², the topography is such that there is a high variation in rainfall over very short distances.

River water levels are being gauged at more than hundred locations. Half of these stations are equipped with continuous recording water level recorders. The average observation period is about 40 years. The topography of the country, the size and shape of the river basins are such that heavy rainfall results in flash floods with very sharp peaks. The time of concentration is of the order of two to three hours, and floods subside in a matter of hours. Flows in surface streams range from a few litres per second to more than 500 m³/s during floods.

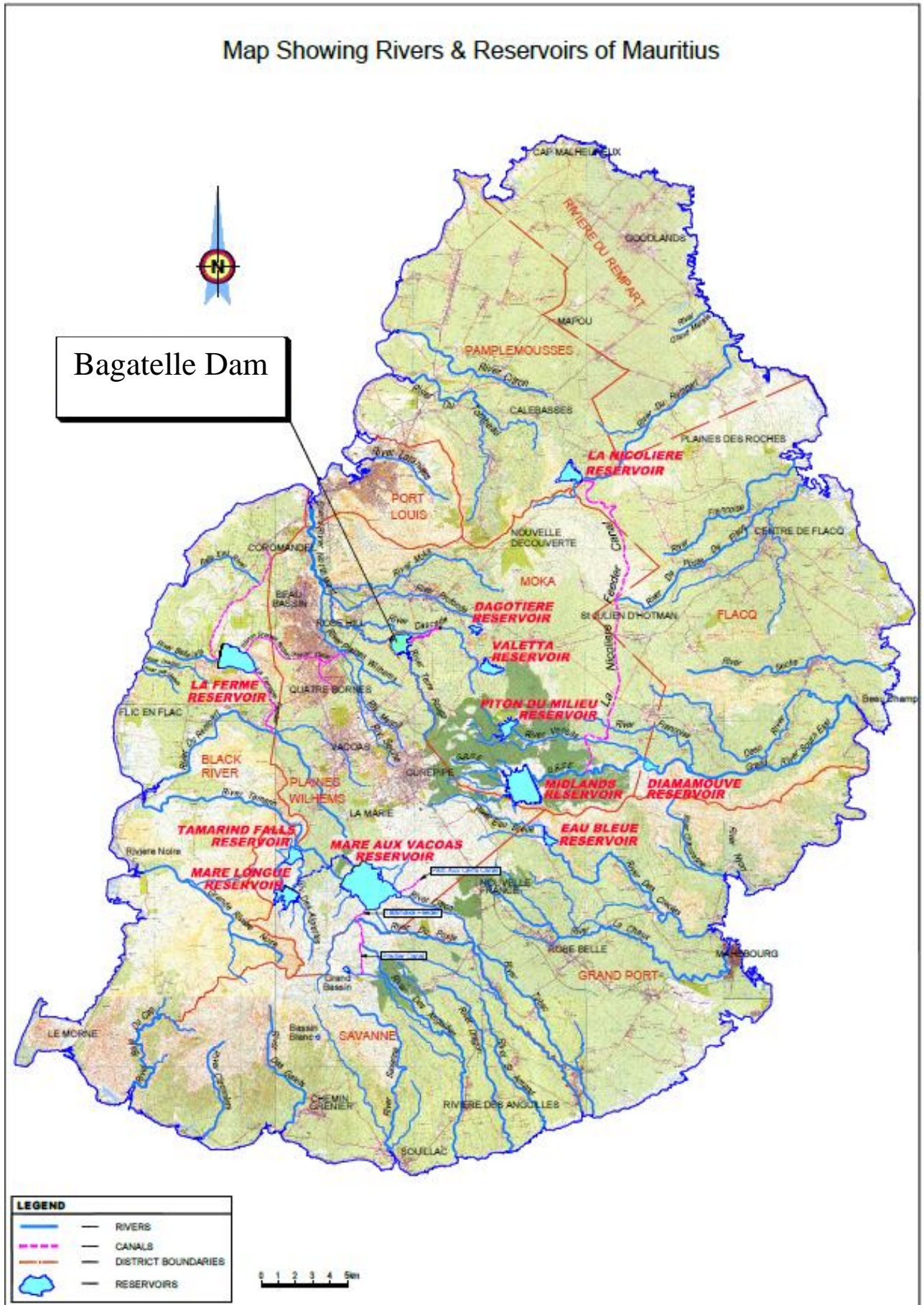
1.1.4 Geology / Hydrogeology

The Island is of volcanic origin. The geology consists of a relatively impermeable stratum made up of Old Lavas underlying flows from the Intermediate Series and the Younger Series. These are the results of 3 main activity periods occurring between 10 million years to 25,000 years ago. Transmissivities vary between 10⁻⁵ to 10⁻³ m²/s for the Intermediate Series and from 10⁻⁴ to 10⁻² m²/s for the Younger Series. The highest transmissivities for both the Intermediate and the Younger Lava Series correspond to transmissivities within fractured zones. The maximum yield obtained from any single borehole, to date, is of the order of 8000 m³/day.

1.1.5 Reservoirs of Mauritius

Mauritius has a number of reservoirs as listed below used for both domestic and industrial use. The map on the following page shows the main rivers and reservoirs of Mauritius.

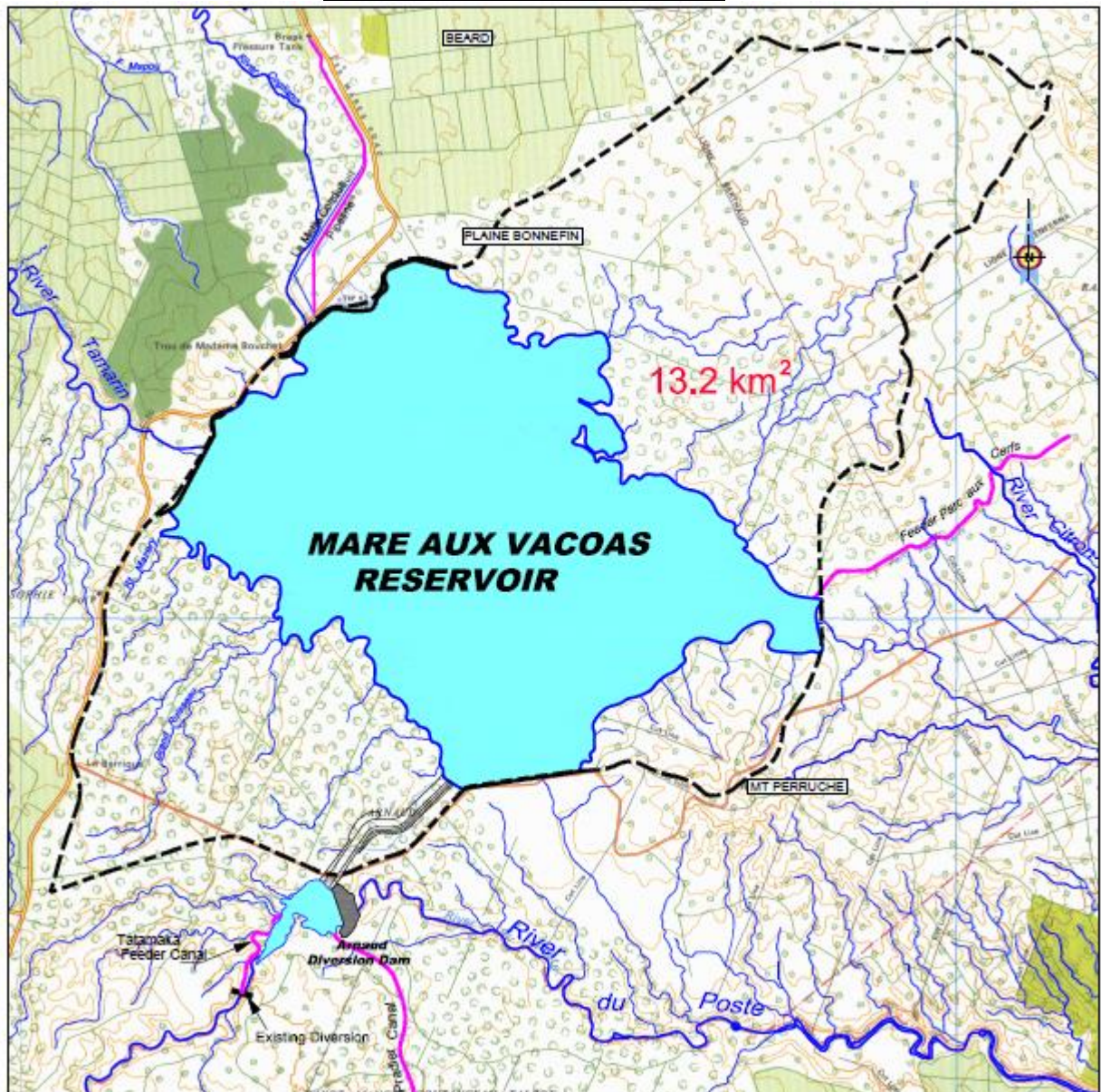
Map Showing Rivers & Reservoirs of Mauritius



The reservoirs of interest for the purpose of the dam break and flood routing analysis are as described below and comprise:

- Mare aux Vacoas Reservoir
- Midlands Reservoir
- La Ferme Reservoir
- Mare Longue Reservoir
- Piton du Milieu reservoir

Mare aux Vacoas Reservoir



Key data for Mare aux Vacoas

Location: Across marshy area, called Mare aux Vacoas in the district of Plaines Wilhems
 Year of construction: In 1885, height and capacity increased in stages (in 1892, 1915, 1922, 1928, 1941) and finally in 1961

Catchment area: 19.50 km²

Mean annual rainfall: 3330 mm

Regulated yield: 33 Mm³ per year

Feeder canals: - Tatamaka canal (1922), capacity 4.25 m³/s
 - Parc aux Cerfs Canal (1971), capacity 9.5 m³/s
 - Pradier Canal (2002), capacity 2.63 m³/s
 - Arnaud feeder canal, flood flows

Full reservoir level: 566.35 amsl

Feeders in local catchment: Ruisseau Gros Cerfs

Gros Ruisseau

Grand Ruisseau

Type of dam: Cogliano and Tamarin dams are homogenous earthen embankments. Mare Soulier Spillway and Second Spillway dams are of masonry

Maximum height of dam: Cogliano – 10m

Tamarin- 11m

Mare Soulier – 6m

Second spillway dam – 3.5m

Length of dam: 2948.50m

Width of spillway: 1063.5m

Purpose: Potable water supply

Mare aux Vacoas reservoir is the largest water body in Mauritius. Presently the storage is primarily used for domestic water supply. The dam was built in 1885 and the last capacity increase was done in 1961. The spillway of Mare aux Vacoas has discharged on a number of occasions in the past although the earthen dams have never been overtopped. Mare aux Vacoas reservoir is formed by a group of dams located adjoining each other and is very close to Henrietta village in the district of Plaines Wilhems. It is accessible by Les Mares Road from Vacoas which runs along the downstream of the dam. The dams are reported to have been constructed in the year 1915 for storing water from seasonal streams. Grand Ruisseau Rivulet, Parc aux Cerfs feeder canal, Arnaud feeder canal (also called Tatamaka feeder canal) in the south. The storage of the reservoir was augmented by raising the height of the existing dam in the years 1926, 1940 and again in 1961. The gross storage capacity of the reservoir after 1961 modernization scheme was 27.6 Mm³ of which 22 Mm³ was live storage. In the year 1996, a hydrographic survey was conducted and the present gross storage capacity is reported to be 25.89 Mm³

River system and drainage area

Mare aux Vacoas reservoir is originally a natural lake in one of the marshy depression lying between catchment areas of Rivière Tamarin and Rivière du Poste. Its catchment is bound by ridge of 680m. Small streams drain the area from North Eastern and South Western sides and join the reservoir. The capacity of the reservoir was increased by diverting the flow of Rivière du Poste through Arnaud feeder and also by capturing the overland flows of the upper catchment of Rivière Citron by the Parc aux Cerfs feeder

canal. The inflow was also increased by the construction of canal Pradier which captures the flood flow from the tributaries of Rivière des Anguilles.

MARE AUX VACOAS RESERVOIR			
FEEDERS		SCHEMATIC DIAGRAM	
NATURAL STREAMS :			
FEEDER CANAL	LENGTH (Km)	RIVER	DESIGN CAPACITY m ³ /s
Arnaud diversion	dam : 0.15 canal : 1km	du Poste	contribution : 10Mm ³ /year
Parc-aux-Cerfs	3.2	Citron(South)	9.5
Pradier	4.1	Des Anguilles & tributaries Feeder Leckraz	2.63

The total catchment area of the reservoir site is 19.5 km² comprising of two sub-catchments having streams meeting the reservoir directly as well as the surface area of the reservoir as follows:

- Drainage area of 10.25 km² on North Eastern side of the reservoir including natural drainage and catchment of small streams.
- Drainage area of 3.88 km² on South Western side of the reservoir including Grand Ruisseau rivulet
- Surface area of 5.37 km² at full reservoir level.
- Total catchment area of 19.5 km²

Climate

The climate is influenced by the prevailing East South Easterly winds. The mean annual rainfall over the catchment ranges from 3200 to 3800 mm. This area is one of the few areas that receive the highest rainfall. The high rainfall period is from December to May. Rainfall in October and November is very meager.

Components of Mare aux Vacoas reservoir

The Mare aux Vacoas reservoir is formed by the following four dams:

- Cogliano dam
- Tamarin dam
- Mare Soulier spillway dam
- Second spillway dam

Cogliano Dam

Cogliano Dam on the North West is a homogeneous earthen embankment of maximum height of about 10m in the Cogliano Valley across Cogliano River. The upstream and downstream slopes of the present Cogliano dam are in general 2 horizontal to 1 vertical and the total length is 1214.0 m. The crest level of the dam varies from elevation 567.3 m to 569.71 m between chainage 500 m to 800 m and varies from elevation 569.71 m to elevation 569.50m between chainage 800 m to 1214 m. The top width of the dam also varies from 4.57 m at the left flank to 2.50 m towards the right flank. The upstream slope has a berm of width 4.57m between chainage 550 m to 1150 m at elevation 567.17 m. The upstream slope has dry stone pitching on the slopes as well as on the berm.

Tamarin Dam

The Tamarin Dam located about 500 m South-West of Cogliano Dam is also a homogeneous earthen embankment built across Tamarin River. The height of the dam at the deepest section is about 11 m and the length is 671 m. The top elevation of the dam is in general at elevation 569.50 m. the upstream and downstream slopes are 2 horizontal to 1 vertical. A berm of width 4.57m exists on the upstream side at elevation 567.16m between 100 m to chainage 560m. The top width of the dam varies from 3.5 m to 4.57 m from right to left flank. The upstream slope is protected by dry stone pitching including the berm at elevation 567.16m. The pitching was damaged in the reach between 235 m to 350 m due to wave action over the years. Therefore presently wire crate gabion has been provided between chainage 235 m to 360 m.

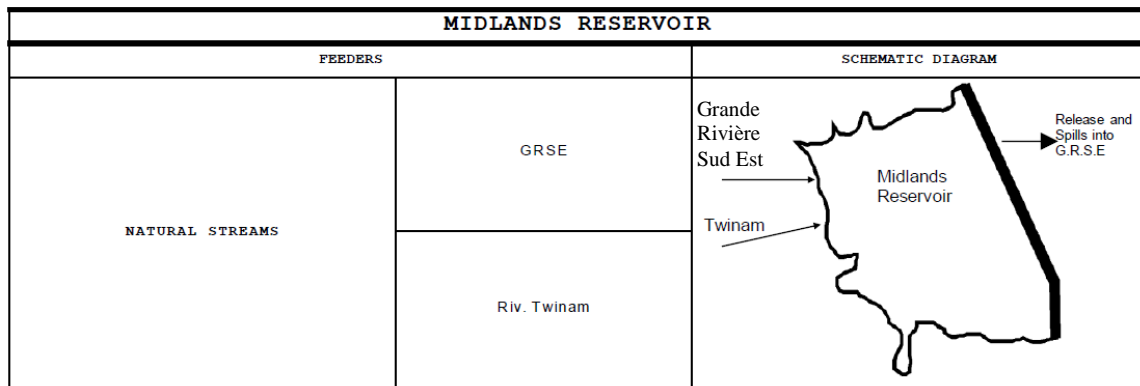
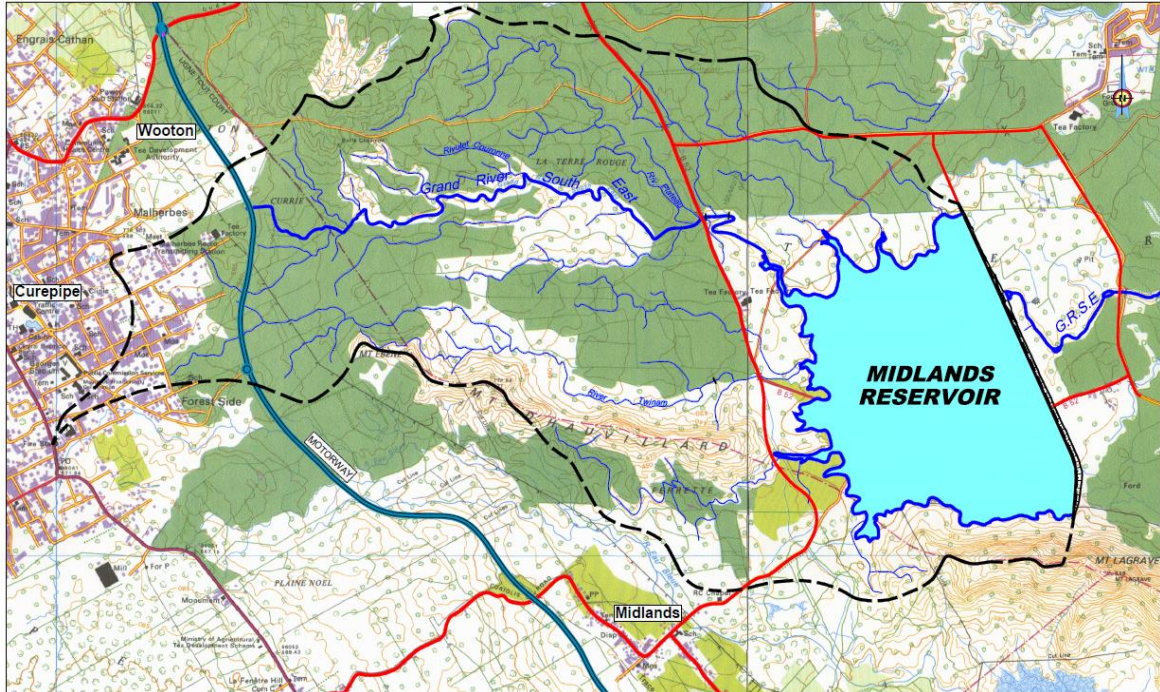
Mare Soulier

The 706 m long Mare Soulier spillway dam is a masonry faced concrete structure of maximum height of 6 m at the deepest section and was built to block the saddle South of Mare aux Vacoas reservoir. The dam primarily serves as a spillway for flood discharge to River du Poste downstream. The top of the concrete dam has been provided with a sloping concrete crest slab of 600 mm width and the crest of the dam is set at full reservoir elevation 566.35 m. A loose stone apron of length varying from 1.5m to 2.0m has been provided downstream of the dam to serve as energy dissipater for the spillway.

Second spillway dam

The 357.5 m long spillway dam is a masonry faced concrete structure of maximum height 3.5 m at the deepest section, built to block a saddle South East of the main dam. The second spillway has been provided to supplement the flood discharge capacity of the Mare aux Vacoas reservoir and is identical to the Mare Soulier masonry dam. The spillway discharge is led to river Citron downstream.

Midlands Reservoir



Key data for Midlands Reservoir

Location: Midlands in the district of Moka, on Grand River South East

Year of construction: 2002

Catchment area: 17.2 km²

Water spread area: 2.98 km²

Mean annual rainfall: 4000 mm

Feeders: GRSE and river Twinam

Regulated annual yield: 41Mm³

Reservoir capacity: 25.3Mm³

Full reservoir level: 395.00 m amsl

Maximum reservoir level: 398.24 m amsl

Dam crest level: 399.00 m amsl

Type of dam: Rockfill with upstream asphalt concrete surface sealing and cutoff wall

Maximum height: 19.5 m above ground level

30.0 m above foundation level

Length of dam: 2449 m including spillway

Type of spillway: Ungated concrete ogee shaped spillway

Height of spillway above foundation: 30m

Purpose: Potable and irrigation water supply

Midlands Dam is located in the central part of Mauritius in the district of Moka on the Grand River South East. The dam is a rockfill dam with upstream asphalt concrete surface sealing and a cutoff wall of average depth of 18m. Stored water is utilised for domestic water supply, for irrigation purposes and for additional water transfer of 40.8 Mm³/a to La Nicolière Reservoir.

The dam was completed in 2002 and is 15 years old and the spillway of the dam has functioned on a number of occasions. The present storage capacity of the reservoir is 25.3 Mm³. The dam is in good operating condition and was designed by Lahmeyer International and built by DTP Terrassement Bouygues Travaux Publics.

River system and drainage area

Midlands reservoir has been built across Grand Rivière Sud Est and is fed by both Rivière Twinam and Rivière Doudy. The drainage area of the reservoir is 17.2 km² of which 2.98km² is reservoir area at Full Reservoir Level (FRL).

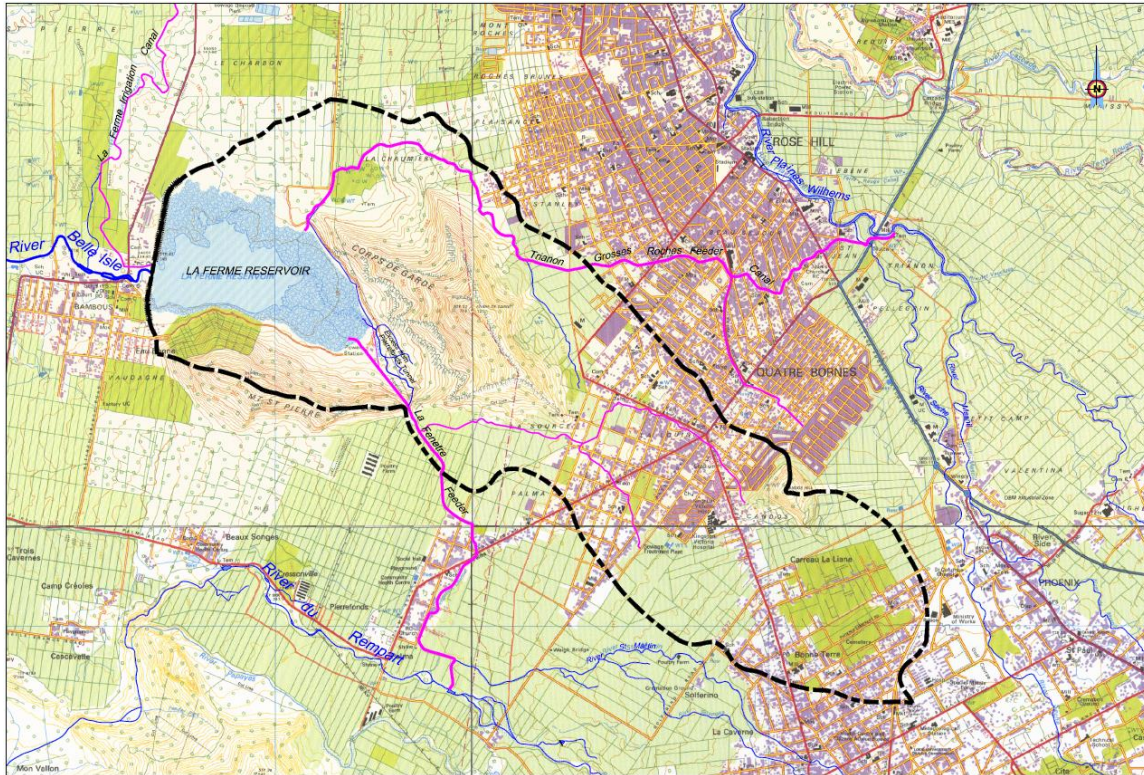
Climate

The catchment area has tropical climate and is influenced by East-South-Easterly winds and tropical cyclones during the month of December to April. Mean annual rainfall over the catchment is 4000 mm. Rainfall in October and November are statistically very low.

Existing spillway

The flood at Midlands is discharged through a spillway of ungated concrete ogee shaped. The spillway is a 63 m long including piers and abutments with 4 spans of 12.50 m long. The crest level is at elevation 395.00 m amsl. The discharge capacity of the spillway is 645 m³/s.

La Ferme Reservoir



Location: Near Bambous village

Year of construction: 1914

Purpose: Irrigation

Materials used for construction: Earth and masonry

Capacity: 11.941m³ after hydrographic survey of 1996

Full reservoir level: 146.0 m amsl

Reservoir surface area: 2.29 km²

Catchment area: 17.65 km²

Mean Annual Rainfall: 1380 mm

Type of dam: Earthfill and masonry gravity dams

Length of dam: 1526m (1250 m earth + 276 m masonry)

Maximum height of dam: 7.7 m for earth dam and 12.1m for masonry

The La Ferme reservoir formed by an earth and masonry dam was constructed in the year 1914 to store water for irrigation.

The spillway of La Ferme dam discharges almost every year although the earth dams adjoining the spillway have never been overtopped. The present storage capacity of the reservoir at the corresponding full reservoir level 146.18m is 11.941m³ after the hydrographic survey of 1996.

River system and drainage area

La Ferme reservoir is in the upper reaches of river Belle Isle. The catchment area up to dam is 17.65 km² of which 2.29 km² is water spread area of the reservoir. Left side of reservoir is bound by a hillock. The drainage area covers urban areas of Quatre Bornes and

Rose Hill. The reservoir receives water from Trianon Grosses Roches and La Fenêtre feeder canals. Trianon Grosses Roches feeder is fed by River Sèche and River Plaines Wilhems which are tributaries of Grande Rivière Nord Ouest. La Fenêtre feeder is fed by River du Rempart and River Papayes.

Climate

The climate is influenced by the movement of tropical cyclones. The mean annual rainfall over the catchment ranges from 1000 mm to 1500 mm. The rainfall period is from December to May.

Feeder canals:

LA FERME RESERVOIR				
FEEDERS				SCHEMATIC DIAGRAM
NATURAL STREAMS : River Belle Isle				
FEEDERS CANALS	LENGTH (Km)	RIVER	DESIGN CAPACITY m ³ /s	
Trianon Grosses Roches	8.0	Plaines Wilhems	2.40	
La Fenetre	4.5	Rempart (west) & Papayes	2.83	

Earth dam

The earth dam starts from chainage 0 m to chainage 884.54 m on the right bank and from chainage 1160.48 m to 1526.18 m on the left bank. The right and left bank were reported to be in appropriate condition according to the Safety Analysis Report conducted by Consulting Engineering Services of India in 1999.

Masonry dam

The masonry dam is 276 m long and comprises of a 145.26 m long spillway (from chainage 967.32 m to chainage 1112.58m).

Irrigation outlet

An irrigation outlet of size 0.90 m wide and 1.20 m high with a discharge of 1.1 m³/s has been provided through the masonry dam at Ch. 948 m to supply water to the irrigation canal downstream.

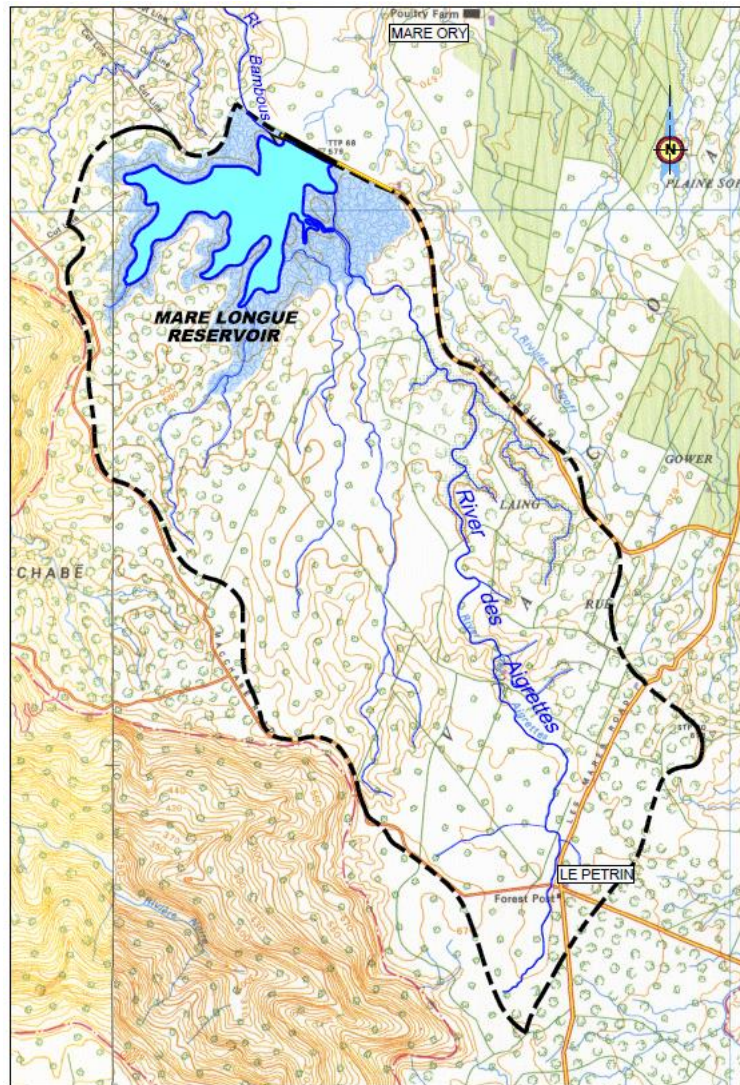
Spillway dam

Type: Masonry with concrete hearding

Length: 145.26 m

Crest level: EL 146.18 m

Mare Longue Reservoir



Location: Mare Longue, in the district of Plaines Wilhems about 30 km South West of Port Louis

Year of construction: 1948

Catchment area: 7.2 km²

Reservoir surface area: 1.03 km²

Mean annual rainfall: 2980 mm

Annual regulated yield: 9.7 Mm³

Reservoir capacity: 6.27 Mm³

Full Reservoir Level: 576.91 amsl

Feeders: River des Aigrettes feeder1; feeder 2; feeder 3

Type of dam: Homogeneous earthen embankment

Maximum height of dam: 13 m

Length of dam: 768 m

Type of spillway: Ungated semi circular concrete crest slab

Width of spillway: Circumferential length - 152.4 m

Downstream channel - 11.35 m

Purpose: Hydropower generation at Tamarind and Magenta power stations and thereafter for irrigation, now used also for domestic purposes

Mare Longue dam is located in the South-West sector of Mauritius. History of performance of the dam has highlighted that the spillway of Mare Longues dam has discharged on number of occasions in the past. However the earth dam has never overtopped.

River system and drainage area

Mare Longue reservoir has been created utililising natural lake in one of the marshy depression lying in the catchment area of River Tamarin. The dam was constructed in the year 1948 for storing water from local streams and river des Aigrettes. The storage capacity of the reservoir was 7.04 Mm³ which includes dead storage capacity of 0.5 Mm³ before the Hydrographic survey. Total catchment area at the reservoir site is 7.2 km² out of which 1.03km² is the water spread area at Full Reservoir Level.

MARE LONGUE RESERVOIR	
FEEDERS	SCHEMATIC DIAGRAM
<p>NATURAL STREAMS:</p> <p>Riv.Des Aigrettes :</p> <p>FEEDER No. 1</p> <p>FEEDER No. 2</p> <p>FEEDER No. 3</p>	<p>Spills into Riv. Bambous</p> <p>Riv. Des Aigrettes Release to Tamarind Falls Reservoir</p> <p>MARE LONGUE</p> <p>Riv. Des Aigrettes Feeder No.1</p> <p>Feeder No.2</p> <p>Feeder No.3</p>

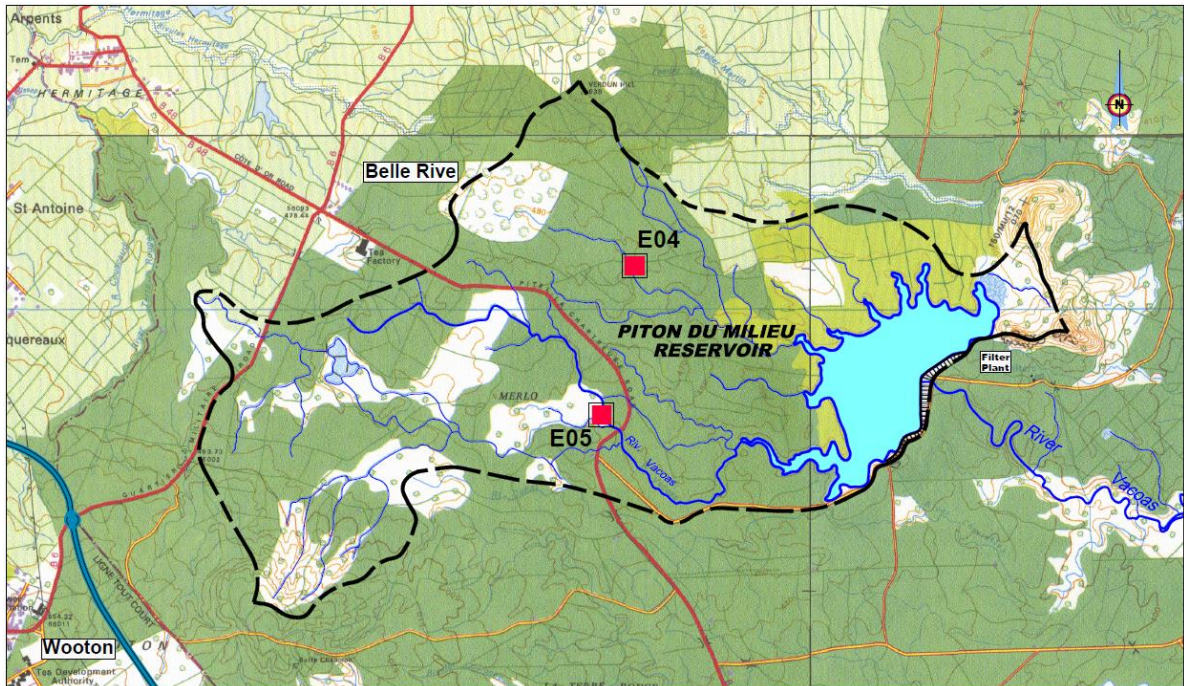
Climate

The catchment area has tropical climate and is influenced by East South Easterly winds and tropical cyclones during months of December to April. Mean annual rainfall over the catchment area ranges from 1400mm to 1600mm. High rainfall period is from December to May.

Existing spillway

Conical chute spillway with radius of 90m, arc length of 152m has been provided with crest level at full reservoir level at elevation 576.91m for passing flood discharge to Bambous river.

Piton du Milieu Reservoir



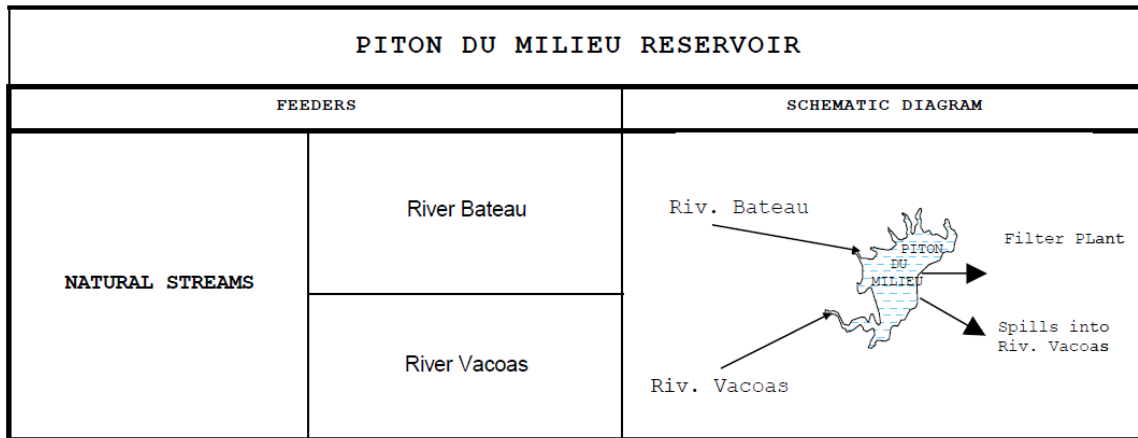
Piton du Milieu Dam is located in the central part of Mauritius. Stored water in the earth dam is utilised for domestic water supply.

The dam is 64 years old and the 2 spillways of the dam have functioned on a number of occasions in the past. The present storage capacity of the reservoir as established by the hydrographic survey of November 1996 is 2.79 Mm³.

The earth dam is in operational condition. The upstream stone pitching is also in very good condition.

River system and drainage area

Piton du milieu reservoir has been built across River Vacoas and is fed by both River Vacoas and river Bateau. The drainage area of the reservoir is 6.39 km² of which 0.63 km² is water spread at Full Reservoir Level (FRL).



Climate

The catchment area has tropical climate and is influenced by East-South-Easterly winds and tropical cyclones during the month of December to April. Mean annual rainfall over the catchment is ranging from 3600 mm to 3700 mm. Rainfall in October and November is very meager.

Existing spillways

The flood at Piton du Milieu dam is discharged through two spillways. The first spillway is a 274.52 m long causeway with its crest level at elevation 437.9 m. The second spillway is 90 m long with its crest at elevation 437.70 m.

Location: Piton du Milieu in Moka district, about 20 km South East of Port Louis

Year of construction: 1952

Catchment area: 6.39 km²

Reservoir surface area: 0.63 km²

Mean annual rainfall: 3529 mm

Feeders: River Vacoas

River Bateau

Seasonal streams

Regulated annual yield: 8.3 Mm³

Reservoir capacity: 2.99 Mm³ after hydrographic survey of 1996

Dead storage: 0.10 Mm³

Full reservoir level: 438 m amsl

Type of dam: Earth dam

Maximum height of dam: 13.5 m above foundation level

Length of dam: 836.16 m

Type of spillway: Un-gated spillway crest

Width of spillway: 363.12 m (2 spillways)

Purpose: Domestic water supply

2.0 OBJECTIVES OF PROPOSED CONSULTANCY SERVICES

The objective of the Consultancy Services is to conduct a comprehensive assessment of the potential consequences of a partial or full dam breach (“Sunny Day” and “Flood Inducer” Dam Break Scenarios) within the river basins for each of the reservoirs (Mare aux Vacoas, Midlands Dam, La Ferme, Mare Longue & Piton du Milieu). The specific objectives are to:

- Analyze potential flood hydrographs from plausible dam breach scenarios for the above five reservoirs in Mauritius;
- Route such floods through the downstream river stretches to assess impacts and potential sub-sequent damage;
- Identify the need for, and carry out, additional detailed topographical surveys for selected river stretches and flood-prone areas;
- Produce flood inundation maps and characteristics for floods generated through malfunctioned dam operations or dam failures; and
- Hazard classification of the dams under study based on criteria developed by the International Commission on Large Dams (ICOLD).
- Recommend mitigation measures/risk minimising measures

Wherever appropriate, the Consultant shall follow the recommendation of the “Federal Guidelines for Inundation Mapping of Flood Risks Associated with Dam Incidents and Failures” as published by the Federal Emergency Management Agency (FEMA, USA), 2013 edition.

3.0 SCOPE OF PROPOSED CONSULTANCY SERVICES

The scope of Consultancy Services to be performed by the Consultants shall include, but not be limited to, the services described hereunder. The selected Consultant shall furnish all experts and logistics to complete the Study in accordance with the requirements of the Client.

It is envisaged that the work be conducted as a stepwise dam break analysis program, starting with the Mare aux Vacoas and La Ferme reservoirs. Thereafter, the Consultant shall proceed with Midlands Dam, Mare Longue & Piton du Milieu reservoirs. Lastly, the assessment shall encompass a step-wise scenario based dam break analysis of all the five reservoirs to assess the combined, or partially combined, and the likely resulting flood wave or the sequence of events that could lead to a cascade of dam failures. The results will provide inputs to future flood mitigation measures for all flood-prone areas in the respective river catchment areas. The Consultant is required to provide services as stated:

Inception Phase: The Consultant is required to prepare an Inception Report that includes a detailed review of current dam inventory data for the basin. The work would build on the existing information available for the River Basins at the Ministry of Energy and Public Utilities (Water Resources Unit), including studies and other relevant information available for these existing reservoirs.

The Consultant shall conduct site visits of all the five reservoirs, collect and review relevant design parameters and relevant information on each of the dams, along with hydro-met data, existing topographic data and relevant previous study reports. All primary and secondary roads and bridges downstream of the dam shall be investigated with respect to their vulnerability to the flood wave. Any residence that may be in an inundation zone directly below the dam shall be noted for later investigation.

The Consultant shall identify scenarios for evaluation e.g. “sunny day”, “flood induced”, “cascading failures” etc. and likely failure mechanisms for the Dam Break analyses.

The Consultant shall identify opportunities for the transfer of skills during the assignment and recommend any necessary equipment (hard and software). Based on this identification and recommendation the Consultant shall outline a training and capacity program to transfer skills to staff on how to develop and use the Dam Break Analysis Model to get the required results for the benefit of the Ministry of Energy and Public Utilities (Water Resources Unit). This should also include a monitoring, recording and analysis of data/information.

Mare aux Vacoas Réservoir, Midlands Dam, La Ferme Reservoir, Mare Longue Reservoir & Piton du Milieu Reservoir

Note: The Scope of Services given below applies to all the five reservoirs under this TOR as above.

Phase (a) –The Consultants shall carry out an assessment of the flood discharge characteristics due to operating or structural failures of the Dam. This will include the following:

- Establish design criteria and performance expectations for the Dam
- Establish actual performance and instrumentation records for the Dam
- Define the “Sunny Day” and “Flood Inducer” scenarios, regardless of probability of occurrence, failure scenarios for the Dam (e.g. sudden full release from all gates, failure to open any gate leading to overtopping of dam, sudden dam failure due to structural damage, etc.)
- For each scenario develop a fault tree analysis to assess the associated conditional probability of failure
- Associate flood hydrograph discharged from the Dam to each failure scenario
- Assess consequences of dam failures in the river basin on the downstream zones/river(s) down to the sea.

Phase (b) – Preliminary Flood Routing: The Consultant will carry out a low-resolution flood routing of the above flood hydrographs. This will include the following:

- Collate spatial data related to topography, land use, infrastructure, population, etc., along the river channel and floodplains
- Produce a Digital Elevation Model (DEM) for the river stretch downstream of the Dam based on available data and topographical maps
- Apply a hydraulic flood routing model to determine inundation areas, time of flood wave reaching critical areas, water depths, velocities, etc.
- Compute inflow to any other water retaining structures downstream
- Assess the risk of damage or breach of the dam
- Map the flooded areas (depths and velocity and quantify flood hazard, vulnerability and consider potential climate change scenarios)
- Produce a mapping book summarizing the different scenarios
- Estimate probable social and economic impacts including losses and lives at risk.

Phase (c) – Detailed Flood Routing: The Consultant will carry out detailed topographical surveys and updating of flood routing downstream. This will include the following:

- Identify areas for detailed topographical surveys based on the low-resolution model
- Conduct survey of relevant river stretches, such as Light Detection and Ranging method
- Conduct detailed (high-resolution) flood routing, flood inundation and depth mapping, compute peak flow velocity and warning times
- Update estimates of economic costs and loss of lives based on detailed modelling
- Propose updated instrumentation & monitoring of equipment to be installed in each reservoir for recording and analysis of data/information, early warning and emergency preparedness measures for the Dam and downstream river stretch(es).

Note:

- **The above Phases (a) to (c) shall be conducted for all the reservoirs. These shall be termed as Phases 1 (a, b & c) for Mare aux Vacoas, Phases 2 (a, b & c) for La Ferme, Phases 3 (a, b & c) for Midlands dam, Phases 4 (a, b & c) for Mare Longue and Phases 5 (a, b & c) for Piton du Milieu.**

Phase (d) – Integrated Dam Break Impact Analysis

Further to the above Preliminary & Detailed Flood Routing, the Consultant shall produce an integrated dam break impact analysis for all the five reservoirs on their adjacent basins, so as to assess the overall effect until the flood wave reaches the sea.

This scenario shall include the effect of high tide on the flood routing, as applicable and the Consultant will have to map the flooded areas. This shall include the following:

- Integrate the spatial data related to topography, land use, infrastructure, population, etc.,
- Integrate the low resolution Digital Elevation Model (DEM) for the Rivers based on available data and topographical maps compiled above
- Apply an integrated hydraulic flood routing model to determine inundation areas, time of flood wave reaching critical areas, water depths, velocities, etc.
- Map the flooded areas and selective supporting calculations (depths and velocity and quantify flood hazard, vulnerability and consider potential climate change scenarios)
- Produce an integrated mapping book summarizing the different scenarios. Scenarios should also consider the impact of high tides as applicable
- Estimate the combined probable social and economic impacts including losses and lives at risk.

The Consultant shall present the findings for the Integrated Dam Break Impact Analysis under a separate report.

Note:

- The consultant shall provide a written report providing a summary of the findings. The report shall include the results of the dam breach analysis and all of the parameters discussed above. A CD of the report, all analysis and software complete (where applicable) with reproducible inundation maps shall be submitted with each report. The Phase (d) report shall also be submitted on CD detailing the findings of the Integrated Dam Break Impact Analysis with all analysis and software complete (where applicable) with reproducible inundation maps, etc... The Light Detection and Ranging survey is also to be submitted in digital format for all concerned catchments.

4.0 CONSULTANTS QUALIFICATIONS AND REQUIRED EXPERTISE OF CONSULTANTS KEY PERSONNEL

The Consultant Firms should demonstrate capability of having carried out similar work on at least 2 assignments in the last 10 years. This may include ongoing activities. The consultant's key staff should include a team of international experts with extensive experience from similar projects i.e. Dam Break Analysis. Experience of the project management and key personnel in projects in Africa or Indian Ocean would be an advantage. The team should be supported by local expertise as far as possible. The members of the team shall have the skills and experience necessary to undertake the range of tasks set out in this Terms of Reference. Each individual on the team must be personally

available to do the work as and when required. Each individual of the team shall be fully conversant in English language (both writing and speaking). The respective key personnel should have the following profile:

1) Team Leader – Senior Expert

The Team Leader shall be a graduate in Civil Engineering or any other acceptable field with at least 12 years of experience in dam design and dam construction works . A post graduate qualification will be an advantage. The Team Leader shall prove to have been involved in at least 2 (two) projects of similar nature and complexity sufficient details should be provided on assignments/tasks carried out regarding the involvement on similar nature. In addition, the Team Leader shall have good oral and written communication skills, shall demonstrate a high level of organizational skills and shall be responsible for the overall execution of the project and liaison with the Client. The Team Leader – Senior Expert should have been in the employment of the Consultant’s firm for at least the past three years. The Team Leader – Senior Expert will be responsible for the day-to-day monitoring and for the overall coordination and execution of the project and liaison with the Client.

2) Hydraulic (Modelling Engineer)

The Hydraulic (Modelling) Engineer shall be a graduate in Civil Engineering or any other acceptable field with at least 10 years of experience in the reconnaissance, siting, and general layout design and output optimization of hydropower plants/schemes A post-graduate qualification will be an advantage. The Hydraulic modelling Engineer shall be a key member of the consultancy team and shall play a key role in the planning and undertaking of the Dam break study and as such is expected to prove to have been involved in at least 1 (one) project of a similar nature based in international contracts.

3) Dam Engineer

The Dam Engineer shall be a graduate in Civil Engineering or any other acceptable field with at least 10 years of experience. A post-graduate qualification will be an advantage. The Dam Engineer shall be a key member of the team and possess intensive knowledge and experience in dam design and construction works of earthfill, rockfill & concrete dams, , procedure and quality control, involving at least 1 (one) projects of similar nature and size based on international contracts.

4) Hydrologist

A hydrologist shall have a degree in Hydrology or in a related field with at least 10 years’ experience in undertaking hydrological studies including Dam Break Analysis of a similar nature, size and complexity as this assignment. He/she should have experience on at least 2 (two) similar projects.

5) Geographic Information System/Remote Sensing Expert

An Expert with a degree in Geography or Cartography or Surveying or in a related field, with at least 8 years' experience in undertaking Geographic Information System/Remote Sensing studies. He/she should have experience on at least 1 (one) project of similar nature and complexity.

6) Social Economist

An Expert with a degree in the field of Economics or Social Sciences or in a related field with at least 5 years' experience in undertaking social economic studies. He/she should have experience on at least 1 (one) project of similar nature and complexity.

Additional support staffs may include, but not be limited to the following:

- a) Environmental expert and
- b) Surveyor

Note:

1. It is mandatory for the Team Leader – Senior Expert to meet the stated minimum requirements. The firm shall automatically be disqualified if this condition is not met.
2. A maximum of two (2) Experts are allowed to be replaced by the selected bidder, for the non-qualified Experts at no extra cost to the Client, except for the Team Leader-Senior Expert.
3. Bidders shall ensure that sufficient information is provided in the CV of all the key experts to support any qualifications and experience claimed.
4. One expert cannot be assigned more than one position.

All the experts should submit their Curriculum Vitae since graduation giving a brief description of the project and detailed description of their involvement in the project including period and time input. However, the attention of Consultants is drawn to the provisions of the ITB Section 17 on fraudulent practice and the resulting consequences of such act. Experts submitting unsigned CVs shall not be considered for evaluation.

Note: In the event that a Consultant envisages to employ expatriate engineers, registration with a professional body in a foreign country shall be considered provided it complies with the laws of Mauritius viz. Prospective Consultants are

to ensure that any expatriate engineer that may be proposed comply with the Laws of Mauritius. For additional information, the following may be consulted www.crpemauritius.com

5.0 EXPERT MAN-MONTHS

A tentative requirement of **30 Expert Man-months** as indicated below are considered reasonable for execution of the Contract. However, based on the scope of the study, the Consultant can propose his own Expert Man-months requirements. Full justification will be required for any change in the experts proposed hereunder and their man month requirement.

Key Expert		Man month input
1	Team Leader – Senior Expert	5
2	Hydraulic (modelling) Engineer	5
3	Dam Engineer	4
4	Hydrologist	5
5	Geographic Information System/Remote Sensing Expert	3
6	Social Economist	1
Other Expert		Man month input
7	Environmental Expert	2
8	Surveyor	5
Total		30

Consultants are required to fully justify their Expert Man-months proposed and attach a bar chart diagram showing the involvement of the proposed personnel in field/home office under the various activities defined during the Study period. The Consultant, together with their application for payment at each stage, shall provide details of the man months utilized by the various experts and the tasks performed by each of the experts. Further, for proper monitoring of the project the Consultant will have to submit, on a monthly basis, the man-months utilised by the various experts on the activities carried out. The Consultant shall ensure continuity of services during leaves of the Team Leader at no extra cost to the Client.

The man-month input for periods of less than one month shall be calculated on an hourly basis for actual time spent in the Consultant's home office and directly attributable to the services (one hour being equivalent to 1/208th of a month) and on a calendar day basis for time spent away from home office (one day being equivalent to 1/26th of a month).

Based on the Study Schedule the Consultant shall include in his proposal the time input for each expert assigned to their respective task throughout the duration of the study period. For the Study, the Team Leader will be required to spend a minimum of forty per cent (40%) of their time input in Mauritius. The other following experts are required to spend a minimum of fifty per cent (50%) of their time input as indicated above in Mauritius.

- Hydraulic (modelling) Engineer
- Dam Engineer
- Hydrologist/Geographic Information System/Remote Sensing Expert
- Social Economist

6.0 DELIVERABLES

The Client considers of utmost importance the timely elaboration and submission of pertinent reports and briefings during the course of the study. Therefore, apart from submitting the reports, the Consultant shall be expected to hold bi-monthly updates/briefings/video conferences with the Ministry of Energy & Public Utilities (Water Resources Unit) – MEPU on works in progress and problems encountered. The reports and briefing shall be written and held in English.

The draft and the final reports shall be submitted as hard copies and in electronic form to the Client as specified in the particular sections below. After incorporating the necessary modifications to the drafts the edited reports shall be submitted no later than three weeks after approval of the draft report.

1. Inception Report

At the end of the data collection and information review mission, the Consultant shall submit an Inception Report. The Report shall detail the preliminary views, approach and work plan to be adopted by the study team. It shall summarize the methodology to be used, availability of data, necessary field investigations, the organization (logic diagram) and schedule of the study. The Inception Report shall be submitted to the Client 4 weeks from commencement. As far as possible, components of the Consultancy Services, which do not need the approval of the Client, based on the Inception Report, shall be executed independent from the submission and approval of the Inception Report.

2. Monthly progress reports

The Consultant shall prepare monthly progress reports, which shall discuss activities undertaken during the period and progress against the program, issues and constraints that could affect the delivery of services and outputs and a program of work to be undertaken during the next period. The monthly Progress Reports shall be kept as brief as possible and shall be limited to

highlighting progress, key issues and constraints encountered during the reporting period.

The Consultants' Team Leader shall maintain steady contact with the Client throughout the project. The project details shall be communicated to the Client as scheduled. The Consultant shall furnish to the Client such information related to the services as the Client may reasonably request from time to time. For monitoring of the project, the Consultant shall provide details of the Expert Man months utilized by the various Experts, supported by the relevant time sheets of the Experts and the tasks performed by each of them on a daily/weekly/monthly basis both in hard copies and electronic copies.

3. Manuals - Skills Transfer

The Consultant shall prepare manuals and undertake training of staff on how to develop and use the Dam Break Analysis Model to get the required results for the benefit of the Client.

4. Mapping

The Consultant shall also produce an integrated mapping book summarizing the inundation mapping for different scenarios. The Consultant shall propose mitigation measures and also devise an appropriate emergency action plan in view of minimising casualties and property damage in case of dam failure. The report shall include the results of the breach analysis and all of the parameters discussed above. A CD of the report, complete with reproducible inundation maps shall be submitted with each report.

5. Summary of the Expected Deliverables

The Schedule for carrying out the specified study/tasks shall be one of the basic considerations in evaluation of bids. The entire Study is expected to be completed within a period of twelve (12) months from the 'effective date' of the Contract as indicated below.

Details of various reports to be submitted by the Consultants and the dates of submission are described hereunder:

Report No.	Report Description	No. hard copies	Due date (No. of weeks from effective date)
1	Draft Inception Report	5	4.0
2	Final Inception Report	5	8.0
3	Draft and Final Report - Phase1(a)	5	Consultant to propose
4	Draft and Final Report - Phase 1(b)	5	Consultant to propose
5	Draft and Final Report - Phase 1(c)	5	Consultant to propose
6	Draft and Final Report - Phase 2(a)	5	Consultant to propose

7	Draft and Final Report - Phase 2(b)	5	Consultant to propose
8	Draft and Final Report - Phase 2(c)	5	Consultant to propose
9	Draft and Final Report - Phase 3(a)	5	Consultant to propose
10	Draft and Final Report - Phase 3(b)	5	Consultant to propose
11	Draft and Final Report - Phase 3(c)	5	Consultant to propose
12	Draft and Final Report - Phase 4(a)	5	Consultant to propose
13	Draft and Final Report - Phase 4(b)	5	Consultant to propose
14	Draft and Final Report - Phase 4(c)	5	Consultant to propose
15	Draft and Final Report - Phase 5(a)	5	Consultant to propose
16	Draft and Final Report - Phase 5(b)	5	Consultant to propose
17	Draft and Final Report - Phase 5(c)	5	Consultant to propose
18	Draft and Final Integrated Dam Break Impact Analysis Report - Phase (d)	5	Consultant to propose
19	Final Dam Break Analysis Report – with the results from all Phases for each reservoir and recommendation(s) – Phase (d)	10	52.0

All the Draft Reports shall be submitted in five (5) hard copies and two (2) electronic copies (both in MS Word and PDF version) for discussion with the Client and any further comments/suggestions shall be incorporated therein.

7.0 SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT

7.1 Documentation

The Client shall provide documents where available, such as topographical maps, previous studies, reports, operational data for the existing reservoirs, transmission and distribution systems, reservoir monitoring data, etc., that may be required for the performance of the services.

7.2 Equipment and Tools

All equipment and tools needed to undertake the study shall be provided by the Consultant.

7.3 Office Space and Facilities

The Consultant shall provide for office space and facilities, for the execution of the services.

7.4 Meteorological data

Rainfall data and other relevant meteorological data necessary for execution of the project can only be acquired from the Mauritius Meteorological Services.

It is the responsibility of the Consultants to find out from the Mauritius Meteorological Services about the availability of data they shall need for the project, the format in which they are available and associated costs prior to submitting their offer.

A provisional sum of MUR8.0 million is being provided for purchase of rainfall data, if required. This cost will not be considered in the financial evaluation.

7.5 General Assistance

The Ministry of Energy & Public Utilities (MEPU) shall provide assistance in obtaining working permits, residence visas, exit, re-entry and exit visas for the Consultant's staff, other licensing documents, etc.

8.0 FEE STRUCTURE (REFER TO SECTION 6.4 OF SPECIAL CONDITIONS OF CONTRACT)

The Consultancy Services shall be a Lump Sum Contract. The Consultancy fee should be inclusive of all costs of services to be provided under the Terms of Reference.

Any cost the bidder considers necessary for the completion of the study and which he has not priced in his financial offer should be clearly justified in his technical offer and indicated as 'optional' in his financial offer. However, the price for the 'Optional' will not be considered in the evaluation exercise. On successful conclusion of a contract with the Consultant, it will be at the discretion of the Client to consider the components under the 'Optional' item.

The Client shall not compensate prospective bidders for any cost incurred in the preparation and submission of the bids/proposals. The Financial Proposal shall be prepared using the attached Standard Forms at Section 4 of the RFP. The Consulting Firm may amend or delete sections which are not relevant to the Consultancy Services.

No revision of man-months rates or other rates under remuneration and direct expenses for services executed beyond the initial completion date will be entertained for whatsoever reasons.

9.0 PAYMENT SCHEDULE

Payments shall be effected by the Client, upon certification by the authorised Representative of the Client according to the following schedule:

- a) Ten (10) percent of the Contract Price shall be paid as Advance Payment on the commencement date against the submission of an advance payment guarantee as per format from Appendix G. Further, the Advance Payment will be released

subject to the Consultant fulfilling the obligations under the Condition of Contract – Clause 3.4

- b) Ten (10) percent of the lump-sum shall be paid upon approval of the Final Inception Report acceptable to the Client.
- c) Ten (10) percent of the lump-sum shall be paid upon approval of the Phases (a), (b) & (c) Final reports for each of the respective reservoirs [total = 50%]
- d) Ten (10) percent of the lump-sum shall be paid upon approval of the Final report on Integrated Dam Break Impact Analysis Report.
- e) Twenty (20) percent of the lump-sum shall be paid upon receipt and approval by the Client of the Final Dam Break Analysis Report – Combining the results from all Phases.

The bank guarantee will be released when the total payments would have reached sixty (60) percent of the lump-sum amount.

Together with each payment the Consultant shall submit the actual man-month spent by the various experts.

An advance payment equal to 10% of the Consultancy Contract will be made to the Consultant against submission of a bank guarantee from a **registered Local Bank**. The Advance Payment Guarantee shall be in the format as at Appendix G. The Consultant shall indicate in his financial offer the currency proportions to be claimed.

For each invoice the Consultant shall indicate the input of the various experts and the tasks performed by each of them for the period being invoiced. Details of cumulative input utilised till date together with balance remaining for each expert shall be indicated. The Consultant will be solely responsible for planning his expert assignments so that the different tasks are delivered within the agreed time input by each expert.

10.0 IMPLEMENTATION TIME SCHEDULE

It is preferred that the Consultancy Services shall be undertaken and completed within a period of Twelve (12) calendar months, i.e. Fifty-two (52) weeks.

11.0 CONTRACT

It is envisaged that the Consultancy Services Contract will be a lump-sum Contract for the selection and employment of Consultants.

12.0 TERMINATION

The Client reserves the right not to award the contract to the successful bidder without any obligation to inform the bidder of the grounds for the Client's action and without incurring any liability and compensation to the bidder.

Section 6. Standard Forms of Contract

This Section contains the following for Lump-Sum Contract:

- I. Contract Forms
- II. General Conditions of Contract
- III. Special Conditions of Contract
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Preface

1. The Standard Contract consists of four parts: the Form of Contract, the General Conditions of Contract, the Special Conditions of Contract, and the Appendices. The Client using this standard contract should not alter the General Conditions. Any adjustment to meet project features should be made only in the Special Conditions.

2. Lump-sum contracts are normally used when definition of the tasks to be performed is clear and unambiguous, when the commercial risk taken by the Consultant are relatively low, and when therefore such Consultant are prepared to perform the assignment for an agreed predetermined lump-sum price. Such price is arrived at on the basis of inputs - including rates - provided by the Consultant. The Client agrees to pay the Consultant according to a schedule of payments linked to the delivery of certain outputs, for example reports. A major advantage of the lump-sum contract is the simplicity of its administration, the Client having only to be satisfied with the outputs without monitoring the staff inputs. Studies are usually carried out on a lump-sum basis: for example, surveys, master plans, economic, sector, simple feasibility and engineering studies.

CONTRACT FOR CONSULTANTS' SERVICES

Lump-Sum

between

[name of the Client]

and

[name of the Consultant]

Dated: _____

I. Form of Contract

LUMP-SUM

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

This CONTRACT (hereinafter called the "Contract") is made the [day] day of the month of [month], [year], between, on the one hand, [name of Client] (hereinafter called the "Client") and, on the other hand, [name of Consultant] (hereinafter called the "Consultant").

[*Note: If the Consultant consist of more than one entity, the above should be partially amended to read as follows: "...(hereinafter called the "Client") and, on the other hand, a joint venture/consortium/association consisting of the following entities, each of which will be jointly and severally liable to the Client for all the Consultant's obligations under this Contract, namely, [name of Consultant] and [name of Consultant] (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, and personnel and technical resources, has agreed to provide the Services on the terms and conditions set forth in this Contract;

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;
 - (b) The Special Conditions of Contract;
 - (c) The following Appendices: [*Note: If any of these Appendices are not used, the words "Not Used" should be inserted below next to the title of the Appendix*]
 - Appendix A: Description of Services Not used
 - Appendix B: Reporting Requirements Not used
 - Appendix C: Key Personnel and Sub-Consultants Not used
 - Appendix D: Breakdown of Contract Price in Foreign Currency Not used
 - Appendix E: Breakdown of Contract Price in Local Currency Not used
 - Appendix F: Services and Facilities Provided by the Client Not used
 - Appendix G: Form of Advance Payment Guarantee Not used
2. The mutual rights and obligations of the Client and the Consultant shall be as set forth in the Contract, in particular:

- (a) the Consultants shall carry out the Services in accordance with the provisions of the Contract; and
- (b) the Client shall make payments to the Consultants 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 *[name of Client]*

[Authorized Representative]

For and on behalf of *[name of Consultant]*

[Authorized Representative]

[Note: If the Consultant consists of more than one entity, all these entities should appear as signatories, e.g., in the following manner:]

For and on behalf of each of the Members of the Consultant

[name of member]

[Authorized Representative]

[name of member]

[Authorized Representative]

II. General Conditions of Contract

1. GENERAL PROVISIONS

1.1 Definitions

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

- (a) “Applicable Law” means the laws and any other instruments having the force of law in Republic of Mauritius
- (b) “Consultant” means any private or public entity that will provide the Services to the Client under the Contract.
- (c) “Contract” means the Contract signed by the Parties and all the attached documents listed in its Clause 1, that is the General Conditions (GC), the Special Conditions (SC), and the Appendices.
- (d) “Contract Price” means the price to be paid for the performance of the Services, in accordance with Clause 6;
- (e) “Effective Date” means the date on which this Contract comes into force and effect pursuant to Clause GC 2.1.
- (f) “Foreign Currency” means any currency other than Mauritian Rupees.
- (g) “GC” means the General Conditions of Contract.
- (h) “Government” means the Government of the Republic of Mauritius
- (i) “In writing” means communicated in written form with proof of receipt.
- (j) “Local Currency” means Mauritian rupees.
- (k) “Member” means any of the entities that make up the joint venture/consortium/association, and “Members” means all these entities.
- (l) “Party” means the Client or the Consultant, as the case may be, and “Parties” means both of them.
- (m) “Personnel” means persons hired by the Consultant or by any Sub-Consultants and assigned to the performance of the Services or any part thereof.
- (n) “SC” means the Special Conditions of Contract by which the GC may be amended or supplemented.
- (o) “Services” means the work to be performed by the Consultant

pursuant to this Contract, as described in Appendix A hereto.

- (p) “Sub-Consultants” means any person or entity to whom/which the Consultant subcontracts any part of the Services.

1.2 Law Governing Contract

This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Laws of Mauritius.

1.3 Language

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

1.4 Notices

1.4.1

Any notice, request or consent required or permitted to be given or made pursuant to this Contract shall be in writing. 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 SC.

1.4.2

A Party may change its address for notice hereunder by giving the other Party notice in writing of such change to the address specified in the SC.

1.5 Location

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 Republic of Mauritius or elsewhere, as the Client may approve.

1.6 Authority of Member in Charge

In case the Consultant consists of a joint venture/ consortium/ association of more than one entity, the Members hereby authorize the entity specified in the SC 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.

1.7 Authorized Representatives

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 SC.

- 1.8 Taxes and Duties** The Consultant, Sub-Consultants, and their Personnel shall pay such indirect taxes, duties, fees, and other impositions levied under the Applicable Laws as specified in the SCC, the amount of which is deemed to have been included in the Contract Price.

Note: With respect to temporary admissions, the temporary admission regime under the Customs Act will apply.

For further information, the contact details are as specified in the SCC.

- 1.9 Fraud and Corruption** If the Client determines that the Consultant and/or its Personnel, sub-contractors, sub-consultants, services providers and suppliers has engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices, in competing for or in executing the Contract, then the Client may, after giving 14 days' notice to the Consultant, terminate the Consultant's employment under the Contract, and the provisions of Clause 2.6 shall apply as if such expulsion had been made under Sub-Clause 2.6.1(c).

Should any Personnel of the Consultant be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Contract, then that Personnel shall be removed in accordance with Sub-Clause 4.2 (b).

- 1.9.1 Definitions** For the purposes of this Sub-Clause, the terms set-forth below are defined as follows:

- (i) "corrupt practice"⁶ is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- (ii) "fraudulent practice"⁷ is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
- (iii) "collusive practice"⁸ is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
- (iv) "coercive practice"⁹ is impairing or harming, or threatening to

⁶ "Another party" refers to a public official acting in relation to the selection process or contract execution. In this context,

⁷ A "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.

⁸ "Parties" refers to participants in the selection process (including public officials) attempting to establish bid prices at artificial, non-competitive levels.

impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

- (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 an 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 inspection and audit rights provided for under Clause 3.6.

**1.9.2
Measures to be
Taken**

- (vi) The Consultant may be sanctioned, declared ineligible, either indefinitely or for a stated period of time, to be awarded a contract by Government of the Republic of Mauritius if at any time it determines that the Consultant has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a contract;

**1.9.3
Commissions
and Fees**

The Client will require the successful Consultants to disclose any commissions or fees that may have been paid or are to be paid to agents, representatives, or commission agents 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, representative, or commission agent, the amount and currency, and the purpose of the commission or fee.

**1.9.4
Integrity
Clause**

The Consultant shall take steps to ensure that no person acting for it or on its behalf will engage in any type of fraud and corruption during the contract execution.

Transgression of the above is a serious offence and appropriate actions will be taken against such Consultant.

⁹ A “party” refers to a participant in the selection process or contract execution.

2. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

- 2.1 Effectiveness of Contract** This Contract shall come into effect on the date the Contract is signed by both parties or such other later date as may be stated in the SC. The date the Contract comes into effect is defined as the Effective Date.
- 2.2 Commencement of Services** The Consultant shall begin carrying out the Services not later than the number of days after the Effective Date specified in the SC.
- 2.3 Expiration of Contract** Unless terminated earlier pursuant to Clause GC 2.6 hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SC.
- 2.4 Modifications or Variations** 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 proposal for modification or variation made by the other Party.
- 2.5 Force Majeure**
- 2.5.1 Definition** For the purposes of this Contract, “Force Majeure” means an event which is beyond the reasonable control of a Party and which makes a Party’s performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.
- 2.5.2 No Breach of Contract** The failure of a Party to fulfill any of its obligations under the contract 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 (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.
- 2.5.3 Extension of Time** 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.
- 2.5.4 Payments** During the period of their inability to perform the Services as a result of an event of Force Majeure, the Consultant shall be entitled to continue to be paid under the terms of this Contract, as well as to be reimbursed for additional costs reasonably and necessarily incurred by them during such period for the purposes of the Services and in reactivating the Service after the end of such period.

2.6 Termination

2.6.1 By the Client

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 GC 2.6.1. In such an occurrence the Client shall give a not less than thirty (30) days' written notice of termination to the Consultant, and sixty (60) days' in the case of the event referred to in (e).

- (a) If the Consultant does not remedy a failure in the performance of its obligations under the Contract, within thirty (30) days after being notified or within any further period as the Client may have subsequently approved in writing.
- (b) If the Consultant becomes insolvent or bankrupt.
- (c) If the Consultant, in the judgement of the Client has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
- (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) 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 comply with any final decision reached as a result of arbitration proceedings pursuant to Clause GC 8 hereof.

2.6.2 By the Consultant

The Consultant may terminate this Contract, by not less than thirty (30) days' written notice to the Client, such notice to be given after the occurrence of any of the events specified in paragraphs (a) through (c) of this Clause GC 2.6.2:

- (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 GC 7 hereof within forty-five (45) 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) days.
- (c) If the Client fails to comply with any final decision reached as a result of arbitration pursuant to Clause GC 8 hereof.

2.6.3 Payment Upon

Upon termination of this Contract pursuant to Clauses GC 2.6.1 or GC

- Termination** 2.6.2, the Client shall make the following payments to the Consultant:
- (a) payment pursuant to Clause GC 6 for Services satisfactorily performed prior to the effective date of termination;
 - (b) except in the case of termination pursuant to paragraphs (a) through (c), and (f) of Clause GC 2.6.1, reimbursement of any reasonable cost incident to the prompt and orderly termination of the Contract, including the cost of the return travel of the Personnel and their eligible dependents.

3. OBLIGATIONS OF THE CONSULTANT

3.1 General

3.1.1 Standard of Performance The Consultant shall perform the Services and carry out its obligations hereunder 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 faithful advisers to the Client, and shall at all times support and safeguard the Client's legitimate interests in any dealings with Sub-Consultants or third Parties.

3.2 Conflict of Interests 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.

3.2.1 Consultants not to Benefit from Commissions, Discounts, etc. The payment to the Consultant pursuant to Clause GC 6 shall constitute the Consultant's only payment in connection with this Contract or the Services, and the Consultant shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of its obligations under the Contract, and the Consultant shall use its best efforts to ensure that the Personnel, any Sub-Consultants, and agents of either of them similarly shall not receive any such additional payment.

3.2.2 Consultant and Affiliates not to be Otherwise Interested in Project 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-Consultant and any entity affiliated with such Sub-Consultant, shall be disqualified from providing goods, works or services (other than consulting services) resulting from or directly related to the Consultant's Services for the preparation or implementation of the project.

3.2.3 Prohibition of Conflicting Activities The Consultant shall not engage, and shall cause its Personnel as well as their Sub-Consultants and its Personnel not to engage, either directly or indirectly, in any business or professional activities which would conflict

with the activities assigned to them under this Contract.

- 3.3 Confidentiality** Except with the prior written consent of the Client, the Consultant and the Personnel 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 Personnel make public the recommendations formulated in the course of, or as a result of, the Services.
- 3.4 Insurance to be Taken Out by the Consultant** The Consultant (a) shall take out and maintain, and shall cause any Sub-Consultant 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, as shall be specified in the SC; and (b) 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 have been paid.
- 3.5 Consultant's Actions Requiring Client's Prior Approval** The Consultant shall obtain the Client's prior approval in writing before taking any of the following actions:
- (a) entering into a subcontract for the performance of any part of the Services,
 - (b) appointing such members of the Personnel not listed by name in Appendix C, and
 - (c) any other action that may be specified in the SC.
- 3.6 Reporting Obligations**
- (a) The Consultant shall submit to the Client the reports and documents specified in Appendix B hereto, in the form, in the numbers and within the time periods set forth in the said Appendix.
 - (b) Final reports shall be delivered in CD ROM in addition to the hard copies specified in said Appendix.
- 3.7 Documents Prepared by the Consultant to be the Property of the Client**
- (a) All plans, drawings, specifications, designs, reports, other documents and software submitted by the Consultant under this Contract shall become and remain the property of the Client, and 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.
 - (b) The Consultant may retain a copy of such documents and software. Restrictions about the future use of these documents, if any, shall be specified in the SC.
- 3.8 Accounting, Inspection and** 3.8.1 The Consultant shall keep, and shall cause its Sub-consultants to keep, accurate and systematic accounts and records in respect of

Auditing the Contract, in accordance with internationally accepted accounting principles and in such form and detail as will clearly identify relevant time changes and costs.

3.8.2 The Consultant shall permit, and shall cause its Sub-consultants to permit, the Client and/or persons appointed by the Client to inspect its 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 Client if requested by the Client. The Consultant's attention is drawn to Clause 1.9.1 which provides, inter alia, that acts intended to materially impede the exercise of the inspection and audit rights provided for under Clause 3.8 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the prevailing sanctions procedures.)

4. CONSULTANT'S PERSONNEL

4.1 Description of Personnel The Consultant shall employ and provide such qualified and experienced Personnel and Sub-Consultants as are required to carry out the Services. The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Consultant's Key Personnel are described in Appendix C. The Key Personnel and Sub-Consultants listed by title as well as by name in Appendix C are hereby approved by the Client.

4.2 Removal and/or Replacement of Personnel

(a) Except as the Client may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Consultant, such as retirement, death, medical incapacity, among others, it becomes necessary to replace any of the Key Personnel, the Consultant shall provide as a replacement a person of equivalent or better qualifications.

(b) If the Client finds that any of the Personnel has (i) committed serious misconduct or has been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, the Consultant shall, at the Client's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Client.

(c) The Consultant shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

5. OBLIGATIONS OF THE CLIENT

- 5.1 Assistance and Exemptions** The Client shall use its best efforts to ensure that the Government shall provide the Consultant such assistance and exemptions as specified in the SC.
- 5.2 Change in the Applicable Law Related to Taxes and Duties** If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost incurred by the Consultant in performing the Services, the remuneration and reimbursable expenses otherwise payable to the Consultant under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustments shall be made to the amounts referred to in Clauses GC 6.2 (a) or (b), as the case may be.
- 5.3 Services and Facilities** The Client shall make available free of charge to the Consultant the Services and Facilities listed under Appendix F.

6. PAYMENTS TO THE CONSULTANT

- 6.1 Lump-Sum Payment** The total payment due to the Consultant shall not exceed the Contract Price which is an all inclusive fixed lump-sum covering all costs required to carry out the Services described in Appendix A. Except as provided in Clause 5.2, the Contract Price may only be increased above the amounts stated in Clause 6.2 if the Parties have agreed to additional payments in accordance with Clause 2.4.
- 6.2 Contract Price** (a) The price payable in foreign currency/currencies is set forth in the SC.
- (b) The price payable in Mauritian Rupees is set forth in the SC.
- 6.3 Payment for Additional Services** For the purpose of determining the remuneration due for additional services as may be agreed under Clause 2.4, a breakdown of the lump-sum price is provided in Appendices D and E.
- 6.4 Terms and Conditions of Payment** Payments will be made to the account of the Consultant and according to the payment schedule stated in the SC. Unless otherwise stated in the SC, the first payment shall be made against the provision by the Consultant of an advance payment guarantee for the same amount, and shall be valid for the period stated in the SC. Such guarantee shall be in the form set forth in Appendix G hereto, or in such other form, as the Client shall have approved in writing. Any other payment shall be made after the

conditions listed in the SC for such payment have been met, and the Consultant has submitted an invoice to the Client specifying the amount due.

6.5 Interest on Delayed Payments

If the Client has delayed payments beyond fifteen (15) days after the due date stated in the Clause SC 6.4, interest shall be paid to the Consultant for each day of delay at the rate stated in the SC.

7. GOOD FAITH

7.1 Good Faith

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.

8. SETTLEMENT OF DISPUTES

8.1 Amicable Settlement

The Parties agree that the avoidance or early resolution of disputes is crucial for a smooth execution of the Contract and the success of the assignment. The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or its interpretation.

8.2 Dispute Resolution

Any dispute between the Parties as to matters arising pursuant to this Contract that cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be submitted by either Party for settlement in accordance with the provisions specified in the SC.

III. Special Conditions of Contract

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
1.4	<p>The addresses are:</p> <p>Client: Ministry of Energy and Public Utilities Level 2, SICOM Tower, Wall Street, Ebène Mauritius</p> <p>Attention: The Senior Chief Executive</p> <p>Facsimile: (230) 4540743</p> <p>E-mail: mpu@govmu.org</p> <p>Consultant: _____ _____</p> <p>Attention: _____</p> <p>Facsimile: _____</p> <p>E-mail: _____</p>
1.6	<p>{The Member in Charge is <i>[insert name of member]</i>}</p> <p><i>Note: If the Consultant consists of a joint venture/ consortium/ association of more than one entity, the name of the entity whose address is specified in Clause SC 1.6 should be inserted here. If the Consultant consists only of one entity, this Clause SC 1.8 should be deleted from the SC.</i></p>
1.7	<p>The Authorized Representatives are:</p> <p>For the Client: The Senior Chief Executive</p> <p>For the Consultant: _____</p>

<p>1.8</p>	<p>For applicable laws regarding indirect taxes, duties, fees, and other impositions levied, Consultants are required to contact the Mauritius Revenue Authority (MRA).</p> <p>With respect to temporary admissions, the temporary admission regime under the Customs Act will apply.</p> <p>Details of contact for the MRA is:</p> <p>Mauritius Revenue Authority Ehram Court, Cnr Mgr. Gonin & Sir Virgil Naz Streets, Port Louis, Mauritius</p> <p>Tel: +230 207 5912 ●Fax: +230 207 6016</p> <ul style="list-style-type: none"> ● Email: yamini.rangasamy@mra.mu ● Website: http://mra.gov.mu
<p>2.1</p>	<p>The Effective Date is : upon agreement of both parties.</p> <p>The effectiveness conditions are the following:</p> <ul style="list-style-type: none"> ● Approval of the Contract by the Ministry of Energy and Public Utilities, ● Receipt by the Client of an advance payment guarantee and ● Receipt by the Consultant of an advance payment ● Receipt by the Client of the Insurance Cover as per Clause 3.4 of the Special Conditions of Contract.
<p>2.2</p>	<p>The date for the commencement of Services is not later than 14 days after the Effective Date, or on such later date as the Parties may agree in writing.</p> <p>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.</p>
<p>2.3</p>	<p>The time period shall be Twelve (12) calendar months, i.e. Fifty-two (52) weeks</p>
<p>3.4</p>	<p>The risks and the coverage shall be as follows:</p> <p>(a) Third Party motor vehicle liability insurance in respect of motor vehicles operated in the Government's country by the Consultant or its Personnel or any Sub-Consultants or their Personnel, with a minimum coverage in accordance with the applicable law in the Client's country <i>for MUR Five hundred Thousand (MUR500,000.00) with the number</i></p>

	<p><i>of occurrences unlimited;</i></p> <p>(b) Third Party liability insurance, with a minimum coverage in accordance with the applicable law in the Client's country for <i>MUR One Million and Five hundred Thousand (MUR1,500,000.00) with the number of occurrences unlimited;</i></p> <p>(c) professional liability insurance, with a minimum coverage of the total value of the Contract;</p> <p>(d) employer's liability and workers' compensation insurance in respect of the Personnel of the Consultant and of any Sub-Consultants, in accordance with the relevant provisions of the Applicable Law, as well as, with respect to such Personnel, any such life, health, accident, travel or other insurance as may be appropriate; and</p> <p>(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.</p>
3.5 (c)	<p>{The other actions are: <i>[insert actions]</i>.}</p> <p><i>Note: If there are no other actions, delete this Clause SC 3.5 (c).</i></p>
3.7 (b)	The Consultant shall not use these documents and software for purposes unrelated to this Contract without the prior written approval of the Client.
5.1	Not applicable.
6.2(a)	The amount in foreign currency or currencies is <i>[insert amount]</i> .
6.2(b)	The amount in Mauritian rupees is <i>[insert amount]</i> .

<p>6.4</p>	<p>The accounts are:</p> <p>for foreign currency or currencies: <i>[insert account]</i></p> <p>for rupees: <i>[insert account]</i></p> <p>Payments shall be made according to the following schedule:</p> <ul style="list-style-type: none"> a) Ten (10) percent of the Contract Price shall be paid as Advance Payment on the commencement date against the submission of a demand guarantee from a registered <i>Local Bank</i> for the same based on sample provided in Appendix G “<i>Form of Advance Payments Guarantee</i>”. Further, the Advance Payment will be released subject to the Consultant fulfilling the obligations under the Condition of Contract – Clause 3.4 b) Ten (10) percent of the lump-sum shall be paid upon approval of the Inception Report acceptable to the Client. c) Ten (10) percent of the lump-sum shall be paid upon approval of the Phases (a), (b) & (c) reports for each of the respective reservoirs [total = 50%] d) Ten (10) percent of the lump-sum shall be paid upon approval of the reports on Integrated Dam Break Impact Analysis Report. e) Twenty (20) percent of the lump-sum shall be paid upon receipt and approval by the Client Final Dam Break Analysis Report – Combining the results from all Phases. <p>The bank guarantee will be released when the total payments reach Sixty (60) percent of the lump-sum amount.</p> <p>The Client shall pay the Consultant’s statements within sixty (60) days after the receipt by the Client of such statements with supporting documents. Only such portion of a statement that is not satisfactorily supported may be withheld from payment. Should any discrepancy be found to exist between actual payment and costs authorized to be incurred by the Consultant, the Client may add or subtract the difference from any subsequent payments.</p>
<p>6.5</p>	<p>The interest rate is: as recommended by the Bank of Mauritius of the currency(ies) of the contract applicable to commercial banks.</p>

8.2	<p>Disputes shall be settled by arbitration in accordance with the following provisions:</p> <ol style="list-style-type: none"><li data-bbox="391 344 1372 485">1. <u>Selection of Arbitrators.</u> Each dispute submitted by a Party to arbitration shall be heard by a sole arbitrator or an arbitration panel composed of three arbitrators, in accordance with the following provisions:<ol style="list-style-type: none"><li data-bbox="461 512 1372 1052">(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 <i>the Federation Internationale des Ingenieurs-Conseil (FIDIC) of Lausanne, Switzerland</i> for a list of not fewer than five 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, <i>the Federation Internationale des Ingenieurs-Conseil (FIDIC) of Lausanne, Switzerland</i> shall appoint, upon the request of either Party and from such list or otherwise, a sole arbitrator for the matter in dispute.<li data-bbox="461 1079 1372 1549">(b) Where the Parties do not agree that the dispute concerns a technical matter, the Client and the Consultant shall each appoint one 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 arbitrators named by the Parties has been appointed, the third arbitrator shall, at the request of either Party, be appointed by <i>[name an appropriate international appointing authority, e.g., the Secretary General of the Permanent Court of Arbitration, The Hague; the Secretary General of the International Centre for Settlement of Investment Disputes, Washington, D.C.; the International Chamber of Commerce, Paris; etc.]</i>.
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	<p>(c) If, in a dispute subject to Clause SC 8.2 1.(b), 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 <i>[name the same appointing authority as in Clause SC 8.2 1.(b)]</i> 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.</p> <p>2. <u>Rules of Procedure.</u> Except as 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.</p> <p>3. <u>Substitute Arbitrators.</u> If for any reason an arbitrator is unable to perform his function, a substitute shall be appointed in the same manner as the original arbitrator.</p> <p>4. <u>Nationality and Qualifications of Arbitrators.</u> The sole arbitrator or the third arbitrator appointed pursuant to paragraphs (a) through (c) of Clause SC 8.2 1 hereof 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 [<i>Note: If the Consultant consists of more than one entity, add: or of the home country of any of their Members or Parties</i>] or of Republic of Mauritius. For the purposes of this Clause, "home country" means any of:</p> <p>(a) the country of incorporation of the Consultant [<i>Note: If the Consultant consists of more than one entity, add: or of any of their Members or Parties</i>]; or</p> <p>(b) the country in which the Consultant's [or any of their Members' or Parties'] principal place of business is located; or</p> <p>(c) the country of nationality of a majority of the Consultant's [or of any Members' or Parties'] shareholders; or</p> <p>(d) the country of nationality of the Sub-Consultants concerned, where the dispute involves a subcontract.</p>
	<p>5. <u>Miscellaneous.</u> In any arbitration proceeding hereunder:</p> <p>(a) proceedings shall, unless otherwise agreed by the Parties, be held in the Republic of Mauritius;</p>

	<p>(b) the English language shall be the official language for all purposes; and</p> <p>(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.</p>
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IV. Appendices

APPENDIX A – DESCRIPTION OF SERVICES

Note: Give detailed descriptions of the Services to be provided, dates for completion of various tasks, place of performance for different tasks, specific tasks to be approved by Client, etc.

APPENDIX B - REPORTING REQUIREMENTS

Note: List format, frequency, and contents of reports; persons to receive them; dates of submission; etc.

APPENDIX C - KEY PERSONNEL AND SUB-CONSULTANTS

Note: List under:

- C-1 Titles [and names, if already available], detailed job descriptions and minimum qualifications of Key Foreign Personnel to be assigned to work in the Government's country, and estimated staff-months for each.
- C-2 Same as C-1 for Key Foreign Personnel to be assigned to work outside the Government's country.
- C-3 List of approved Sub-Consultants (if already available); same information with respect to their Personnel as in C-1 or C-2.
- C-4 Same information as C-1 for Key local Personnel.

APPENDIX D - BREAKDOWN OF CONTRACT PRICE IN FOREIGN CURRENCY

Note: List here the elements of cost used to arrive at the breakdown of the lump-sum price - foreign currency portion:

1. Monthly rates for Personnel (Key Personnel and other Personnel).
2. Reimbursable expenses.

This appendix will exclusively be used for determining remuneration for additional services.

APPENDIX E - BREAKDOWN OF CONTRACT PRICE IN LOCAL CURRENCY

Note: List here the elements of cost used to arrive at the breakdown of the lump-sum price - local currency portion:

1. Monthly rates for Personnel (Key Personnel and other Personnel).

2. *Reimbursable expenditures.*

This appendix will exclusively be used for determining remuneration for additional services.

APPENDIX F - SERVICES AND FACILITIES PROVIDED BY THE CLIENT

Note: List here the services and facilities to be made available to the Consultant by the Client.

APPENDIX G - FORM OF ADVANCE PAYMENTS GUARANTEE

Note: See Clause GC 6.4 and Clause SC 6.4.

Bank Guarantee for Advance Payment

_____ *[Bank's Name, and Address of Issuing Branch or Office]*

Beneficiary: _____ *[Name and Address of Client]*

Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

We have been informed that *[name of Consulting Firm]* (hereinafter called "the Consultants") has entered into Contract No. *[reference number of the contract]* dated *[insert date]* with you, 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 *[amount in figures]* (*[amount in words]*) is to be made against an advance payment guarantee.

At the request of the Consultants, we *[name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[amount in figures]* (*[amount in words]*)¹ upon receipt by us of your first demand in writing accompanied by a written statement stating that the Consultants are in breach of their obligation under the Contract because the Consultants have 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 Consultants 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 Consultants as indicated in copies of certified monthly statements which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of the monthly payment certificate indicating that the Consultants have made full repayment of the amount of the advance payment, or on the ___ day of _____, 2___,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.

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.

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],

This guarantee is subject to the Uniform Rules for Demand Guarantees, 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.

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."