water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

REQUEST FOR BID

WP11392

MZIMVUBU WATER PROJECT PHASE 2: FEASIBILITY STUDY FOR THE MBOKAZI DAM AND HYDROPOWER SCHEME

ISSUE DATE:

19 JULY 2021

CLOSING DATE AND TIME

27 AUGUST 2021 at 11H00

DUE TO THE COVID 19 RESTRICTIONS, THERE WILL BE NO BRIEFING SESSION.

N.B: ALL PROSPECTIVE BIDDERS ARE REQUESTED TO SUBMIT/ PROVIDE BOTH HARD COPY AND A SOFTCOPY ON A USB OR DISC OF THEIR COMPLETE BID DOCUMENT. THIS IS DUE TO THE CURRENT PREDICAMENT WE FIND OURSELVES IN DUE TO COVID 19.

SUBMIT TENDER DOCUMENT

POSTAL ADDRESS:
DIRECTOR-GENERAL: WATER AND SANITATION
PRIVATE BAG X 313 PRETORIA, 0001

OR

TO BE DEPOSITED IN:
THE TENDER BOX AT THE ENTRANCE OF ZWAMADAKA BUILDING 157 FRANCIS BAARD STREET (FORMERLY SCHOEMAN STREET) PRETORIA

TENDERER: (Company address and stamp)

PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE *(NAME OF DEPARTMENT/ PUBLIC ENTITY)*					
BID NUMBER:	WP11392	CLOSING DATE:	27 AUGUST 2021	CLOSING TIME:	11:00
DESCRIPTION	MZIMVUBU WATER PROJECT PHASE 2: FEASIBILITY STUDY FOR THE MBOKAZI DAM AND HYDROPOWER SCHEME				

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT *(STREET ADDRESS)*

TENDER BOX AT ZWAMADAKA BUILDING, 157 FRANCIS BAARD STREET (FORMERLY SCHOEMAN STREET)

PRETORIA, 0002

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO		TECHNICAL ENQUIRIES MAY BE DIRECTED TO:	
CONTACT PERSON	Zelda Phiri	CONTACT PERSON	Mr Menard Mugumo
TELEPHONE NUMBER	012 336 7954	TELEPHONE NUMBER	012 336 6838
FACSIMILE NUMBER	N/A	FACSIMILE NUMBER	N/A
E-MAIL ADDRESS	phiriz@dws.gov.za	E-MAIL ADDRESS	mugumom@dws.gov.za

SUPPLIER INFORMATION

NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		**OR**	CENTRAL SUPPLIER DATABASE No:	MAAA

B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX]	B-BBEE STATUS LEVEL SWORN AFFIDAVIT	[TICK APPLICABLE BOX]
	☐ Yes ☐ No		☐ Yes ☐ No

[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN BASED SUPPLIER FOR **THE GOODS /SERVICES /WORKS OFFERED?**	☐Yes ☐No [IF YES, ANSWER PART B:3]

QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES ☐ NO
DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES ☐ NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES ☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.

PART B
TERMS AND CONDITIONS FOR BIDDING

1.	**BID SUBMISSION:**
1.1.	BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2.	**ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.**
1.3.	THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4.	**THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).**
2.	**TAX COMPLIANCE REQUIREMENTS**
2.1	BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2	BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3	APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4	BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6	WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7	NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER: .....

CAPACITY UNDER WHICH THIS BID IS SIGNED: .....
(Proof of authority must be submitted e.g. company resolution)

DATE:
.....

PRICING SCHEDULE

(Professional Services)

MZIMVUBU WATER PROJECT PHASE 2: FEASIBILITY STUDY FOR THE MBOKAZI DAM AND HYDROPOWER SCHEME

NAME OF BIDDER:	PROJECT NO: **WP11392**
CLOSING TIME: **11:00 AM**	CLOSING DATE: **27 AUGUST 2021**

OFFER TO BE VALID FOR **120 DAYS** FROM THE CLOSING DATE OF BID.

ITEM DESCRIPTION BID PRICE IN RSA CURRENCY (ALL APPLICABLE TAXES INCLUDED)

1. The accompanying information must be used for the formulation of proposals.

2. Bidders are required to indicate a ceiling price based on the total Estimated time for completion of all phases and including all Expenses inclusive of all applicable taxes for the project.

R.....

3. PHASE ACCORDING TO WHICH THE PROJECT WILL BE COMPLETED, COST PER PHASE AND MAN-DAYS TO BE SPENT

..... R..... ..... Days

..... R..... ..... Days

..... R..... ..... Days

3.1. Travel expense (specify, for example rate/km and total km, class Of air travel, etc.). Only actual costs are recoverable. Proof of the Expenses incurred must accompany certified invoices.

DESCRIPTION OF EXPENSE TO BE INCCURED	RATE	QUANITY AMOUNT
.....	R.....	R.....
.....	R.....	R.....
.....	R.....	R.....

TOTAL: R.....

"all applicable taxes" includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

3.2. Other expenses, for examples accommodation (specify, e.g. Three Star hotel, bed and breakfast, telephone cost, reproduction cost, etc.). On basis of these particulars, certified invoices will be checked for correctness. Proof of the expenses must accompany invoices.

DESCRIPTION OF EXPENSE TO BE INCURED	RATE	QUANTITY
.....	R.....	.....
.....	R.....	.....
.....	R.....	.....

TOTAL: R.....

4. Period required for commencement with project after Acceptance of bid

.....

5. Estimated man-days for completion of project

.....

6. Are the rates quoted firm for the full period of contract? *YES/NO

7. If not firm price period, provide details of the basis on which Adjustments will be applied for, for example consumer price index.

.....

.....

.....

.....

Any enquiries regarding bidding procedures may be directed to:

Department: Department of Water and Sanitation

Contact Person: Zelda Phiri

Tel: 012 336 7954

E-mail address: phiriz@dws.gov.za

Any enquiries regarding technical information may be directed to:

Contact Person: Menard Mugumo

Tel: 012 336 6838

E-mail address: mugumom@dws.gov.za

DECLARATION OF INTEREST

1. Any legal person, including persons employed by the state[1], or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes an advertised competitive bid, a limited bid, a proposal or written price quotation). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the bidder or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-
- the bidder is employed by the state; and/or the legal person on whose behalf the bidding document is signed, has a relationship with persons/a

person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the bid.

2. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

2.1 Full Name of bidder or his or her representative: .....

2.2 Identity Number:.....

2.3 Position occupied in the Company (director, trustee, shareholder[2], member):
.....

2.4 Registration number of company, enterprise, close corporation, partnership agreement or trust:
.....

2.5 Tax Reference Number:.....

2.6 VAT Registration Number: .....

2.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / PERSAL numbers must be indicated in paragraph 3 below.

[1]"State" means –
(a) any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
(b) any municipality or municipal entity;
(c) provincial legislature;
(d) national Assembly or the national Council of provinces; or
(e) Parliament.

[2]"Shareholder" means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.

2.7 Are you or any person connected with the bidder presently employed by the state? **YES / NO**

2.7.1 If so, furnish the following particulars:
Name of person / director / trustee / shareholder/ member: .....
Name of state institution at which you or the person
Connected to the bidder is employed: .....
Position occupied in the state institution: .....

Any other particulars:

.....

.....

2.7.2 If you are presently employed by the state, did you obtain the appropriate authority to undertake remunerative work outside employment in the public sector? **YES / NO**

2.7.2.1 If yes, did you attach proof of such authority to the bid Document? **YES / NO**

(Note: Failure to submit proof of such authority, where applicable, may result in the disqualification of the bid.

2.7.2.2 If no, furnish reasons for non-submission of such proof:

.....

.....

.....

2.8 Did you or your spouse, or any of the company's directors / Trustees / shareholders / members or their spouses conduct Business with the state in the previous twelve months? **YES / NO**

2.8.1 If so, furnish particulars:

.....

.....

.....

2.9 Do you, or any person connected with the bidder, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

2.9.1If so, furnish particulars.

.....

.....

.....

2.10 Are you, or any person connected with the bidder, aware of any relationship (family, friend, other) between any other bidder and any person employed by the state who may be involved with the evaluation and or adjudication of this bid?If so, furnish particulars. **YES/NO**

.....

.....

.....

2.11 Do you or any of the directors / trustees / shareholders / members of the company have any interest in any other related companies whether or not they are bidding for this contract? **YES/NO**

2.11.1 If so, furnish particulars:

3 **Full details of directors / trustees / members / shareholders.**

Full Name	Identity Number	Personal Income Tax Reference Number	Employee Number / Persal Number

4 **DECLARATION**

I, THE UNDERSIGNED (NAME).....

CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT. I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

....

Signature Date

....

Position Name of bidder

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENTREGULATIONS, 2017.

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included)

a) The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the80/20 preference point system shall be applicable.

1.2 Points for this bid shall be awarded for:

(a) Price; and

(b) B-BBEE Status Level of Contributor.

1.3 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTOR	20
Total points for Price and B-BBEE must not exceed	100

1.4 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.5 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

(a) **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;

(b) **"B-BBEE status level of contributor"** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

(c) **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;

(d) **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(e) "EME" means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;

(f) **"Functionality"** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.

(g) **"prices"** includes all applicable taxes less all unconditional discounts;

(h) **"proof of B-BBEE status level of contributor** "means:

1) B-BBEE Status level certificate issued by an authorized body or person;

2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;

3) Any other requirement prescribed in terms of the B-BBEE Act;

(i) **"QSE"** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;

(j) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

3. POINTS AWARDED FOR PRICE

3.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\min}{P\min}\right) \quad \text{or} \quad Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmin = Price of lowest acceptable bid

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

4.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5. BID DECLARATION

5.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

6.1 B-BBEE Status Level of Contributor: . = ...(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted?

(***Tick applicable box***)

YES		NO	

7.1.1 If yes, indicate:

i) What percentage of the contract will be subcontracted.....%
ii) The name of the sub-contractor.....
iii) The B-BBEE status level of the sub-contractor.....
iv) Whether the sub-contractor is an EME or QSE
(***Tick applicable box***)

YES		NO	

v) **Specify,by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations,2017:**

Designated Group: An EME or QSE which is at last 51% owned by:	EME √	QSE √
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

8. **DECLARATION WITH REGARD TO COMPANY/FIRM**

8.1 Name of company/firm:.....

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

Partnership/Joint Venture / Consortium
One person business/sole propriety
Close corporation
Company
(Pty) Limited
[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....
.....
.....
.....

8.6 COMPANY CLASSIFICATION

Manufacturer
Supplier
Professional service provider
Other service providers, e.g. transporter, etc.
[*TICK APPLICABLE BOX*]

8.7 Total number of years the company/firm has been in business:.....

8.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent

basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –

(a) disqualify the person from the bidding process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audialterampartem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution.

WITNESSES 1. ..... 2.	..... SIGNATURE(S) OF BIDDERS(S) DATE: ..... ADDRESS ....

SBD8

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1 This Standard Bidding Document must form part of all bids invited.

2 It serves as a declaration to be used by institutions in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.

3 The bid of any bidder may be disregarded if that bidder, or any of its directors have-

a. abused the institution's supply chain management system;
b. committed fraud or any other improper conduct in relation to such system; or
c. failed to perform on any previous contract.

4 **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? **(Companies or persons who are listed on this Database were informed `in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the *audi alteram partem* rule was applied).** The Database of Restricted Suppliers now resides on the National Treasury's website(**www.treasury.gov.za**) and can be accessed by clicking on its link at the bottom of the home page.	+	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? **The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME)…….
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT.

I ACCEPT THAT, IN addition TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

……...	**……...**
Signature	**Date**
……	**……...**
Position	**Name of Bidder**

CERTIFICATE OF INDEPENDENT BID DETERMINATION

1 This Standard Bidding Document (SBD) must form part of all bids[1] invited.

2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).[2] Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

3 Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:

a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution's supply chain management system and or committed fraud or any other improper conduct in relation to such system.

b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.

4 This SBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

5 In order to give effect to the above, the attached Certificate of Bid Determination (SBD 9) must be completed and submitted with the bid:

[1] **Includes price quotations, advertised competitive bids, limited bids and proposals.**

[2] **Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.**

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____

(Bid Number and Description)

in response to the invitation for the bid made by:

_____

(Name of Institution)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

(a) has been requested to submit a bid in response to this bid invitation;
(b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
(c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

(a) prices;
(b) geographical area where product or service will be rendered (market allocation)
(c) methods, factors or formulas used to calculate prices;

(d) the intention or decision to submit or not to submit, a bid;

(e) the submission of a bid which does not meet the specifications and conditions of the bid; or

(f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

[3] **Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.**

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

.....	.....
Signature	Date
.....	.....
Position	Name of Bidder

GOVERNMENT PROCUREMENT GENERAL CONDITIONS OF CONTRACT

NOTES

The purpose of this document is to:

(i) Draw special attention to certain general conditions applicable to government bids, contracts and orders; and

(ii) To ensure that clients be familiar with regard to the rights and obligations of all parties involved in doing business with government.

In this document words in the singular also mean in the plural and vice versa and words in the masculine also mean in the feminine and neuter.

- **The General Conditions of Contract will form part of all bid documents and may not be amended.**

- **Special Conditions of Contract (SCC) relevant to a specific bid, should be compile separately for every bid (if (applicable) and will supplement the General Conditions of Contract. Whenever there is a conflict, the provisions in the SCC shall prevail.**

TABLE OF CLAUSES

General Conditions of Contract

1. Definitions 1. The following terms shall be interpreted as indicated:

1.1 "Closing time" means the date and hour specified in the bidding documents for the receipt of bids.

1.2 "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

1.3 "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.

1.4 "Corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.

1.5 "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.

1.6 "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

1.7 "Day" means calendar day.

1.8 "Delivery" means delivery in compliance of the conditions of the contract or order.

1.9 "Delivery ex stock" means immediate delivery directly from stock actually on hand.

1.10 "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.

1.11 "Dumping" occurs when a private enterprise abroad market its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.

1.12 "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

1.13 "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.

1.14 "GCC" means the General Conditions of Contract.

1.15 "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.

1.16 "Imported content" means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the supplies covered by the bid will be manufactured.

1.17 "Local content" means that portion of the bidding price which is not included in the imported content provided that local manufacture does take place.

1.18 "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.

1.19 "Order" means an official written order issued for the supply of goods or works or the rendering of a service.

1.20 "Project site," where applicable, means the place indicated in bidding documents.

1.21 "Purchaser" means the organization purchasing the goods.

1.22 "Republic" means the Republic of South Africa.

1.23 "SCC" means the Special Conditions of Contract.

1.24 "Services" means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.

1.25 "Written" or "in writing" means handwritten in ink or any form of electronic or mechanical writing.

2. Application.

2.1 These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services, sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.

2.2 Where applicable, special conditions of contract are also laid down to cover specific supplies, services or works.

2.3 Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

3.1 Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.

3.2 With certain exceptions, invitations to bid are only published in the Government Tender Bulletin. The Government Tender Bulletin may be obtained directly from the Government Printer, Private Bag X85, Pretoria 0001, or accessed electronically from www.treasury.gov.za

4. Standards

4.1 The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information; inspection.

5.1 The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

5.2 The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.

5.3 Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.

5.4 The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent rights.

6.1 The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

7. Performance security

7.1 Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.

7.2 The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.

7.3 The performance security shall be denominated in the currency of the contract or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:

(a) A bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or

(b) A cashier's or certified cheque

7.4 The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified in SCC.

8. Inspections, tests and analyses

8.1 All pre-bidding testing will be for the account of the bidder 8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of the Department or organization acting on behalf of the Department.

8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of the Department or an organization acting on behalf of the Department

8.3 If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.

8.4 If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.

8.5 Where the supplies or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such supplies or services are accepted.or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.

8.6 Supplies and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.

8.7 Any contract supplies may on or after delivery be inspected, tested or 8 analyzed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract .Failing such removal the rejected supplies shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute supplies forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the supplier.

8.8 The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 23 of GCC.

9. Packing

9.1 The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract,

including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

10.1 Delivery of the goods shall be made by the supplier in accordance with the terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.

10.2 Documents to be submitted by the supplier are specified in SCC.

11. Insurance

11.1 The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the SCC.

12. Transportation

12.1 Should a price other than an all-inclusive delivered price be required, this shall be specified in the SCC.

13. Incidental services

13.1 The supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:

(a) Performance or supervision of on-site assembly and/or commissioning of the supplied goods;
(b) Furnishing of tools required for assembly and/or maintenance of the supplied goods;
(c) Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
(d) Performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and
(e) Training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.

13.2 Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

14. Spare parts

14.1 As specified in SCC, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the supplier:

(a) Such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and
(b) In the event of termination of production of the spare parts:

(i) Advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
(ii) Following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

15.1 The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

15.2 This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.

15.3 The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.

15.5 If the supplier, having been notified, fails to remedy the defect(s) within the period specified in SCC, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

16. Payment

16.1 The method and conditions of payment to be made to the supplier under this contract shall be specified in SCC.

16.2 The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfilment of other obligations stipulated in the contract.

16.3 Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.

16.4 Payment will be made in Rand unless otherwise stipulated in SCC.

17. Prices

17.1 Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized in SCC or in the purchaser's request for bid validity extension, as the case may be.

18. Contract amendments

18.1 No variation in or modification of the terms of the contract shall be made except by written amendment signed by the parties concerned.

19. Assignment

19.1 The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

20.1 The supplier shall notify the purchaser in writing of all subcontracts awarded under this contracts if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract.

21. Delays in the supplier's performance

21.1 Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.

21.2 If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.

21.3 No provision in a contract shall be deemed to prohibit the obtaining of supplies or services from a national department, provincial department, or a local authority.

21.4 The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily available.

21.5 Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of penalties.

21.6 Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser shall, without cancelling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

22.1 Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed

services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

23. Termination for default

23.1 The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:

(a) If the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;

(b) If the Supplier fails to perform any other obligation(s) under the contract; or

(c) If the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

23.2 In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.

23.3 Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.

23.4 If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the intended penalty as not objected against and may impose it on the supplier.

23.5 Any restriction imposed on any person by the Accounting Officer / Authority will, at the discretion of the Accounting Officer / Authority, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the Accounting Officer / Authority actively associated.

23.6 If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:

(i) The name and address of the supplier and / or person restricted by the purchaser;
(ii) The date of commencement of the restriction
(iii) The period of restriction; and
(iv) The reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

23.7 If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each

case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.

24. Anti-dumping and countervailing duties and rights

24.1 When, after the date of bid, provisional payments are required, or antidumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to the State or the State may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him.

25. Force Majeure

25.1 Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.

25.2 If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

26.1 The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

27. Settlement of Disputes

27.1 If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

27.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.

27.3 Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.

27.4 Mediation proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.

27.5 Notwithstanding any reference to mediation and/or court proceedings herein,

(a) The parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and

(b) The purchaser shall pay the supplier any monies due the supplier.

28. Limitation of liability

28.1 Except in cases of criminal negligence or wilful misconduct, and in the case of infringement pursuant to Clause 6;

(a) The supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and

(b) The aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

29. Governing language

29.1 The contract shall be written in English. All correspondence and other documents pertaining to the contract that exchanged by the parties shall also be written in English.

30. Applicable law

30.1 The contract shall be interpreted in accordance with South African laws, unless otherwise specified in SCC.

31. Notices

31.1 Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice.

31.2 The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

32. Taxes and duties

32.1 A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.

32.2 A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.

32.3 No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.

33. National Industrial Participation (NIP) Programme

33.1 The NIP Programme administered by the Department of Trade and Industry shall be applicable to all contracts that are subject to the NIP obligation

34. Prohibition of Restrictive practices

34.1 In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder (s) is / are or a contractor(s) was / were involved in collusive bidding (or bid rigging).

34.2 If a bidder(s) or contractor(s), based on reasonable grounds or evidence obtained by the purchaser, has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in the Competition Act No. 89 of 1998.

34.3 If a bidder(s) or contractor(s), has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

Js GCC (revised July 2010)

35. SPECIAL CONDITIONS OF CONTRACT

35.1 The State reserves the right to verify and authenticate all the information supplied in this document by the bidder.

35.2 The Bid must be strictly in accordance with the conditions and specifications contained herein.

35.3 If it is found that any information has been tampered with during the evaluation process and/or after the Bid/Contract has been awarded that any false information has been provided, the State reserves the right to take the necessary action as it deems fit, including but not limited to the institution of criminal proceedings.

35.4 Failure to sign all relevant places shall invalidate your bid (**SBD1, SBD 3.1, SBD 4, SBD 6.1 or 6.2, SBD 8, SBD 9 and SCC)**

35.5 All queries should be sent to the relevant person via email state above. No query will be responded to if sent 3 days before the closing date.

35.6 If you are not a registered supplier with the Department of Water and Sanitation, please complete the supplier registration forms and banking details, supplier registration forms are available at Departmental website, www.dwa.gov.za

35.7 Bidders/ Individuals that are directors or members in more than one company bidding for this tender and do not openly declare their interests will be disqualified

35.8 The DWS reserves the right to not make an award on any of the responses to this Bid.

35.9 The DWS reserves the right to award only parts of this bid and re-bid for other parts.

35.10 All bid documents should be hand delivered and deposited in to the Tender Box, if sent via post,
Envelope or package, the envelope must be clearly marked to avoid your submission been mixed with normal letters sent to the Department.

35.11 Only signed, original documents will be accepted.

36. ACCEPTANCE OF TERMS AND SPECIAL CONDITIONS

The above terms of the bid and all Annexure have been read, understood and accepted.

For and on behalf of the Bidder:

.....

_____	_____
Signature of Bidder:	**Date:**
_____	_____
Bidder's Name & Surname:	**Designation**
_____	_____
Witness Name & Surname:	**Date**
_____	_____
Signature:	**Address (Physical):**

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

This template must be completed by the bidder

TENDER NUMBER		
SERVICE /PROJECT DESCRIPTION		
NAME OF BIDDER		
TENDER AMOUNT		
BBBEE LEVEL		
COMPANY'S COMPOSITION OF EXISTANCE		
	% OWNERSHIP	TOTAL NUMBER
WOMEN		
PEOPLE WITH DISABILITIES		
BLACK MALES		
YOUTH		
PARTICIPATION IN PROJECT IMPLEMENTATION		
	TOTAL NUMBER	LEVEL OF PARTICIPATION (eg Project Management, Technical, Administrative)
WOMEN		
PEOPLE WITH DISABILITIES		
BLACK MALES		
YOUTH		

Please note that this information is for reporting purposes only, and will not prejudice the company in anyway nor will it be considered as an evaluation tool.

Name:.....

Position:.....

Signature:.....Date:.....

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

DIRECTORATE: OPTIONS ANALYSIS

TERMS OF REFERENCE

MZIMVUBU WATER PROJECT PHASE 2: FEASIBILITY STUDY FOR THE MBOKAZI DAM AND HYDROPOWER SCHEME

MARCH 2021

TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS

B-BBEE	Broad based black economic empowerment
BOQ	Bill of quantities
D: HS	Directorate: Hydrological Services
DEA	Department of Environmental Affairs (now DEFF)
DEFF	Department of Environment, Forestry and Fisheries
DMR	Department of Mineral Resources (now DMRE)
DMRE	Department of Mineral Resources and Energy
DOE	Department of Energy (now DMRE)
DWA	Department of Water Affairs (now DWS)
DWAF	Department of Water Affairs and Forestry (now DWS)
DWS	Department of Water and Sanitation
DWS-CU	Department of Water and Sanitation Construction Unit
EAP	Environmental assessment practitioner
ECO	Environmental control officer
EIA	Environmental impact assessment
EWR	Ecological water requirements
FSL	Full supply level
GPS	Global positioning system
GRAII	Groundwater resource assessment phase 2
GRIP	Groundwater resource information program
HDI	Historically disadvantaged individual
HFL	High flood level
HPP	Hydropower plant
LOS	Level of service
LSY	Long-term stochastic yield
NGA	National groundwater archive
O&M	Operation and maintenance
OH&S	Occupational health and safety
PFMA	Public Finance Management Act
PPPFA	Preferential Procurement Policy Framework Act (Act No. 5 of 2000)
PPR	Preferential Procurement Regulations of 2011
PSC	Project steering committee

PSP	Professional services provider
RID	Record of implementation decisions
RQO	Resource quality objectives
RWSS	Regional water supply scheme
SANAS	South African National Accreditation System
SARS	South African Revenue Services
SBD	Standard bidding document
SCM	Supply Chain Management
SMC	Study Management Committee
Study	Mzimvubu Water Project Phase 2 – Feasibility Study for the Mbokazi Dam and Hydropower Scheme
TCTA	Trans-Caledon Tunnel Authority
TOR	Terms of reference
URV	Unit reference value
VAPS	Vaal Augmentation Planning Study
WRPM	Water Resources Planning Model
WRSM	Water Resources Simulation Model
WRYM	Water Resources Yield Model
WTW	Water treatment works

LIST OF UNITS AND SYMBOLS

GW	Gigawatt
GWh	Gigawatt hour
Ha	Hectare
km	Kilometre
km^2	Square kilometre
m	Metre
m^2	Square metre
masl	Metre above sea level
million m^3	Million cubic metres
million m^3/a	Million cubic metres per annum
Mℓ	Megalitre
Mℓ/d	Megalitres per day
mm/a	Millimetres per annum

m^3/s	Cubic metres per second
MW	Megawatt
MWh	Megawatt hour

1. INTRODUCTION AND OBJECTIVES

1.1 INTRODUCTION

The Department of Water and Sanitation (DWS) is currently working on the implementation of the Mzimvubu Water Project Phase 1. The primary objective of this Project is socio-economic development in the Mzimvubu River catchment which is regarded as one of the poorest regions in South Africa. This broad developmental objective requires the participation of all key role players in order to effectively unlock regional development, using this Project as a nucleus for a much broader development framework. The development framework includes development of the proposed Wild Coast Special Economic Zone, recreation, development of the tourism industry and road infrastructure required to open up the region to the anticipated increased economic activity.

As currently configured, the Mzimvubu Water Project Phase 1 will provide reliable potable water to inadequately served communities, as well as water for irrigated agriculture and hydropower generation. Many of the communities in the region depend on unreliable water sources, such as isolated boreholes, which frequently break down and even dry up during the dry seasons. The proposed Mzimvubu Water Project (MWP) is set to improve the level of service (LoS) and provide other socio-economic benefits. These include improved nutrition and health, a stronger regional economy as well as improved employment opportunities.

A multi-purpose conjunctive Mzimvubu MWP is being implemented in order to meet the above-mentioned objectives. The conjunctive scheme comprises the proposed Ntabelanga Dam on the Tsitsa River, supplying potable water and irrigated agriculture, as well as the downstream Lalini Dam on the Tsitsa River, which is required for hydropower generation. Based on recommendations from National Treasury, further investigations are required to confirm the feasibility of the Lalini Dam and Hydropower Scheme before approval for funding may be granted.

1.2 OBJECTIVES OF THE MBOKAZI DAM AND HYDROPOWER SCHEME

The Mzimvubu River catchment is endowed with an abundance of water resources yet it is among the very few river systems in South Africa that remain largely underdeveloped. Exploitation of the natural water resources provides a means of generating hydroelectric energy that can be fed into and stabilize the national power grid. Climate change predictions for South Africa in recent years have shown increased hydrological vulnerabilities

characterised by uneven distribution of rainfall intensities spatially and temporally which will have a major impact on hydropower generating capacity as well as the resilience of existing water supply systems. The Mzimvubu Water Project Phase 2: Mbokazi Dam and Hydropower Scheme is expected to make a significant contribution to power generation and stabilise water supplies in this impoverished region of South Africa. In the spirit of equitable regional development, the Project will provide for further socio-economic development in the Lower Mzimvubu River catchment which did not benefit directly from Phase 1, as well as socio-economic development in the receiving catchments through potential inter-basin transfers.

1.3 Objectives of the Feasibility Study for the Mbokazi Dam and Hydropower Scheme

In order to bring socio-economic development to other parts of the Mzimvubu River catchment it is necessary to investigate the potential of dam sites in other parts of the catchment. Based on the preliminary investigations for the Mzimvubu Water Project Phase 1, the Mbokazi site has shown the highest potential for hydropower generation. The investigations that were previously undertaken at reconnaissance level of detail are described briefly in sections **2.4.1** and **2.4.2** below.

The Mbokazi Dam site was originally investigated in the 1987 Study of the then Transkei Government (refer **2.4.1** below). As configured in the 1987 study, the Mbokazi Dam was sized to store 5 950 million m^3, with a live storage volume of 4 350 million m^3, impounded by a 210 m high dam wall. The proposed Mbokazi Hydropower Plant was configured to generate a maximum of 1 600 MW peaking power.

Associated with the Mbokazi Dam was the 43 m high Nkwalini Dam, located 17 km downstream of the Mbokazi site, which is required to regulate discharges from the Mbokazi Hydropower Plant, to ensure downstream discharges meet ecological water requirements for the river and estuary. The proposed Nkwalini Dam is itself to be equipped with its own hydropower plant capable of generating up to 50 MW.

A two-phased approach is required for the Feasibility Study, namely the:

- **Pre-feasibility investigations** during which comparative analyses are undertaken in terms of hydropower generating capacity and water supply. A review of the Phase 1

screening process is required to provide a transition from Phase 1 to Phase 2 and provide a basis for the selection of Mbokazi site for hydropower generation; and

- **Detailed Feasibility investigations** of the preferred dam site and scheme configuration.

The recommended dam site for investigation must be located within Pondoland, which is the target area for the current phase of development. The primary purpose of the preliminary analyses is to evaluate alternative scheme configuration options, in terms of layout options for infrastructure, and provide motivation for the selection of the Mbokazi dam site for development in Phase 2. Furthermore, the pre-feasibility investigations may entail repositioning the previously selected dam wall alignment depending on findings of geological and topographical investigations.

The Feasibility Study must provide an appropriate level of detail, and must be comprehensive enough, in order to meet the requirements for funding approval and environmental authorisation. The main objectives and requirements for the Feasibility Study are the following:

- Develop clear project objectives with the participation of key stakeholders;
- Environmental screening of options;
- Investigate the Mbokazi site for various dam heights and hydropower generation potential;
- Investigate options for augmentation of water supply to Port St Johns and communities surrounding the dam site as well as supply to irrigated agriculture;
- Report and review the Phase 1 screening of dam sites that show potential for hydropower development to allow comparison of alternatives and provide motivation why the Mbokazi dam site was selected for Phase 2 development of the catchment. It must however be noted that recommendations about ranking of dam sites produced in Phase 1 have been approved by the Minster, as part of Phase 1 development, and these recommendations must be adopted and strengthened in Phase 2 Feasibility Study;
- Produce the appropriate level of detail and be comprehensive enough to meet the requirements for funding approval and environmental authorisation;
- Undertake a multi-option analysis in order to demonstrate the most beneficial use of public funds. In this case, options include different dam sizes, dam types, irrigation

layout scenarios, bulk water distribution infrastructure layouts, etc. and must not be restricted to dam site options; and

- Produce institutional and financing arrangements.

As part of the Feasibility Study, it must be ensured that:

- Necessary commitments from the Department of Mineral Resources and Energy (DMRE), and Eskom are secured at a very early stage of the Study. In addition to bilateral engagements between DMRE/Eskom and DWS, Eskom is required to nominate a senior engineer to the Project Steering Committee (PSC) for the entire duration of the Feasibility Study; and
- The roles and responsibilities of role players need to be articulated clearly in a Memorandum of Agreement, which is an institutional arrangement that is crucial to the success of the proposed Mbokazi Dam and Hydropower Scheme.

Consultations are required with National Treasury, the Department of Environment, Forestry and Fisheries (DEFF), the DMRE and other authorities at every critical stage of the Feasibility Study to solicit their respective concurrence. Early consultations enhance prospects for funding approval and environmental authorisation at the end of the Feasibility Study. These consultations are required to inform the design of the feasibility investigations in order to fully meet the specific requirements of the authorities.

It will be required from the appointed Professional Services Provider (PSP) to undertake and complete this Study and present a project and scheme configuration in accordance with technical best practice, sound financial and economic principles as well as sound environmental principles.

Furthermore, as part of the Pre-feasibility investigations, it will be required of the appointed PSP to undertake a review of the dam sites selection that was completed in the Feasibility Study for the Mzimvubu Water Project Phase 1, with a view to providing motivation for the selection of the Mbokazi site for hydropower generation. The selection of these dam sites was undertaken in Phase 1 of the Project and has been approved as part of Phase 1 implementation. The selection must be adopted for Phase 2 of the Project, however the previous reporting may be strengthened as needed.

Furthermore, a Bridging Study of the Lalini Dam and Hydropower Scheme is required in order to confirm both economic and institutional viability, including arrangements for Eskom/IPP partnerships, in accordance with National Treasury requirements.

As part of this Study, the appointed PSP will also be required to provide Technical Support for implementation of the Mzimvubu Water Project Phase 1 (refer to **Sub-section 2.1** below). The scheme comprises the Ntabelanga Dam on the Tsitsa River, the further downstream Lalini Dam and Hydropower Scheme, bulk irrigation distribution infrastructure, bulk potable water distribution infrastructure, which may involve linkages with district municipality's schemes, as well as flow gauging stations/weirs.

> It should be noted that due to these additional tasks from Phase 1, the full title of the Study is ***"Mzimvubu Water Project Phase 2: Feasibility Study for the Mbokazi Dam and Hydropower Scheme and Technical Support for Implementation of the Mzimvubu Water Project Phase 1"***. This unique contractual arrangement was allowed considering that the two phases both concern the development of the Mzimvubu Water Project.

The appointed PSP must provide the diverse skills and expertise required to undertake and complete this Study within the timeframe, other constraints and risks. The PSP will be required to liaise closely with municipalities, traditional authorities in the Study Area, the relevant national and provincial government departments, other PSPs if necessary and other role players. The Study Team must have a Study Leader (Professional Engineer), experienced in coordinating and managing a study of this nature and scale. The Study Leader will be the main link between the DWS and the Study Team.

The PSP will be appointed by the DWS to undertake and complete all the necessary investigations as described in the Scope of Services Required (refer **Section 3** below) to facilitate the successful conclusion of this Study. The Scope of Services Required for this Study will be the minimum requirements that the DWS will accept.

The estimated duration of this Study is **36 months**, which will include all the tasks as outlined in the Scope of Services Required and the Financial Proposal must indicate the proposed escalation incurred beyond this period as a percent of professional fees per annum.

Escalation will be approved only for unavoidable delays to the programme but not for incompetence or inefficiency of the PSP.

No compulsory briefing session is required for the interested bidders due to the Covid-19 pandemic. For any specific questions about the Terms of Reference bidders will be required to submit formal enquiries directly to the Project Manager and Supply Chain Management via the email addresses provided at the end of this document (refer to **Section 8, Table 8.1**).

2. PROJECT BACKGROUND

The Mzimvubu Water Project Phase 1 did not aim to provide a multi-purpose water supply solution across the entire Mzimvubu River catchment. The approach rather was to first implement a feasible project that best met the socio-economic development goals of the project. This strategy did not eliminate any of the remaining water supply options either in the tributaries or main stem Mzimvubu River to be implemented eventually at later stages. A phased approach has been adopted for developing the abundant water resources of the Mzimvubu River catchment starting with the Ntabelanga and Lalini sites in Phase 1. The objective of this Terms of Reference is to investigate Phase 2 development of the catchment. In addition, district municipalities in the area may also investigate the potential for development of local water supply schemes.

The Feasibility Study for the Mzimvubu Water Project Phase 1 (refer to **2.4.1 (4)** below) investigated nineteen (19) previously identified dam sites. The screening process considered the potential of each site to meet the project objectives, as stated above, in addition to other screening criteria which included capital cost, unit reference value (URV), environmental considerations and potential for job creation.

The Mbokazi site on the Lower Mzimvubu River was one of the 19 potential dam sites that were investigated at a reconnaissance level of detail. The Mbokazi site did not meet the multi-purpose criterion for the Phase 1 Project, as it is located very close to the Mzimvubu River Mouth at Port St Johns which lends it exclusively to the development of hydropower. Furthermore, the proximity of the Mbokazi site to the Mzimvubu River mouth required sufficient resources and time to thoroughly investigate the estuarine water requirements and the necessary mitigation measures. The cost of developing the Mbokazi site was estimated to be higher than the other sites due to the deeply incised river valley and the associated difficult access. These earlier findings, however, were based on reconnaissance investigations of the Mbokazi dam site. Detailed investigations are now required to assess the potential of the proposed Mbokazi site to meet the stated developmental objectives in an economically viable and ecologically sustainable manner.

2.1 MZIMVUBU WATER PROJECT PHASE 1

The Mzimvubu Water Project Phase 1, which is currently in the implementation stage, includes the following main infrastructure components:

- The 67 m high Ntabelanga Dam on the Tsitsa River with a storage capacity of 490 million m^3;
- The 53 m high Lalini Dam further downstream on the Tsitsa River with a storage capacity of 232 million m^3;
- Lalini Hydropower Plant (HPP) with an installed capacity of 42 MW, to which water will be conveyed from the Lalini Dam via a pipeline and tunnel with a total length of 7.5 km;
- The 100 Mℓ/d Ntabelanga water treatment works (WTW) at the Ntabelanga Dam site;
- Ntabelanga bulk potable water distribution system;
- Bulk Water distribution system for irrigation supply; and
- Flow gauging stations/weirs to measure the inflow and outflow from the Ntabelanga and Lalini dams, and to monitor the implementation of the Reserve.

Based on the recommendation of the National Treasury, further investigations are required to confirm the Feasibility of the Lalini Dam and Hydropower Scheme. Further background information about the Mzimvubu Water Project Phase 1 is available on the DWS website at the following link: http://www6.dwa.gov.za/mzimvubu/.

2.2 MZIMVUBU WATER PROJECT PHASE 2

The proposed Mzimvubu Water Project Phase 2 (the proposed Mbokazi Dam and Hydropower Scheme) will include the following main infrastructure components:

- Mbokazi Dam and hydropower plant;
- Nkwalini Dam and hydropower plant;
- Conveyance infrastructure for potential inter-basin transfers;
- Bulk potable water distribution system for the surrounding communities;
- Bulk water conveyance infrastructure for augmentation of water supply to Port St Johns, should this be required at this stage of development; and
- Bulk raw water distribution system for irrigation development if suitable agricultural land is identified within economic distance.

2.2.1 Mbokazi Dam and Hydropower Station

Associated alternative uses of the proposed Mbokazi Dam's water, as originally envisaged in the 1987 study of the then Transkei Government (refer **2.4.1 (2)** below), need to be re-visited in order to confirm the relevance and economic viability under the new economic environment. As configured in the 1987 study, the proposed Mbokazi Dam on the Mzimvubu River was sized to store a total volume of 5 950 million m^3, with a live storage volume of 4 350 million m^3, impounded by a 210 m high dam wall. The proposed Mbokazi HPP was sized to generate up to 1 600 MW peaking power.

2.2.2 Nkwalini Dam and Hydropower Station

Associated with the Mbokazi Dam is the proposed 43 m high Nkwalini Dam on the Mzimvubu River, located about 17 km downstream of the Mbokazi site, which is required to regulate discharges from the Mbokazi HPP, so that a reasonable flow is discharged down the Mzimvubu River. The Nkwalini Dam is itself to be equipped with its own HPP capable of generating up to 50 MW.

2.2.3 Potential Inter-basin Transfers

Potential inter-basin transfers from the Mzimvubu River were identified as a potential enhancement to utilise water from the Mbokazi Dam to supply surrounding regions. Previously identified regions that could possibly benefit from these water transfers are north to the Vaal River, east towards eThekwini and west towards the western parts of the Eastern Cape (East London, Port Elizabeth and others). Water conduits for inter-basin transfers feeding into either, or both, the Orange and Fish Rivers were previously proposed. The technical feasibility and economic viability of these potential inter-basin transfer schemes and the associated water requirements, including the EWR, need to be confirmed.

2.2.4 Bulk Potable Water Distribution System

The proposed bulk potable water distribution system will provide reliable potable water supply to currently inadequately served communities in the surrounding areas. Furthermore, it is envisaged that water supply to Port St Johns can be augmented from the proposed Mbokazi Dam and Hydropower Scheme.

2.2.5 Bulk Raw Water Distribution System

The proposed bulk raw water distribution system for irrigation will provide water for irrigation in the Lower Mzimvubu River catchment identified in this Feasibility Study.

2.3 MZIMVUBU RIVER CATCHMENT

The Mzimvubu River in the Eastern Cape Province is the largest under-developed river in South Africa, with a catchment area of 19 852 km^2. Most of the catchment falls within the Eastern Cape Province. A smaller area of the catchment falls within the KwaZulu-Natal (KZN) Province, which is very economically significant within the KZN Province. The Mzimvubu River drains in an easterly direction to the Indian Ocean and discharges into the ocean at Port St Johns. The four (4) major tributaries of the Mzimvubu River are the Tsitsa, Tina, Kinira and Mzintlava Rivers, which have their headwaters in the Drakensberg Mountains along the border with Lesotho.

The annual rainfall in the catchment is significantly higher than the South African average and the mean annual participation ranges between 700 mm/a, against the Drakensberg Mountains to the Upper Plateau Region, and above 1 000 mm/a at the coast. The mean annual evaporation in the catchment ranges from 1 150 mm/a at the coast to 1 400 mm/a inland. The estimated mean annual runoff from the Mzimvubu River is approximately 2 613 million m^3/a (according to **WR2005 Report**).

Subsistence and livestock farming is the main land-use activity in this eastern part of the Eastern Cape. Therefore, a very large area of the upper and central parts of the catchment is degraded mainly because of overgrazing. Land uses in the catchment include subsistence farming with mainly maize, vegetable and cattle production; commercial agriculture which is mainly livestock production; commercial forestry as well as other land uses. Furthermore, there are a significant number of wetland areas in the northern parts of the catchment.

The largest water user in the catchment is the irrigation sector, which was estimated to be approximately 55 million m^3/a in 2005, followed by afforestation, which was estimated to be approximately 43 million m^3/a in 2005. In 2009, there were two-hundred and ten (210) identified water supply schemes in the catchment. There are an estimated nine-hundred and twenty-four (924) farm dams in the in the catchment, with a combined storage capacity of about 34 million m^3, which are mainly used for irrigation. Furthermore, there are also eleven (11) community-based dams in the catchment, with a combined storage capacity of about 10 million m^3, which are mainly used for domestic water supply. These figures will need to be confirmed as part of this Study.

None of the quaternary catchments seems stressed and the allocatable groundwater volumes are significant, and therefore groundwater may be a feasible water source in some of the

quaternary catchments especially for domestic use. Based on a preliminarily assessment of available groundwater the indication is that sufficient potential exists to supply many households in the numerous villages and towns located throughout the catchment, and therefore groundwater development should be considered as a sole, or supplementary, water supply option for the different communities. From the preliminary estimate of groundwater potential for the eighteen (18) towns in the catchment the groundwater potential was evaluated as very high at the town of Cederville and as high at the town of Matatiele, Qumbu and Tsolo. Of the remaining fourteen (14) towns in the catchment, a total of eight (8) were identified as having medium or moderate groundwater potential, while the remaining six (6) towns were identified as having low potential to rely on groundwater as a sustainable water source for municipal water supply.

Water quality is in general not a major problem in the catchment, but there can be potential quality problems in particular with regard to groundwater and springs, which are the sources of supply for many of the rural towns in the catchment. There are, however, water quality problems in the towns of Tsolo, Ugie and Maclear due to inadequate capacity of wastewater treatment works that results in overflows.

The surface water Reserve determination for the catchment was undertaken in 2017 (refer **2.4.1 (5)** below).

2.4 PAST PLANNING STUDIES

2.4.1 Planning Studies on the Mzimvubu River Catchment

Various previous planning for water resource development in the Mzimvubu River catchment were undertaken in the past. A list of the available past study reports and other relevant information is given below, which is not necessarily exhaustive. It will therefore be expected of the appointed PSP to undertake a thorough literature review and to source any other relevant information. A comprehensive list of groundwater investigation reports for the catchment, and other relevant groundwater information, is available on the DWS's Geohydrological Reports System at the following link: https://www.dwa.gov.za/ghreport/Default.aspx. These reports can also be requested by e-mail from georequests@dws.gov.za. A list of the Groundwater Resource Assessment II (GRAII) reports is available on the DWS website: http://www.dwa.gov.za/Groundwater/GRAII.aspx. The relevant past studies, planning reports, and other information are, but not limited to, the following:

(1) Department of Water Affairs and Forestry: Internal Strategic Perspective of the Mzimvubu to Mbashe ISP Area, Report Number PWMA 12/000/00/0305, February 2005.

(2) Republic of Transkei, Department of Works and Energy: Umzimvubu Basin Development Feasibility Study, undertaken by H. Olivier and Associates, Binnie and Partners, Kennedy and Donkin in Association with M.J. Mountain and Associates KDM, March 1987.

(3) Department of Water Affairs: Water Resource Study in Support of the AsgiSA-EC Mzimvubu Development Project, undertaken by BKS (PTY) LTD, November 2010.

(4) Department of Water and Sanitation: Feasibility Study for the Mzimvubu Water Project: Preliminary Study, undertaken by Jeffares & Green (PTY) LTD, October 2014.

(5) Department of Water and Sanitation: Determination of Water Resource Classes and Resource Quality Objectives for the Water Resources in the Mzimvubu Catchment, undertaken by Scherman Colloty & Associates cc, 2017.

2.4.2 Other Past Studies

The following past study reports should also be consulted pertaining to the potential inter-basin transfers from the Mzimvubu River to the Orange and Vaal System, eThekwini and the western parts of the Eastern Cape:

(1) Reconciliation Strategy for the Algoa Water Supply Area. Study reports are available on the DWS website: http://www6.dwa.gov.za/Algoa/documents.aspx.

(2) Reconciliation Strategy for the Amatole Water Supply System. Study reports are available on the DWS website: http://www6.dwa.gov.za/Amatole/default.aspx.

(3) Reconciliation Strategy for the Large Bulk Water Supply Systems: Greater Bloemfontein Area. Study reports are available on the DWS website: http://www6.dwa.gov.za/Bloem/default.aspx.

(4) Continuation of the Reconciliation Strategy of the KwaZulu-Natal Coastal Metropolitan Area: Phase 2: Study reports are available on the DWS website: http://www6.dwa.gov.za/Iwrp/KZN%20Recon/documents.aspx.

(5) Reconciliation Strategy for the Orange River Water Supply System. Study reports are available on the DWS website: http://www6.dwa.gov.za/Orange%20Recon/documents.aspx.

(6) Reconciliation Strategy for the Vaal River System. Study reports are available on the DWS website: http://www6.dwa.gov.za/Vaal/documents.aspx.

2.5 Discussion of Past Studies

The past studies mainly dealt with the following aspects:

- Strategies and options to reconcile water requirements with water supplies in the catchment; and
- Water resource development in the catchment.

The recommendations of some of these studies have not yet been implemented and may therefore still be relevant for long-term future planning. The Determination of Water Resource Classes and Resource Quality Objectives for the Water Resources in the Mzimvubu Catchment was completed in 2017 (refer **2.4.1 (5)** above).

2.5.1 Internal Strategic Perspective

The Internal Strategic Perspective (ISP) Report, dated February 2005 (refer **2.4.1 (1)** above), gives a perspective on the water situation in the various catchments comprising the Mzimvubu to Mbashe area. The assessment of the water situation in the Mzimvubu River catchment includes resources (dam storages, streamflow and groundwater), requirements, quality, institutions, infrastructure, etc. The ISP gives an overview of key issues in the Mzimvubu River catchment.

2.5.2 Umzimvubu Basin Development Feasibility Study

H. Olivier and Associates, Binnie and Partners, Kennedy and Donkin in Association with M.J. Mountain and Associates KDM undertook this study in 1987 on behalf of the then Republic of Transkei, Department of Works and Energy (refer **2.4.1 (2)** above). In 1987, the proposed Umzimvubu Basin Development Project was treated generally as a scheme for Southern Africa as a whole, since the benefits could accrue to the country directly, and to neighbouring states indirectly given the interlinked power systems and shared trade at the time. For the purposes of this past study the following types and sizes of projects were conceived, configured, costed and their benefits assessed:

- The 210 m high Mbokazi Dam on the Mzimvubu River with full supply level (FSL) of 250 masl and a total storage of 5 950 million m^3 and a live storage of 4 300 million m^3 to provide carry-over storage and reliable yield.

- The 1 600 MW Mbokazi HPP to be connected to, and integrated into, the Eskom electricity grid and to be operated by Eskom. The HPP would have peaking and reserve roles with firm annual peaking energy of 1 080 GWh.
- The 43 m high Nkwalini Dam on the Mzimvubu River about 17 km downstream of the proposed Mbokazi Dam, to even out the irregular discharges from the upstream Mbokazi HPP to ensure that a reasonable flow is discharged down the Mzimvubu River.
- The 50 MW Nkwalini HPP to be fed from the Nkwalini Dam and connected to the then (1987) TESCOR (now Eskom) electricity grid in order to meet base and peaking requirements, with average annual energy of 192 GWh.
- Water conduits for the proposed inter-basin transfers; consisting of river off-takes, pipelines, tunnels, canals and pump stations. The main route would be to the west, serving the plateau within the former Transkei and feeding into either, or both, the Orange River and the Fish River in the Republic of South Africa, which could be constructed in two (2) or three (3) stages of 20 m^3/s each. A separate smaller conduit with a capacity of 10 m^3/s would feed to the northeast within the former Transkei.
- Water conduits for exporting water consisting of a river off-take, WTW, pipelines, a balancing reservoir, pump stations and a single buoy mooring offshore from which water would be loaded onto tankers to be shipped overseas (mainly Arabia) at an average rate of about 3 m^3/s over the year.

2.5.3 Water Resource Study in Support of the AsgiSA-EC

The former BKS (Pty) Ltd. (now AECOM) undertook this past study in 2010 on behalf of the then Department of Water Affairs in Support of the AsgiSA-EC (refer **2.4.1 (3)** above). The study entailed the following main investigations:

- Water resource assessment;
- Water resource development potential;
- Review of potential inter-basin water transfers;
- Hydropower potential;
- Pumped storage schemes;
- Ecological water requirements;
- Irrigation potential;
- Forestry development potential; and
- Rainwater harvesting.

Furthermore, this past study recommended that:

- Potential dam sites that showed potential for development may be considered if suitable development needs in the region are identified that can make sustainable use of the water.
- An initial focus on the upgrading of rain-fed cultivation and livestock farming can bring great gains at moderate investment, but that land tenure and some institutional and social systems will have to be addressed.
- If forestry is to happen seriously, it will need to be an integrated development, which will require a negotiated settlement with agriculture and communities.
- Rainwater harvesting for the built environment, as well as cultivated and uncultivated areas in the Mzimvubu Development Zone, should be analysed as a standard component of water supply options for all economic development options and municipal water supply requirements.

2.5.4 Feasibility Study for the Mzimvubu Water Project

The former Jeffares & Green (now JG Afrika) undertook this study on behalf of DWS, which was concluded in October 2014 (refer **2.4.1 (4)** above). The Feasibility Study for the Mzimvubu Water Project had two distinct phases of which the first phase was a Preliminary Study, involving a screening process which took the most promising options to the second phase that entailed detailed feasibility investigations. The detailed feasibility investigations focussed on the development of the proposed Ntabelanga Dam on the Tsitsa River to be used conjunctively with the Lalini Dam and Hydropower Scheme located further down on the Tsitsa River, some 3.5 km from the Tsitsa Falls.

Study reports for the Preliminary Study are available on the DWS website: http://www6.dwa.gov.za/mzimvubu/Preliminary.aspx.

Study reports for the Feasibility Study are available on the DWS website: http://www6.dwa.gov.za/mzimvubu/Detailed.aspx.

ILISO Consulting (Pty) Ltd undertook the Environmental Impact Assessment (EIA) on behalf of DWS for the Mzimvubu Water Project, which was concluded in February 2015. The EIA Report and other relevant documents are available on the DWS website: http://www6.dwa.gov.za/mzimvubu/IAP.aspx.

2.5.5 Determination of Water Resource Classes and Resource Quality Objectives for the Water Resources in the Mzimvubu Catchment

Scherman Colloty & Associates cc undertook this past study on behalf of DWS, which was concluded in March 2018 (refer **2.4.1 (5)** above). The main objectives of the Determination of Water Resource Classes and Resource Quality Objectives for the Water Resources in the Mzimvubu Catchment included:

- Coordination of the implementation of the Water Resource Classification System as required by Regulation 810 in Government Gazette 33541 dated 17 September 2010, by classifying all significant water resources in the Mzimvubu River Catchment;
- Determination of Resource Quality Objectives (RQOs) using the DWS's procedures to determine and implement the RQOs for the defined classes; and
- Review of the work that was previously undertaken on the EWR and the Basic Human Needs as well as to assess whether it was suitable for the purposes of Classification.

All the reports and other relevant information pertaining to the Determination of Water Resource Classes and Resource Quality Objectives for the Water Resources in the Mzimvubu Catchment are available on the DWS website: http://www.dwa.gov.za/rdm/WRCS/default.aspx.

2.6 Environmental Impact Assessment

The EIA for the Mzimvubu Water Project Phase 2 (Mbokazi Dam and Hydropower Scheme) will be initiated at an appropriate time once the Feasibility Study has progressed to a stage where the scheme layout and potential environmental impacts have been defined. The main objective of the EIA is to deliver a legally sound and comprehensive EIA process in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998) and EIA Regulations, as amended on 4 December 2014 as well as any later amendments. The DWS will therefore appoint an independent Environmental Assessment Practitioner (EAP) in due course once the Feasibility Study has progressed significantly. The EAP will undertake the EIA under a separate contract. This Feasibility Study, however, includes an **Environmental Screening Task** (refer **Section 3.3** below) that is meant to investigate any fatal flaws and negative impacts at an early stage to guide the scheme configuration and to pave the way for the more detailed EIA process which will be initiated later.

3. SCOPE OF SERVICES REQUIRED

The **Scope of Services Required** for this study are, but not limited to, the following main tasks:

- Inception Report which provides the baseline for tracking actual progress against planned progress;
- Review of Phase 1 ranking/screening of potential dam sites for hydropower generation and water supply to support the selection of Mbokazi dam site for Phase 2 investigations, as explained in Section 1.3 above;
- Review of the Mbokazi and Nkwalini dam sites and the associated HPPs;
- Reconnaissance survey of the Mbokazi and Nkwalini dam sites and the associated HPPs;
- Reconnaissance survey of the proposed potable water Supply Area and potential areas for irrigation development;
- Review of potential inter-basin transfers;
- Environmental screening of the Mbokazi and Nkwalini dam sites, associated HPPs, potable water supply area and potential areas for irrigation development;
- Water resources assessment (updating of the catchment hydrology);
- Reserve determination for the Lower Mzimvubu River;
- Assessment and updating of the catchment current water balance;
- Projection of the catchment future water balance until 2060;
- Pre-feasibility investigations of the Mbokazi and Nkwalini dam sites, as well as the associated HPPs, potable water supply and irrigation development, based on the outcomes of the reconnaissance study. A number of scheme configurations must be investigated;
- Recommendation of the preferred scheme configuration for feasibility investigations;
- Feasibility investigations of the preferred scheme configuration, including the feasibility design and costing;
- Investigation of potential irrigation development;
- Investigation of potential bulk potable water distribution system, taking conjunctive use of surface water and groundwater into account;
- Investigation of potential bulk raw water distribution system for irrigation development;
- Legal, institutional and financing arrangements;

- Socio-economic impact analysis;
- Assessment of Land Matters;
- Traffic impact assessment;
- Site access and establishment (including access roads, relocation of affected roads, laydown areas for construction equipment, housing of construction workers (if needed), operators compound, water supply and wastewater disposal, power supply for construction and scheme operation, etc.). Sufficient detail must be provided to fully prepare for subsequent detailed design and to allow environmental authorisation. Requirements of environmental authorities must therefore be established;
- Bridging Study of the Lalini Dam and Hydropower Scheme (review and improvement of hydropower analysis, institutional arrangements and economic analysis). This task must be reported as part of Phase 1 and NOT Phase 2 development;
- Technical support for implementation of the Mzimvubu Water Project Phase 1 as requested by the Chief Directorate: Infrastructure Development or an implementing agent of the DWS. A **Provisional Sum** is provided for this task; and
- Project management and coordination.

Some of the above components can be undertaken in parallel, but these will need to be identified and agreed upon between DWS and the appointed PSP during the Inception Phase of this Study. Once DWS has approved the recommended scheme configuration, the feasibility investigations can be programmed, and a certain amount of overlap could most probably be possible. The details of the tasks that are required for this Study are outlined in **Sub-sections 3.1** to **3.25** below.

Adherence to international best practice is required for all aspects of the feasibility invesigations with particular attention given to both the ICOLD and SANCOLD standards for dam development projects. Existing DWS technical guidelines, Eskom technical guidelines, relevant South African National Standards (SANS) and legislations must be consulted as well. Standards are required especially to ensure the safety of the dam wall and appurtenant structures, minimal impact on the environment, sustainable development through measures such as provision of adequate storage for sediment accumulation over the project life, among other requirements.

3.1 INCEPTION REPORT

The appointed PSP is required to undertake thorough research of the available information and to liaise with all relevant institutions and role players in preparation for this Study. A list of completed past studies and other studies is contained, and discussed, in **Sub-section 2.5** above. Furthermore, the appointed PSP is required to undertake thorough research of all the available groundwater information relevant to this Study, and a section on groundwater must be included in the **Inception Report.**

After signing of the **Contract** by both parties, the appointed PSP will commence with the investigations. The PSP shall compile an **Inception Report** that will consist of a detailed description of Tasks and Methodology, Study Programme, Human Resource Schedule and Budget, among others. Furthermore, the PSP shall also develop a Report Structure for the various reports of this Study, which need the approval of DWS before adoption during the **Inception Stage**.

The **Inception Report** is a formal document that covers all **aspects of the original Proposal**, the **Contract Amount** and the **Contract Period,** and must be guided by this Terms of Reference. The **Inception Report** will list all the tasks required, all the team members for each task, revised Study Programme, etc. The rates of the Financial Proposal are approved at the time of tender award, but rates for any new team members appointed by the PSP after tender award will need special approval of the DWS before they may be engaged on the Study.

For this particular appointment, it is anticipated that the **Inception Report** should be finalized (approved by DWS) within three (3) months of commencement of this Study.

3.2 PROJECT MANAGEMENT

The **Project Management** for this Study will be the responsibility of the appointed PSP under supervision of the DWS Project Manager. This will involve various meetings and the appointed PSP must make provision for these meetings as specified in **Table 3.1** below.

The appointed PSP is responsible for subsistence and travel costs of the Study Team Members attending meetings, workshops and site visits. The PSP is required to provide secretarial services at all the meetings and workshops and other engagements.

For the **Public Meetings** and other engagements with stakeholders the PSP is required to appoint a **Social Facilitator** with excellent Xhosa writing, reading and spoken skills who must be fairly familiar with technical aspects of the Project. The Social Facilitator must be supported by two (2) local facilitators appointed from the Project Area, recommended by the Traditional Leaders or their representatives. Bidders must provide for the cost of these appointments in the Financial Proposal.

Table 3.1: Study Meetings and Site Visits

Meeting Type	Number of Meetings	Place/Venue	PSP Obligations
Inception meetings	One meeting One site visit	Pretoria Study area	a) Arrangements for meetings b) Attendance of meetings c) Minute taking and distribution
Meetings with authorities	Total = 8	Study area = 4 Pretoria = 4	a) Arrangements for meetings b) Attendance of meetings c) PowerPoint presentation d) Minute taking and distribution
Study Management Committee (SMC)	Once every two months (Total = 18)	Pretoria for 1/3of the meetings, Port St Johns for 1/3of the meetings and East London for another 1/3.	• Arrangements for meetings • Attendance of meetings • PowerPoint presentations of study progress • Minute taking and distribution
Project Steering Committee (PSC)	Once every two months (Total = 18)	Port St Johns and/or Mthatha for all the meetings	• Arrangements for meetings • Attendance of meetings • Power Point presentations of study progress • Minute taking and distribution
Presentation to DWS Management	Eight (8)	DWS Pretoria	High quality PowerPoint presentations by one or two study team members.
Public Meetings with Stakeholders (arranged by the	Eight (8)	Three (3) meetings in Port St Johns and	• Arrangements for meetings • Attendance of meetings • Power-Point presentations of

Meeting Type	Number of Meetings	Place/Venue	PSP Obligations
PSP)		three (3) meetings in a village close to Mbokazi Dam site	study progress • Minute taking and distribution
Liaison with Role Players (Office of the Premier, Municipalities, Eskom, Department of Mineral Resources and Energy, other Government Departments, etc.)	As required (Price for 10)	Project Area (Port St Johns)	• Arrangements for meetings • Attendance of meetings • Power-Point presentations of study progress • Minute taking and distribution

3.2.1 Project Steering Committee

DWS will provide the appointed PSP with contact details of DWS officials and other officials to be nominated to the Project Steering Committee (PSC) and Study Management Committee (SMC). The coordination, arrangement and cost of these meetings and public meetings is the responsibility of the PSP.

The PSP is responsible for providing project progress reports for PSC and SMC Meetings.

3.2.2 Liaison with Role Players and Stakeholders

The appointed PSP is responsible for arranging liaison meetings with role players, which may, or may not be, attended by the DWS Project Manager and the DWS Eastern Cape Regional Office. Typical role players and stakeholders would be, but are not limited to, the following:

- Office of the Premier;
- Local municipalities in the Study Area;
- District municipalities in the Study Area;
- Irrigation boards (water user associations) in the Study Area;
- Water boards in the Study Area;
- EAP appointed for the EIA;

- Interested and affected parties (I&APs);
- Eskom;
- Department of Mineral Resources and Energy; and
- Other government departments and institutions (national and provincial).

3.2.3 Coordination and Management of the Study Team

It is the Study Leader's responsibility to ensure that all study team members are coordinated and tasks are activated and completed on time.

3.2.4 Quality Control of Study Reports

It is the responsibility of the Study Leader to review all reports submitted by task leaders (draft or final) before submission thereof to DWS. The Study Leader shall ensure that all reports are produced in the format required by DWS and conform to the template that will be approved at the start of this Study. Quality control of reports includes ensuring that language use and grammar are of a high standard, and that reports contain all information required to take the project to the implementation stage. Any reports that display a lack of review and scrutiny by the Study Leader will be sent back to the PSP before the DWS may review these reports.

3.2.5 Financial Management

The Study Leader shall ensure that DWS is invoiced as required and that invoices are supported by all the necessary documentation, which is required by DWS. It is the responsibility of the PSP to ascertain the DWS requirements at the onset of this Study. It is important that progress reports be submitted together with the invoices, which cover the claim period. These progress reports are in addition to the progress reports that have to be prepared for PSC meetings that cover the period between two successive PSC meetings. It should be noted that the Project Leader for this Study must be responsible for, and be up to date with, financial related issues of this Study. Most important, the approved Contract Amount and task budgets cannot be exceeded without an approved Variation Order providing for such variation. Furthermore, re-allocation of funds between tasks will need the approval of DWS.

3.2.6 Collaboration with Environmental Assessment Practitioner

It is expected that an environmental assessment practitioner (EAP) will be appointed while the technical feasibility contract is still subsisting. The appointment of the EAP normally takes about twenty four (24) months after commencement of the Technical Feasibility Study. Close

collaboration needs to be maintained between the **Technical Feasibility Study Team** and the **Appointed EAP** for the **EIA**. The main objectives for this collaboration are, but not limited to, the following:

- Make both teams aware of all the environmental impacts at an early stage;
- Interpretation of technical aspects of the Project;
- Support each other in developing suitable mitigation measures for environmental impacts;
- Optimization of Project configuration with results of the environmental assessment;
- Assess the quantifiable cost of the proposed environmental mitigation measures and include it as part of the overall project cost; and
- Avoid conflicting project reports produced for the same Project.

3.2.7 Developing Project Website

The PSP is required to liaise with the DWS Web Manager in order to create, update and maintain the Mzimvubu Water Project website for dissemination of information during the study period.

3.3 ENVIRONMENTAL SCREENING

It is required of the appointed PSP to undertake an **Environmental Screening** of the main infrastructure components, including the proposed Mbokazi and Nkwalini dams, bulk water distribution infrastructure and irrigation development (refer **Sub-section 2.2** above).

The **Environmental Screening Work** undertaken by the PSP must provide for a smooth transition of relevant information to the EAP appointed for the EIA process. The EAP appointed for the EIA will use the findings of the **Environmental Screening** for the **EIA process**.Based on the **Environmental Screening** the PSP is required to define the **Scope of Services** required for the EIA. In addition, the PSP is required to review reports of the EAP to ensure agreement between recommendations of the EAP and technical findings of the Project.

An **Environmental Screening Report is** required, which must be of a high standard.

3.4 TECHNICAL SUPPORT FOR IMPLEMENTATION OF THE MZIMVUBU WATER PROJECT PHASE 1

Technical support for the implementation of the Mzimvubu Water Project Phase 1 will be required, and the task must be adequately resourced. The Chief Directorate: Infrastructure Development or Trans-Caledon-Tunnel Authority (TCTA), however, provides project management services and plays an oversight role for the Mzimvubu Water Project Phase 1. The DWS Construction Unit (DWS-CU) may be appointed as contractor. At the time of writing this Terms of Reference, the following preparatory work was already underway:

- DWS-CU has mobilised plant, which is temporarily stored at Mthatha Dam near Mthatha;
- Procurement of services to support the DWS-CU was in progress;
- Appointment of the occupational health and safety (OH&S) agent and environmental control officer (ECO) was in progress;
- Land acquisition processes using DWS resources was in progress; and
- Recruitment of local labour had been initiated, but appointments are pending until funding approval has been obtained.

The required technical support for the implementation of the Mzimvubu Water Project Phase I is envisaged to include, but is not limited to, the following:

- Bridging Study for the Lalini Dam and Hydropower Scheme as indicated above to confirm costs, hydropower potential, institutional arrangements (involvement of Eskom and IPPs), and funding model. Finalisation of a funding model may require approaching the markets (through adverts) in close liaison with the National Treasury. No additional geological investigations and topographical survey are anticipated at this stage. The Bridging Study must be conducted during the early stages of this Study (i.e. reconnaissance and pre-feasibility studies). This sub-task must be priced in the Financial Proposal;
- Optimisation of infrastructure components as needed (Ntabelanga Dam, WTWs, and bulk pipelines, district municipal water supply schemes to be integrated into the Ntabelanga Dam Project, as well as updating the project costs). This task may involve detailed design of one or more components. A **Provisional Sum** to cover the costs for this task will be included in the Contract Amount (see **Section 5.2.2**);

- Other technical support that might be required during the subsistence of this Study which is funded by the above-mentioned Provisional Sum.

A **Report on Post Feasibility Bridging Study for the Lalini Dam and Hydropower Scheme** is required, which must be of a high standard. Specific deliverables for the technical support will be discussed between the Parties as need arises.

3.5 ASSESSMENT OF WATER RESOURCES

The assessment of the water resources (availability and requirements) for the entire catchment is required and includes the following:

- Updating and re-working of previous information on hydrology (Rainfall-Runoff Model);
- Current and projected water requirements for all sectors;
- Updated current water balance and future water balances;
- Water supply prioritisation;
- Review and updating of the Ecological Reserve;
- Climate change impact on yield (refer to **Sub-section 3.15** below); and
- Additional storage requirements.

Refer to **Sub-section 2.4** above for information about past DWS studies, other studies and information that will be of particular value to this task.

A **Hydrological and Water Resources Assessment Report** together with all the necessary **supporting reports** must be compiled, which must be of a high standard.

3.5.1 Streamflow Hydrology

The objective of this task is to undertake a comprehensive **hydrological analysis** of the entire catchment in order to update the existing hydrological dataset for the catchment up to the 2019/20 Hydrological Year (i.e. until the end of September 2020). This will require the preparation of a reliable hydrological database on land use, rainfall, evaporation, streamflow and groundwater in order to configure and calibrate the Rainfall-Runoff Model and the naturalisation of streamflow data. The updated hydrology is also required to re-run the model to confirm the Ecological Reserve for the Lower Mzimvubu River catchment. However, if the latest hydrology is found to be satisfactory for the purpose of this Study it may not add real value to update the hydrology again (for instance, if the hydrology was updated in the last 5

years). In that case the DWS may approve re-allocation of the funds to areas of need. The envisaged sub-tasks are described below.

3.5.1.1 Updating of Rainfall Data

The purpose of this sub-task is to update the catchment's rainfall records until the 2019/20 hydrological year in order to update and improve the reliability of the catchment hydrology. This information is required as input for the Water Resources Simulation Model (WRSM). This sub-task will, amongst other aspects, include the following activities:

- Screening of rain gauges for use in this Study;
- Visual screening of the rainfall data of each rain gauge, including identification of outliers;
- Analytical screening of rainfall data, including data plotting and testing for stationarity;
- Infilling ('patching') of discontinuous rainfall records of each rain gauge, where applicable. Rainfall records requiring extensive 'patching' shall not be used to generate streamflow data;
- Non-patched and acceptable patched rainfall data shall be used to generate catchment rainfall and point rainfall time series; and
- Estimate the mean annual precipitation for the catchment and sub-catchments.

3.5.1.2 Updating of Evaporation Data

The purpose of this sub-task is to update the catchment evaporation records until the end of the 2019/20 hydrological year. This information is required as input for:

- WRSM (Pitman Model) to calculate runoff, and
- Assessment of evaporation losses from water bodies in the catchment.

3.4.1.3 Updating of Land Use Data

The purpose of this sub-task is to confirm and quantify changes in land use that has occurred in the catchment since the last update of the hydrology. It is necessary to apply updated land use in the modelling for the purposes of this Study.

3.5.1.4 Updating of Streamflow Data

Observed streamflow data for the catchment is available from the DWS Directorate: Hydrological Services (D: HS). This data is available for varying periods of time, at various gauging stations in the catchment. The details of these gauging stations and their

flow data are available on the DWS website at the following link: http://www.dwa.gov.za/Hydrology/Verified/hymain.aspx.

The following, amongst others, will be required for this sub-task:

- Collating existing streamflow and return flow data for the catchment;
- Extension of streamflow records until the end of September 2020;
- Examination and rectification of streamflow data;
- In-filling ('patching') of streamflow records using acceptable simulation techniques;
- Checking of 'patched' values using acceptable methods; and
- Evaluation of the reliability of the streamflow data in order to select appropriate streamflow gauges, which can be used in the calibration and naturalisation processes.

3.5.1.5 Groundwater Resources

This sub-task is focused on determining the catchment groundwater resources, its current use and its interaction with the catchment surface water in order to correctly model the catchment hydrology. Every effort shall be made to ensure that the most up-to-date information is used, as this component needs to be included in the model of the catchment hydrology. The following typical aspects are part of the Groundwater Sub-task:

- Overview write-up on the character of the groundwater resources of the catchment;
- Potential for groundwater exploitation taking cognizance of economic and environmental constraints;
- Evaluation of the groundwater quality; and
- Comparison of the existing groundwater use and estimated groundwater exploitation potential for the Supply Area.

Useful sources for groundwater data are the National Groundwater Archive (NGA) and the Groundwater Resource Information Program (GRIP) database, which are both available from DWS.

3.5.1.6 Water Resources Simulation Model

Configuration of the latest version of the WRSM is required in order to simulate historical streamflow sequences and to generate natural streamflow sequences. Modelling must be based on a monthly time step and at a quaternary catchment level. Deviation from this requirement must be motivated and approved by DWS. However, where major dams and

abstraction works occur within a quaternary catchment, the latter shall be subdivided to model the sub-catchments of these works. Extensive testing of the model must be undertaken to ensure that the model has indeed been correctly configured. Compilation of the WRSM schematic diagram representing the system network must be provided as part of the deliverables.

3.5.1.7 Runoff Generated by Water Resources Simulation Model

The objective of this sub-task is to calibrate the WRSM's Runoff Generation Module. This is a standard process whereby adjustments are made to the model parameters until the simulated data are similar to the historical streamflow data. Special care must be taken during the calibration process, especially when the simulated data are used to infill ('patch') the observed record.

3.5.1.8 Naturalised Streamflow Records

Naturalised streamflow records are required for the sub-catchments in order to generate stochastic streamflow sequences and derive system yield estimates. This sub-task typically involves the following:

- Naturalisation of patched historical streamflow data by means of the standard methods that consider the effect of historical water abstractions and return flows that have occurred in the catchment during the period of historical data;
- Generation of natural synthetic flow data with the calibrated WRSM in cases where historical streamflow data in sub-catchments are not available for certain periods of the study period; and
- Extending the naturalised flow data using the synthetic flow to obtain a single natural flow record that covers the full Planning Period of twenty (40) years from 2020 to 2060.

3.5.1.9 Stochastic Hydrology

The objective of this sub-task is to generate stochastic streamflow sequences from naturalised streamflow records that will be used for the long-term and short-term yield analyses, as well as the planning analyses, of this Study. The Monthly Multi-Site Stochastic Streamflow Model, which was developed by the Water Research Commission, shall be used for this task. The stochastic streamflow sequences generated need to be subjected to various tests to ensure that these generated sequences are realistic and properly correlated between the various sub-catchments. This will typically include testing for the following:

- Monthly and annual means;
- Monthly and annual standard deviations;
- Minimum sum runs;
- Maximum deficits and deficit durations;
- Longest depletion durations; and
- Yield-capacity relationship.

3.5.2 Existing and Future Water Requirements

The objective of this task is to determine current and projected future water requirements for all water use sectors within the catchment. This information is compared with the water availability in the catchment to determine the water balance and availability of water from the catchment. Typical user sectors to consider shall include, but not limited to, the following:

- **Urban Domestic:** Towns and formal settlements supplied from the catchment water resources. Current requirements as well as 40-year projections of these requirements from 2020 until 2060 should be determined;
- **Rural Domestic:** Informal settlements and dwellings that rely on the catchment water resources for their water supply;
- **Irrigation:** Current and future irrigation relying on water from the Mzimvubu River and its tributaries;
- **Afforestation:** Current water requirements and future allowable expansion of the afforested areas within the catchment must be incorporated;
- **Alien Vegetation:** Impact of alien vegetation on the catchment water resources must be incorporated;
- **Industrial:** Current and future industrial abstractions from the Mzimvubu River catchment;
- **Ecological Reserve:** Impact of the most up to date Ecological Reserve on the catchment water resources (yield) must be incorporated (refer to **3.5.3** below); and
- **Potential Inter-basin Transfers:** Assessment of potential transfers from the catchment to the Orange and Vaal System, eThekwini and the western parts of the Eastern Cape.

A **Water Requirements and Return Flows Report** is required, which must be of a high standard.

3.5.3 Updating of the Ecological Reserve

The Reserve for the Mzimvubu River and some of its tributaries was determined in 2017 as part of the **Determination of Water Resource Classes and Resource Quality Objectives for the Water Resources in the Mzimvubu Catchment** (refer **2.5.5** above). The Reserve for the Lower Mzimvubu River must be reviewed and updated as part of this Study. Provision is therefore made in this Study to re-run the Reserve determination model after the hydrology for the catchment has been updated. The Reserve for the Lower Mzimvubu River therefore needs to be updated and confirmed before it is used as input for the purposes of this Study.

A **Reserve Sub-consultant**, paid via the **PSP Contract**, must be appointed to re-run the Reserve determination model and update the Lower Mzimvubu River Reserve. The Ecological Reserve specifies the flow and water quality requirements (ecological water requirements (EWR)) that are necessary to maintain the gazetted (approved) water resource classification for the Lower Mzimvubu River. This requires measuring flow characteristics at selected EWR sites over a minimum of two rainy seasons, and determination of present ecological status (PES) as well as recommended ecological category (REC) for the river and estuary that must be maintained during the life the project. The Reserve sub-consultant is required to liaise with the Directorate: Resource Classification and Directorate: Reserve Determination to confirm the level of further investigations required. This confirmation must be given in writing, signed by the relevant director or chief director before commencement of investigations. Bidders must however price for comprehensive Reserve determination; and the task budget may have to be adjusted later in line with the above-mentioned liaison.

An **Ecological Reserve Requirements Report** is required and must be of a high standard.

3.5.4 Yield Analyses with the Water Resource Yield Model

The objective of this task is to undertake various yield analyses with the Water Resource Yield Model (WRYM) in order to:

- Determine the water resource potential in the catchment and the allocation of these resources;
- Evaluate the proposed Mbokazi and Nkwalini Dams and their operating rules; and
- Assess the system behaviour.

A **WRYM Analysis Report** is required, which must be of a high standard, including the updated **WRYM schematic diagram**. The main sub-tasks are discussed below, but further tasks may be identified at tender stage or during the course of this Study.

3.5.4.1 Network Diagram for the WRYM

The network diagram for the WRYM must be configured and updated to represent the catchment at an acceptable level. Existing and future points of abstraction, return flows and storage within the catchment should be incorporated in the network diagram. The updated WRYM schematic diagram is part of the deliverables. Extensive testing must be undertaken to ensure that the model has been configured correctly and appropriately represents the system.

3.5.4.2 User Priority Classification Table

A User Priority Classification Table for water users in the catchment must be compiled through a process of stakeholder consultation. The user Priority Classification Table shall reflect all types of users categorised into different user sectors. Where necessary, user sectors may be sub-divided in sub-categories. Typical categories (user sectors) are discussed in **3.5.2** above.

Typical stakeholders to be involved in the process of compiling a User Priority Classification Table for the purposes of this Study are, but are not limited to, the following:

- Local municipalities in the study area;
- District municipalities in the study area;
- Water user associations (including irrigation boards and informal irrigation) in the study area;
- Water boards in the study area;
- Interested and affected parties;
- DWS Eastern Cape Regional Office;
- Identified industries in the study area;
- Department of Mineral Resources and Energy;
- Department of Environment, Forestry and Fisheries ;
- Department of Public Enterprises; and
- Other government departments and institutions.

3.5.4.3 System Operating Rules

A review of current system operating rules for the various water supply schemes in the catchment is required in consultation with the DWS Eastern Cape Regional Office, Water Services Authorities and other role players. The aim of this review is to develop the most appropriate operating rules that can be used for the WRYM analyses to model the status quo in the catchment and future scenarios.

3.5.4.4 Historical Firm Yield

After setting up the WRYM, the flow sequences can be simulated in order to calibrate the model and to determine the historical firm yield (HFY) of Mbokazi and Nkwalini Dams.

3.5.4.5 Long-term Stochastic Yield

Long-term stochastic yield (LSY) analyses are required for long-term water supply in the catchment and elsewhere. The calculated LSY is required for the medium growth scenario in-basin water requirements at 5-yearly development intervals up to 2060. As in the case of the HFY determination, the appointed PSP will have to confirm the exact dates to be adopted for this Study with DWS. The LSY will be recorded in the WRYM Analysis Report for assurances of supply of 75%, 90%, 95%, 98%, 99% and 99,5%.

3.5.5 Future Water Balance

The LSY results and the water requirements must be used to project annual water balances from 2020 to 2060 and for potential inter-basin transfers from the Mbokazi Dam to the Orange and Vaal System, eThekwini and the western parts of the Eastern Cape.

3.5.6 Short-term Stochastic Yield

Short-term yield analyses are required for each proposed scheme configuration for potential inter-basin transfers from the Mzimvubu River to the Orange and Vaal System, eThekwini and the western parts of the Eastern Cape. Short-term yield reliability curves are also required for each decision month defined in consultation with the water users. These curves are also required for undertaking the Water Resource Planning Model (WRPM) analysis.

3.5.7 Water Resources Planning Model

The Water Resources Planning Model (WRPM) must be configured, tested and applied in order to:

- Derive final system operating rules;
- Derive drought curtailment rules; and
- Determine the timing of the next augmentation scheme, if applicable.

A **WRPM Analysis Report** is required, which must be of a high standard. The envisaged sub-tasks for the WRPM analysis are elaborated below:

3.5.7.1 Configuration and Testing of the Water Resource Planning Model

The PSP must obtain existing WRPM network diagram/s for the catchment. Existing network diagrams for the catchment must be reviewed and updated, and be included as part of the deliverable of this sub-task. If it is found that there are no WRPM network diagrams available for the catchment, or if existing diagrams are out-dated, then new network diagrams need to be set up for the catchment. Before proceeding with any analyses, the WRPM configuration must be thoroughly tested to ensure that all functionalities are performing correctly and that the intended system operation is indeed simulated correctly.

The deliverable for this sub-task includes an **electronic copy of the Final WRPM Network Diagram for the catchment**. Electronic copies of the scenario runs of the WRPM must also be made available to DWS.

3.5.7.2 Development of Scenarios

After updating of the WRPM, the various scenarios to be analysed need to be developed and defined in consultation with major water users in the catchment. The following aspects, among others, must be taken into account for this sub-task:

- Alternative operating rules;
- System water requirement scenarios;
- Scenarios for the EWR;
- User Priority Classification scenarios;
- Alternative sources of water, such as groundwater; and
- The timing of the Mbokazi Dam and Hydropower Scheme.

Scenarios developed should cover the analysis period 2020 until 2060. This end date of the analysis period is not fixed and is subject to change in consultation with DWS when better information becomes available.

The results of the analysis must be in the form of box plots of which the format and types are to be discussed with DWS prior to their production. During the execution of this sub-task, the results of the initial scenarios will be presented to DWS for comment and approval, and if needed, these scenarios may either be revised or completely new scenarios may have to be developed.

3.5.7.3 Final Operating Rules

This sub-task comprises a record of the final operating rules recommended for the Mbokazi Dam and Hydropower Scheme as derived from the WRPM analysis.

3.5.8 Hydropower Generation Analysis

The purpose of this task is to verify the hydropower that the Mbokazi Dam and Nkwalini Dam can generate. In order to obtain conservative results analyses will be undertaken using the medium demand scenario.

The **first deliverable** of this task consists of time-series of flow releases and the associated storage levels in the Mbokazi and Nkwalini Dams for the historical flow sequence, which must be undertaken for at least three (3) different demand horizons, e.g. 2020, 2040 and 2060. These dates are not fixed and will be finalized through discussion with DWS during the course of the investigation when better information becomes available.

The monthly flow releases so obtained must be converted into daily flow releases that take account of the hydrographs required to meet the EWRs and other downstream requirements. The method and assumptions used for the conversion of monthly flows into daily flows must be described clearly, as well as presented in tables and on graphs, in the **Hydropower Analysis Report** (refer to **3.13.13** below). The Proposal must also present a brief methodology of the proposed hydropower analysis, which must not necessarily be confined by the guidelines provided in this Terms of Reference.

The **second deliverable** of this task consists of submitting the above-mentioned results to the **Engineering Study Team** in order to determine the characteristics of the typical HPP that would suit the determined flow release data. These characteristics must then be used to assess the hydropower potential at the Mbokazi and Nkwalini Dams. The results of this task typically include, among other information, energy and power duration curves for each month of the year, and energy for all the months combined must be provided in the form of graphs

and tables. These results must also be submitted to the **Engineering Study Team** who will then assess the economic viability of hydropower generation from the Mbokazi Dam and Hydropower Scheme (Mbokazi and Nkwalini Dams).

3.6 IDENTIFICATION OF WATER SUPPLY OPTIONS

Assessment of the envisaged scheme configuration options for the Mbokazi Dam and Hydropower Scheme, as well as for potential inter-basin transfers and alternative schemes identified in Phase 1, are required at reconnaissance level for selection before being investigated, evaluated and compared at pre-feasibility level of detail. Furthermore, scheme configurations for the phased development of the Mbokazi Dam and Hydropower Scheme must also be assessed especially pertaining to potential inter-basin transfers from the catchment. The dam and hydropower plant components, however, must preferably be investigated to full potential and must not be phased out because the demand for electricity is expected to be realised on commissioning. Criteria that might be used for ranking of alternative scheme configuration options include, but are not limited to:

- Whether the scheme configuration option has already been identified and investigated in previous studies;
- Merits of mitigation measures (designs, operational plans, etc.) for identified negative impacts;
- Yield and hydropower potential in comparison with the extent of the proposed developments; and
- Whether the proposed scheme configuration is practically feasible and effective based on initial investigations.

Furthermore, other criteria developed during this Study must also inform the proposed scheme configuration.

An **Experienced Geohydrologist** must investigate and confirm the potential for groundwater resource development as a water supply option (stand-alone and/or supplementary source for communities who cannot be supplied economically from the Mbokazi scheme). This task includes an assessment of groundwater potential based on existing information without the need for detailed geophysical investigations. If further detailed investigations are required to confirm availability of groundwater, it would be done in a separate study. The optimum solution for bulk potable water supply (refer to **Sub-section 3.8** below) may therefore

comprise a number of smaller regional projects (well-field developments, etc.) in conjunction with water supplies from the Mbokazi scheme, including river diversions for communities in the Study Area but upstream of the dam wall. Potable and irrigation water supplies to the poor communities must be limited to gravity connections and/or minimal pumping to provide affordable tariffs.

An **Identification of Water Supply Options Report** as well as a **Groundwater Potential Assessment Report** are required prior to the pre-feasibility investigations, which must both be of a high standard.

3.7 VIABILITY OF INTER-BASIN TRANSFERS

An assessment of the viability of potential inter-basin transfers from the Mbokazi Dam to the Orange and Vaal System, eThekwini and the western regions of the Eastern Cape, as previously proposed, is required. Furthermore, an assessment of the current supply situation, and proposed interventions, in the receiving areas is also required, especially pertaining to the timing of potential inter-basin transfers. Useful information in this regard is contained in the Other Past Studies (refer to **2.4.2** above). Reconnaissance level investigations are required to assess the viability of previously identified and other potential inter-basin transfers from the catchment. The outcomes of these reconnaissance investigations must inform selection of preferred scheme configurations, including phased development of the required bulk conveyance infrastructure as a possible option. The economic viability of transfer schemes from the Mzimvubu River, when compared to water supply options in the receiving areas, is an important aspect of this Task. This requires consultations with representatives of both water users in the donor catchment and users in the receiving catchments to obtain 'political' acceptance from both quarters.

A reconnaissance investigation report on the **Viability of Potential Inter-basin Transfers** is required, which must be of a high standard.

3.8 BULK POTABLE WATER DISTRIBUTION SYSTEM

The proposed bulk potable water distribution system will provide reliable potable water supply to currently inadequately served surrounding communities.

The appointed PSP must identify the surrounding communities with the assistance of the district and local municipalities and traditional leadership and assess their current and future water requirements over a Planning Period of forty (40) years, from 2020 to 2060. This may, however, form part of the Existing and Future Water Requirements Task (refer to **3.5.2** above).

An assessment of the current supply situation to these surrounding communities is required, as well as a review of previously proposed potable water supply options obtainable from the local or district municipality. Different water resources (including groundwater) and the options for water supply, including conjunctive use of surface and groundwater, to these surrounding communities must be identified, investigated and costed at an acceptable level of detail. Furthermore, an assessment of whether the current water supplies to these surrounding communities can be improved and/or integrated with the Mbokazi Dam Project is required. Potable water supplies to poor communities must be limited to gravity connections and/or minimal pumping to provide affordable tariffs.

An assessment of the water quality of the current water resources is required in order to determine whether it is acceptable in terms of the Potable Water Quality Guidelines and Standards.

Investigations at feasibility level of detail are required for the proposed bulk potable water distribution system to the surrounding communities for the purposes of this Study. However, no detailed geotechnical investigations at this stage except at critical points (e.g. at diversion works). The distribution system must terminate at command reservoir locations identified as part of bulk water infrastructure to be built by DWS; planning for quaternary distribution and local reticulation will be undertaken by OR Tambo District Municipality together with the local municipality at an appropriate time as part of project implementation. The importance of the involvement of the district municipality in this Study cannot be overemphasised. The Supply Area must be delineated into Supply Zones depending on local topography and settlement patterns of the communities to allow phased development if this becomes necessary. Any phased development must give priority to villages closer to the source of water. The infrastructure layout must sufficiently be mapped to allow environmental authorisation and detailed investigations and detail design at a later stage.

The PSP must pay special attention to possible water supply from the Mbokazi and Nkwalini Dams to communities that reside directly adjacent to these two dams. The proposed bulk potable water distribution system could also supply these particular communities, if feasible. Alternatively, another option is smaller localised schemes for reliable water supply to these particular communities.

The provision of bulk potable water distribution infrastructure for rural communities is normally a laborious and time-consuming task which can easily go wrong if sufficient effort and resources are not invested. This task must commence very early in the programme and must be adequately resourced. A Google map of the areas surrounding the dam site may provide a fair indication of the expected extent of the Supply Area as a starting point.

An investigation report for the **Bulk Potable Water Distribution System** and at feasibility level of detail is required, which must be of a high standard.

3.9 AUGMENTATION OF WATER SUPPLY TO PORT ST JOHNS

The Mbokazi Dam must be considered for augmentation of water supply to Port St Johns in the future. The appointed PSP is required to assess projected water requirements of Port St Johns over the Planning Period of forty (40) years, from 2020 to 2060. This assessment may, however, form part of the Existing and Future Water Requirements task (refer to **3.5.2** above).

An assessment of the current water supply to Port St Johns is required, as well as a review of previously identified water augmentation schemes for the town. Alternative water resources as well as options for conveyance infrastructure for the town must be investigated at pre-feasibility level of detail without any detailed geotechnical investigations at this stage. Furthermore, an assessment of whether the current water supplies to Port St Johns can be improved and/or developed further is required.

A **Report on Augmentation of Water Supply to Port St Johns** at pre-feasibility **level of detail** is required, which must be of a high standard.

3.10 IRRIGATION DEVELOPMENT POTENTIAL

The objective of this task is to investigate the irrigation development potential in the Lower Mzimvubu River catchment. The proposed Mbokazi Dam could supply water for irrigation in

the Lower Mzimvubu River catchment. This task includes, but is not limited to, the following aspects:

- Identification of high irrigation potential lands;
- Topographical survey;
- Soil testing for the identified areas;
- Agricultural water requirements based on proposed cropping model. The water requirements must account for conveyance, distribution and application losses;
- Bulk water supply options from the dams;
- Agricultural economics;
- Land matters as far as the potential irrigation development is concerned. This must include an inventory of identified land showing ownership, market value and appropriation guidelines. Liaison with private land owners will be conducted during the EIA process and implementation phase and is not required at this stage;
- High resolution map of the development area clearly showing locations of suitable soils and names of surrounding villages/towns; and
- Institutional arrangements for development, ownership, operation and maintenance as well as technical and financial support required by emerging farmers.

Useful information may be contained in the Water Resource Study in Support of the AsgiSA-EC Mzimvubu Development Project, undertaken by BKS (PTY) LTD, November 2010 (refer to **Sub-section 2.4.1**). The other references cited in the above sections should also be consulted.

A **Report** on the **Irrigation Development Potential** at feasibility level of detail is required, which must be of a high standard.

3.11 BULK RAW WATER DISTRIBUTION SYSTEM

The bulk raw water distribution system which will stem from the proposed Mbokazi Dam must be investigated for supplying water to the identified areas of irrigation potential in the Lower Mzimvubu River catchment. The outcomes of the Irrigation Development Potential task (refer **Sub-section 3.10** above) must inform this task. The proposed layout of the infield developments must be developed at feasibility level of detail.

A **Report** on **Bulk Raw Water Distribution System for Irrigation** at feasibility level of detail is required, which must be of a high standard.

3.12 BRIDGING STUDY FOR LALINI DAM AND HYDROPOWER SCHEME

The Mzimvubu Water Project Phase 1 entails construction of Ntabelanga Dam and Lalini Dam and Hydropower Scheme, both located on the Tsitsa River, operated as a conjunctive scheme to ensure economic sustainability over the useful life of the project. A Bridging Study for the Lalini Dam and Hydropower Scheme is required in order to meet the economic and institutional viability requirements of National Treasury. The main objective of the Bridging Study is to optimise the scheme configuration and develop a funding model that can be approved by National Treasury. This requires a review and optimisation of the hydropower generation. Institutional arrangements mainly involve the participation of the Department of Mineral Resources and Energy (DMRE), Eskom and independent power producers (IPPs). A portion of the revenue generated from power sales must be ring-fenced for cross-subsidisation of the potable and irrigation water supply operations, supplied from Ntabelanga Dam. A feasible funding model must be developed in consultation with National Treasury, which must distinguish between the social and commercial components of the scheme (in percentage terms). This requires testing of the markets through advertisements for expression of interest by potential IPPs and other investors. In addition to the expressions of interest by the private sector, **Memoranda of Agreement** need to be signed with Eskom and DMRE with regard to their participation and operation of the scheme. The social component is funded through National Treasury budget allocations to DWS while the commercial component if funded off-budget. For the commercial component, both loan funding and equity funding must be considered. And possibilities of bridge financing must be considered as well.

Although the approval of funding process itself falls outside the scope of this Study, extensive consultation with National Treasury is required. In this particular assignment the appointed PSP is required to engage closely with National Treasury in order to create common understanding of the gaps and weaknesses as identified by National Treasury. Furthermore, the appointed PSP will be required to engage closely with other key role players such as DMRE and Eskom, amongst others.

No additional geotechnical investigations and topographical surveys are envisaged at this stage. Rather, the Bridging Study analyses should make use of existing information to

optimise hydropower potential and optimise the operation of Ntabelanga and Lalini Dams as a conjunctive scheme, and undertake economic and institutional analyses.

3.13 FEASIBILITY ENGINEERING INVESTIGATIONS

The review and reconnaissance assessment of the proposed Mbokazi Dam and Hydropower Scheme will culminate in the recommendation for the preferred options that can be taken forward to pre-feasibility investigations. The pre-feasibility investigations of the preferred options shall not commence until DWS has approved, in writing, for these preferred options to be investigated further.

The main aspects to be addressed during the pre-feasibility investigations of the preferred options are based on the specific features of each scheme configuration option. Bidders should therefore make provision to undertake these tasks, and all implied tasks, necessary to complete the pre-feasibility and feasibility investigations. The final scheme configuration shall be determined during the pre-feasibility investigations of the preferred options.

The rational assessment of the practicality and economic viability of these preferred options is the main objective of the pre-feasibility and feasibility investigations. The outcome of the pre-feasibility and feasibility investigations is to recommend the most cost effective scheme configuration that effectively meets the current and long-term water requirements and hydropower potential from the proposed Mbokazi Dam and Hydropower Scheme, as well as potential inter-basin transfers from the catchment. This section describes the required investigations to achieve these objectives. The two main tasks for **Phase 2** of this Study are the following:

- Investigation, evaluation and comparison of the preferred options at a pre-feasibility level of detail, in order to meet the current and future water requirements from the Mbokazi Dam and Hydropower Scheme, as well requirements for potential inter-basin transfers from the catchment; and
- Feasibility investigations, feasibility design, Costing and life cycle analysis of the preferred scheme configuration.

The various sub-tasks described below are applicable to both the pre-feasibility and the feasibility investigations of the preferred options. A higher level of detail is required for the feasibility investigation of the preferred scheme configuration, including feasibility design,

costing and economic analysis. The proposed structuring of the Study will need to be presented for approval by DWS. For instance, the pre-feasibility study may be combined with Phase 1 and not Phase 2 programme of the Study.

3.13.1 Review of Mbokazi and Nkwalini Dam Sites

Review of the previously identified potential dam sites for the proposed Mbokazi and Nkwalini dams is required as part of the pre-feasibility investigations. Factors that must be considered in the review include the following:

- Proposed scheme configuration;
- Dam basin characteristics and yield potential of the dam;
- Hydropower potential of the site;
- Suitability of foundations and construction materials;
- Dam types and spillway configuration for the proposed site;
- Current land use and ownership that will be affected by the proposed dam and associated infrastructure;
- Effects of the dam basin on communities and existing infrastructure;
- Environmental and social impacts; and
- Accessibility of the proposed dam site.

A **Review Report of the Proposed Mbokazi and Nkwalini Dam Sites** is required as part of the **Pre-feasibility Investigations**, which must be of a high standard.

3.13.2 Pre-feasibility Investigations of Shortlisted Schemes

The PSP is required to investigate the shortlisted schemes identified as being potential options at pre-feasibility level of detail for evaluation and comparison of the various scheme configuration options.

The pre-feasibility and feasibility investigations of the preferred scheme configuration options will include, but are not limited to, the following tasks:

- Identification of potential sites for abstraction works, gauging weirs, pipeline routes and sites for all the associated infrastructure;
- Pre-feasibility layouts and designs of the preferred scheme configuration options;

- Preliminary geotechnical, seismic and material investigations for the Mbokazi dam site, Nkwalini dam site, HPPs, weirs, pipeline routes and associated infrastructure;
- Topographical surveys;
- Dam type selections;
- Flood hydrology and backwater analyses;
- Capacities and yields of the proposed scheme;
- Sediment yield analysis;
- Optimisation of the layout and sizing of components for the scheme including optimisation of bulk water distribution infrastructure for both potable (Port St Johns and communities) and irrigation water supplies;
- Investigation of hydropower potential and design of the HPPs and connection to the national grid;
- Water supply to local communities surrounding the proposed dams;
- Pre-feasibility designs of the various components for the scheme;
- Cost estimates and economic analyses;
- Affordability of tariffs analysis;
- Identification of environmental and social impacts;
- Water quality analyses;
- Land acquisition and servitude requirements;
- Assessment of access and power supply to site;
- Relocation of affected infrastructure;
- Legal, institutional and funding arrangements; and
- Estimation of time frames for implementation.

A **Pre-feasibility Investigations Report** together with necessary **Supporting Reports** are required, which must be of a high standard.

> After completion of the pre-feasibility investigations and recommendation of the preferred scheme configuration, approval must be obtained from DWS in writing to proceed with the detailed feasibility investigations.

3.13.3 Materials Investigations

The focus of the materials investigations is to identify and confirm suitable sources of materials for the construction of the dams and other civil works. The availability of sufficient

suitable materials at, or near, the potential dam sites must be evaluated during the pre-feasibility investigations. Inspections and limited material investigations can usually provide the required information.

Adequate sampling and laboratory testing must confirm the quality and quantity of suitable materials for the feasibility investigation of the preferred scheme configuration option. Materials of acceptable quality and quantity found as close as possible to the potential dam sites, preferably within the dam basins, are regarded the most suitable materials.

The materials investigations for the evaluation of the preferred scheme configuration options will include, but are not limited to, the following:

- Borrow areas for embankment materials;
- Borrow areas for sand (filters and concrete aggregate);
- Sand samples must be collected from natural and commercial sources and be subjected to laboratory tests to determine suitability as fine aggregate and filter materials; and
- Quarries for concrete aggregate, rock-fill and rip-rap.

A map is required that indicates the material sources, aerial extent and haulage distances to the potential dam sites.

An **Experienced Team**, supervised by a **Dam Design Engineer** with experience in a variety of large dam types (Category 2 and 3 dams), must undertake the material investigations.

An **Engineering Geologist** or a **Geotechnical Engineer**, with proven experience in the construction of dams and other large civil works, must identify and assess the potential borrow areas and quarry sites.

A **Materials Investigation Report** that covers the material investigations for both the pre-feasibility and feasibility investigations is required, which must be of a high standard.

The bidders shall only price in the **Financial Proposal** for professional time of the professional team members who are responsible for the procurement of a reputable **Geotechnical Sub-contractor**, the supervision of the materials investigations and reporting of the findings. Handling fees, as a percentage, must be clearly stated. Fees for the actual site drilling and laboratory tests will be provided in the quotation of the specialist geotechnical sub-

contractor. The appointment and payment of the **Specialist Geotechnical Sub-contractor** will be via the **PSP Contract** as described in **5.2.2** below in accordance with DWS procedures.

3.13.4 Seismic Investigations

This sub-task includes the identification of active faults within 10 km of the proposed dam sites as well as other major infrastructure components of the scheme. The radius of 10 km must be confirmed against national standards. Seismic studies are therefore required as part of the feasibility investigations. A study of the available geological maps and other publications is required in order to identify all potentially active faults that might threaten the safety of the proposed dams, major infrastructure components of the scheme including bulk potable and raw water conveyance infrastructure. This information is required by the **Specialist Seismologist** to undertake probabilistic and deterministic seismic risk assessment.

A **Seismic Investigations Report** is required as part of the feasibility investigations, which must be of a high standard.

3.13.5 Seismic Refraction Investigations

Seismic refraction surveys are required in order to determine weathering depth at the potential quarry sites for aggregate, riprap and rock-fill.

A **Seismic Refraction Investigations Report** is required as part of the feasibility investigations, which must be of a high standard.

3.13.6 Geotechnical Investigations

This sub-task entails obtaining detailed information about the foundation conditions at the proposed dam sites and other large civil works to inform the feasibility analyses and evaluation of the shortlisted schemes (pre-feasibility and feasibility stages). The stability of the slopes on the rims of the dam basins for the shortlisted dam sites also needs assessment. A **Qualified Engineering Geologist/Geotechnical Engineer** with proven experience in dam construction shall supervise all the geotechnical investigations.

A **Geotechnical Investigations Report** that covers the geotechnical investigations for both the pre-feasibility and feasibility stages is required, which must be of a high standard especially pertaining to the core photographs.

In the **Financial Proposal,** bidders shall only price for the professional time of the team members who are responsible for the procurement of a reputable **Specialist Geotechnical Sub-contractor**, the supervision of the geotechnical investigations and reporting of the findings. Handling fees, as a percentage, must be clearly stated. Fees for the actual site drilling and laboratory tests will be provided in the quotation of the specialist geotechnical sub-contractor. The appointment and payment of the **Specialist Geotechnical Sub-contractor** is made via the **PSP Contract** as described in **5.2.2** below in accordance with DWS procedures.

The required geotechnical investigations are the following:

3.13.6.1 Dam Foundations

Foundation investigations are required to determine all the critical parameters for designing a dam on the particular site, which include:

- Core drilling at strategic positions on the proposed dam sites;
- Limited pit and trench excavations;
- In-situ permeability tests to estimate grout intakes;
- Petrographic analysis of rock samples;
- Compressive strength testing of rock cores;
- Description and quantification of faults; and
- Description of weathering resistance of the founding rock.

The foundation investigations are required in order to assess the geological conditions at the proposed dam sites to determine the parameters for stability calculations and to predict excavation depths for both concrete and embankment dam walls.

3.13.6.2 Slopes within Dam Basins

This investigation entails the identification and evaluation of potentially critical slopes on the rims of the dam basins of the proposed sites. Detailed investigation of potentially critical slopes includes the following:

- Determination of overburden depth by means of test pits, trenches or core drilling;
- Assessment of overburden material properties in both dry and submerged states; and
- Assessment of rock strata, joint orientation and joint fill material.

These investigations will be concluded with stability analyses, where required, with suitable recommendations on potential methods for slope stabilisation.

3.13.6.3 Large Civil Works Components

Detailed geotechnical investigations are required, as part of the feasibility investigations, to confirm the foundation conditions for large civil works, such as pump stations, abstraction and gauging weirs, bulk concrete storage reservoirs, HPPs, WTWs, etc.

3.13.6.4 Bulk Water Conveyance Infrastructure

Geotechnical investigations are required, as part of the feasibility investigations, to confirm the geotechnical conditions for proposed bulk raw water and bulk potable water conveyance infrastructure in terms of bedding and backfilling of pipelines, slope stability of pipeline excavations as well as for excavations and backfilling of canals, if any. The extent of these investigations will be ascertained once infrastructure requirements have been established vis-à-vis the need to avoid cost overruns.

3.13.7 Topographical Surveys

Topographical surveys are required during both the pre-feasibility and feasibility investigations of the proposed dam sites in order to determine the dam basin capacities and the extent of the proposed dam walls and site layout, including the operators' compound. For the purposes of the pre-feasibility investigations of the shortlisted schemes, the preferred scale of the topographical surveys is 1:5 000. For the purposes of the feasibility investigations for the preferred scheme configuration, the preferred scale of the topographical surveys is 1:1 000. Furthermore, topographical surveys will be required for the routes of bulk raw and potable water conveyance infrastructure, abstraction and gauging weirs, HPPs and WTWs.

Both **soft and hard copies** of the **surveys** and **data files** must be submitted to DWS. These **soft copies** must be **accessible** and **usable** for the purpose of detailed design of the scheme and data format must be approved by the National Water Resource Infrastructure (NWRI) Branch of DWS.

In the **Financial Proposal,** bidders shall only price for the professional time of the team members who are responsible for the procurement of a **specialist sub-contractor** for the topographical surveys, the supervision of, and reporting of the topographical surveys. Handling fees, as a percentage, must be clearly stated. Fees for the actual fieldwork will be

provided in the quotation of the specialist topographical survey sub-contractor. The appointment and payment of the **specialist sub-contractor** is made via the **PSP Contract** as described in **5.2.2** below in accordance with DWS procedures.

3.13.8 Dam Type Selection

The pre-feasibility investigations of the proposed Mbokazi and Nkwalini dam sites shall include an evaluation and comparison of dam types suitable for each one of these dam sites and a review of previously recommended dam types. The factors that influence the dam type selection at a suitable site include, but are not limited to, the following:

- Foundation requirements and availability of construction materials;
- Suitability of the site for particular dam types and spillway configurations;
- Magnitudes and accommodation of floods;
- River diversion aspects;
- Environmental impacts of the dam wall and spillway types;
- Accessibility of the proposed sites;
- Internal skills for design and construction supervision within DWS; and
- Cost of construction in relation to the dam yield and hydropower potential.

A **Dam Type Selection Report** is required as part of the pre-feasibility investigations, which must be of a high standard.

3.13.9 Storage Capacities and Yields

The water availability assessment and pre-feasibility investigations of shortlisted schemes will include the determination of storage capacities and yields for various dam sizes at Mbokazi and Nkwalini sites.

During the feasibility investigations of the preferred scheme configuration, accurate determinations of the elevation-capacity-area relationships must be determined for the Mbokazi and Nkwalini dam sites considering sediment deposition according to standard practice (refer **3.13.16** below).

3.13.10 Flood Determination

The determination of flood magnitudes at the Mbokazi and Nkwalini dam sites is required for the various return periods needed for feasibility design purposes, as follows:

- River diversion works (1:5, 1:10, 1:20 or 1:50 year flood, depending on the dam type);
- High flood line for the 1:100 year flood;
- Spillway design and freeboard for the 1:200 year flood;
- Regional maximum flood; and
- Safety evaluation flood.

An experienced **Hydrologist/Hydraulics Engineer** must lead the team undertaking these flood determinations.

A **Flood Hydrology Report** is required as part of the feasibility investigations, which must be of a high standard.

Backwater calculations are required during the feasibility investigations for the preferred scheme configuration in order to determine the high flood levels (HFLs) for the 1:100 year flood in the dam basin and upstream of any proposed abstraction and gauging weirs. The impacts of the 50-year sediment deposition and accumulation must be included in the backwater calculations. The flood routing should assume that the dams would be at their FSLs when the high flood occurs. Dam boundary lines for the dam basins and upstream of weirs, relocation of infrastructure as well as compensation must be based on the backwater levels according to DWS standards. The elevation of the dam boundary lines for the dam basins and upstream of weirs must be determined by adding buffer zones to the HFLs of proposed dams and weirs. The buffer zone is an additional 1.5 m, measured vertically in steep areas, or 15 m, measured horizontally in flat areas of a basin. The buffer zone requirements must be confirmed with DWS Land Matters. This principle is applied to the HFL in order to obtain a series of straight lines that define the area to be acquired for dam basins and upstream of weirs. The final dam and weir boundary lines are determined during the implementation phase after the spillway design has been optimised, as this affects the backwater levels.

3.13.11 Land and Servitude Requirements

The land and servitude requirements need to be determined for the feasibility investigations of the preferred scheme configuration, which includes the areas required for the following:

- Dam basins and upstream of weirs;
- Dam walls and associated works;
- Hydropower plants;

- Storage reservoirs for bulk raw and potable water distribution infrastructure;
- Abstraction and water treatment works;
- Potential irrigation land;
- Pipelines and canals;
- Access road servitudes;
- Construction camp (if needed) and operators' compound; and
- Other infrastructure requirements.

The ownership of the land required for the preferred scheme configuration, including servitudes, needs to be determined, namely:

- **Privately owned land** which is acquired at market value including betterments and financial losses due to the acquisition; and
- **State owned land** which is managed or utilised by government departments, municipalities, traditional leaders and/or other authorities.

Compensation is applicable for the relocation of infrastructure and households living on this land. Cost estimates of land and servitude acquisitions are required for the preferred scheme configuration based on land ownership, betterments, relocation of affected communities and infrastructure, and loss of land utilisation. Furthermore, cost estimates shall also be undertaken for the relocation of roads and power lines. These relocation and acquisition costs must be reported under separate cost items.

A **Land Matters Report** is required as part of the feasibility investigations, which must be of a high standard.

3.13.12 Optimisation of Water Supply Options

During the evaluation and optimisation of water supply from the Mbokazi Dam factors that need to be considered are, but not limited to, the following:

- Proposed dam sites and dam capacities or other suitable water sources (e.g. groundwater);
- Localities and details of river abstraction works;
- Types and routes of the bulk raw and potable water conveyance systems from the source to the points of supply, e.g. bulk storage reservoirs, WTWs, HPPs, etc.; and

- URVs to determine optimum component sizes for dams, pipelines, canals, pump stations, storage reservoirs, weirs, WTWs, etc., and the layouts of these components.

Operational requirements and the cost thereof need to be determined as part of the optimisation process for the preferred scheme configuration options (at pre-feasibility level) as well as for the preferred scheme configuration option (at feasibility level). These requirements apply to gauging weirs (including site selection and conceptual design), telemetry, operational staff housing and offices, etc.

Operation and maintenance (O&M) costs also need to be determined as part of the economic assessment of the life cycle costs of the shortlisted schemes (pre-feasibility level) as well as for the preferred scheme configuration (feasibility level). The life cycle cost of a project, upon which the URV calculations are based, includes the initial capital cost and O&M costs, as well as the replacement of mechanical and electrical equipment over a lifetime of 40 to 50 years. O&M costs of the scheme configuration options being investigated should be estimated according to current best practice. The recommendations in the *Vaal Augmentation Planning Study: Guidelines for the Preliminary Sizing, Costing and Engineering Economic Evaluation of Planning Options (VAPS)*, DWA, 1996 can be used as a guideline. Costs should also be verified with latest water infrastructure projects completed in South Africa.

An **Optimisation of Water Supply Options Report** is required as part of the feasibility investigations, which must be of a high standard.

3.13.13 Hydropower Potential Analysis

The purpose of this task is to assess and confirm hydropower potential that the proposed Mbokazi Dam and Hydropower Scheme can generate. In order to obtain conservative results the analyses must be undertaken using the medium demand scenario.

The engineering study team is required to collaborate with the water resources study team in order to complete the deliverable required for this task (refer to **3.5.8** above).

The characteristics of the proposed HPPs at the proposed dams best suited to the water release data from the **Water Resource Study** must be confirmed. The assessment of the economic viability to develop hydropower at the proposed Mbokazi and Nkwalini Dams must be undertaken and the results presented to DWS and Eskom. Additional infrastructure

required to connect the HPPs at the proposed dams to the national grid or to upgrade the HPPs at a later stage must be investigated.

A **Hydropower Assessment Report** at feasibility level is required, which must be of a high standard.

3.13.14 Feasibility Investigations of Preferred Scheme

The pre-feasibility identification, investigation and evaluation of the shortlisted schemes will culminate in the preferred scheme configuration, which must then be investigated at feasibility level of detail for implementation. The feasibility investigations shall, however, not commence until the preferred scheme configuration has been approved by DWS in writing.

The feasibility investigations for the preferred scheme configuration, including the feasibility design and costing should include, but are not limited to, the following:

- Topographical surveys in order to obtain scheme information;
- Geotechnical investigations to obtain information on the foundation conditions;
- Materials investigations to obtain information on the availability and quality of materials for construction;
- Optimisation of the layout and detail for the preferred scheme configuration;
- Evaluation of the flood hydrology and yields of the proposed Mbokazi and Nkwalini Dams;
- Backwater analysis, calculation of the HFLs and determination of the boundary lines for the Mbokazi and Nkwalini Dams, as well as abstraction and gauging weirs;
- Stability analyses and feasibility design of the dam walls and weirs;
- Evaluation of spillway capacities;
- Evaluation of outlet capacities and outlet works;
- Design of diversion works to divert floods from the construction area;
- Feasibility design of pump stations and bulk raw water pipelines;
- Feasibility design of the HPPs;
- Bulk raw water distribution infrastructure for irrigation development;
- Inter-basin transfer infrastructure (feasibility design of infrastructure to be built at this stage and pre-feasibility design for phased developments);
- Electricity requirements for construction site and pump stations;

- Assessment of existing infrastructure and dwellings that may have encroached onto the dam basins and upstream of weirs that may need relocation;
- Access roads to the dams and weirs as well as re-alignment of public roads;
- Determination of flow gauging requirements;
- Preparation of a bill of quantities (BOQ) to include all components of the proposed scheme and cost items. BOQs must be priced;
- Specification of the O&M requirements; and

Preparation of the required **Technical Reports** on the feasibility investigations, feasibility design and costing, which must be of a high standard. **Design criteria memoranda** are required for the feasibility design report(s).

A **Book of Drawings** that meets the **DWS Standards** must be submitted. Furthermore, soft copies of all the drawings (AutoCAD), design software files (e.g. HECRAS, GeoSlope, EPANET, etc.), spreadsheets and GIS files must be submitted. Soft copies must be properly indexed, accessible and usable for the purpose of detail design.

3.13.15 Cost Estimates for Shortlisted Schemes

A cost engineer who has proven track record in estimating construction costs and who is still employed in this field must be appointed to estimate the cost of the shortlisted schemes at pre-feasibility level and the preferred scheme at feasibility level. The cost estimates shall include all items on the BOQs for each shortlisted scheme and for the preferred scheme. The design engineers are required to assist with identification of the billing items that should be included in the cost estimates.

Typical billing items can be found in the VAPS, DWA, 1996. Costs for items that make up 80% of the project construction cost, e.g. excavation, fill material and concrete should be developed from first principles considering the costs of labour, plant, materials, energy requirements and transport (hauling). The remaining items with a minor impact on the overall cost of the scheme may be estimated by other means. Rates should be verified with rates for the most recent projects of a similar nature completed in South Africa.

Calculated rates shall exclude contingencies and VAT. Cost models also need to be developed for the estimation of capital costs for the various project components, and to undertake analyses in order to compare the various options. These cost models need to be

developed for the pre-feasibility investigations and refined for the purpose of the feasibility investigations. For the cost model, the DWS prefers a **Microsoft Excel spreadsheet**, which is not complicated, together with explanatory notes.

Costing Reports are required as part of both the pre-feasibility and feasibility investigations, which must be of a high standard. These reports must explain the cost models as well as discuss rates, base dates, information sources, assumptions and any other relevant information. Costing reports may be combined with the Cost Estimates and Economic Analysis Report (refer to **Sub-section 3.20**).

3.13.16 Sediment Yield Analysis

The objective of this task is to estimate the 50-year sediment volumes and sediment deposition in the dam basins. The sediment yield analysis must be undertaken with the most up-to-date methodologies. Hydrodynamic modelling of sedimentation (sediment deposition) in the dam basin is required for the purpose of feasibility investigations, as well as for the purpose of backwater calculations (refer to **3.13.10** above).

The hydrodynamic modelling of sedimentation in the dam basin must be undertaken with either the Danish Hydraulic Institute's MIKE 11 1-Dimensional Model or MIKE 21C 2-Dimensional Hydrodynamic Model or equivalent model.

A **Hydraulics Engineer** or **equivalent professional**, with the necessary experience in **sediment yield analysis** and **hydrodynamic modelling**, must lead this task. The outcomes of this task will have to inform the area-capacity relationships of the dams (refer to **3.13.9** above).

A **Sediment Yield Analysis Report** is required as part of the feasibility investigations, which must be of a high standard.

3.14 CLIMATOLOGICAL DATA

The objective of this task is to gather and analyse climatological information of the region surrounding the Mbokazi and Nkwalini sites as well as the proposed irrigation areas. For this purpose variables that are readily available, which give a broad perspective of the expected climatological conditions at the various sites should be considered. These variables are, but not limited to, the following:

- Rainfall;
- Evaporation;
- Temperature;
- Humidity;
- Radiation; and
- Wind speed.

It is vital to provide reasonable predictions of the expected climate in the project area prior to construction, since inclement weather conditions might have a significant impact on the execution of work, which the contractor needs to plan for. Climatological data are also needed to determine crop water requirements for the proposed irrigation development and any water resource modelling required for the project, now and in the future.

A **Report on Climatological Data** is required as part of the feasibility investigations, which must be of a high standard. Alternatively, this report may be combined with the climate change prediction report.

3.15 CLIMATE CHANGE IMPACT

An assessment of climate change impacts on the Mbokazi and Nkwalini dams is required at pre-feasibility level, based on the available streamflow scenarios and results from previous studies. Adaptation strategies must be provided. This investigation must include at least the following three (3) separate components:

- Climate change prediction for the Mzimvubu River catchment;
- Flood design capacities (spillway capacities and freeboard) of the Mbokazi and Nkwalini dams to accommodate possible future increased flood peaks; and
- Climate change impact on the yields of the Mbokazi and Nkwalini dams.

A **Climate Change Impact Assessment Report** is required as part of the feasibility investigations, which must be of a high standard.

3.16 WATER QUALITY AND LIMNOLOGICAL REVIEW

The purpose of this task is to assess the limnological and water quality requirements of the preferred scheme, as well as to evaluate the information required for the following investigations:

- Assessment of existing water quality data (for both surface water and groundwater resources);
- Catchment assessment for sources of pollution;
- Limnological assessment; and
- Assessment of multiple off-takes for the outlet works of the Mbokazi and Nkwalini dams.

A **Water Quality and Limnological Review Report** is required as part of the feasibility investigations, which must be of a high standard.

3.17 River Flow Gauging Requirements

Apart from the required river flow gauging weirs downstream of the Mbokazi and Nkwalini dams, the need for any additional river flow gauging weirs must be assessed during the feasibility investigations. The appointed PSP must therefore make provision for the investigation and feasibility design of at least one (1) additional new river flow gauging weir on the Mzimvubu River. The final preferred location of this new river flow gauging weir must be determined in consultation with DWS Directorate: Hydrological Services.

A **River Flow Gauging Requirements Report** is required as part of the feasibility investigations, which must be of a high standard.

3.18 Traffic Impact Assessment

The objectives of this task are, but not limited to, the following:

- Determination of traffic impacts during the construction and operational phases of the Mbokazi Dam and Hydropower Scheme;
- Identification of feasible measures to mitigate the traffic impacts on the surrounding road networks to acceptable levels; and
- Recommendations for adherence to the environmental management plan pertaining to traffic.

Specific attention must be given to the following aspects:

- Locations where access routes intersect with national, provincial, district roads;
- Possible location of construction materials;
- Possible location of pipeline and canal crossings;

- Sensitive areas (e.g. residential areas, schools, hospitals, and others) in close proximity to the routes that could be affected by the proposed construction;
- Transportation of construction workers (those residing off-site) and school children; and
- Deviation of existing roads, expropriation lines and servitudes.

The traffic impact assessment will be reviewed and finalised in the EIA Study that will be undertaken under a separate contract.

A **Traffic Impact Assessment Report** is required at feasibility level, which must be of a high standard.

3.19 Water Use Licence Application

The objectives of this task are, but not limited to, the following:

- Determination, in consultation with DWS Water Use Licensing Office and Legal Services, the need for a water use licence;
- Determination of the different components of the scheme that require licensing in terms of the National Water Act, 1998 (Act No. 36 of 1998) and the different categories of water use;
- Technical report providing necessary information for processing of the water use licence application(s). The report must be prepared in close liaison with both the Water Use Licensing Office and the DWS Eastern Cape Regional Office; and
- Completion of relevant water use licence application forms;

A **Technical Report on Water Use Licence Application** is required which must include the relevant application forms as appendices. The report must be of a high standard.

3.20 Cost Estimates and Economic Analysis

Cost estimates for all components of the Project must be investigated at feasibility level of detail. These cost estimates are then used for financial viability analyses to establish the bankability of the Project. These analyses must be based on the proposed funding model in terms of National Treasury policy. A clear distinction must be made between the social and commercial components of the Project, in consultation with National Treasury. The level of subsidisation for the social component must be established which must consider the possibility of capital cost subsidisation, interest subsidisation, technical and financial support

for emerging farmers (in the case of irrigation development). Economic analysis must be presented at component level as well as for the entire scheme to allow decision making about implementation.

Financial viability analyses must include calculations for unit reference value (URV) and other economic measures such as net present value (NPV) and internal rate of return (IRR). The levelized cost of electricity must be calculated in consultation with Eskom. Affordability of water to the various user groups must be investigated based on preliminary estimation of water tariffs according to the Pricing Strategy for Raw Water Use Charges and applicable subsidies.

Socio-economic impact analysis for the Project is also required. These analyses must establish the social and economic benefits/losses for the Mzimvubu region, and the areas that stand to benefit from potential inter-basin transfers. The no project scenario must also be investigated.

A socio-economic impact analysis is required as well as part of this task to provide a complete picture of the economic feasibility of the Project. This task may be further expanded during the EIA study if so required by the environmental authorities. The investigation includes, but is not limited to, the following:

- Demographic analysis;
- Regional and national economics (GGDP, GDP, production, employment opportunities, etc.);
- Water and sanitation provision; and
- Electricity generation for the national grid.

A **Cost Estimates and Economic Analysis Report** is required, which must be of a high standard.

3.21 LEGAL, INSTITUTIONAL AND FINANCING AND ARRANGEMENTS

A **Legal, Institutional and Financing Arrangements Report** is required, which must be of a high standard.

3.21.1 Legal Aspects

The appointed PSP must investigate the **legal aspects** pertaining to the Project in terms of the relevant legislation, policies and regulations. Recommendations must be provided with regard to the required compliance. An experienced **Legal Professional** with appropriate experience with the relevant legislation, policies and regulations must preferably undertake this sub-task.

3.21.2 Financing Arrangements

The PSP is required to investigate funding arrangements in accordance with National Treasury policy. The funding arrangement must distinguish between the social and commercial components of the Project. Sufficient motivation must be provided for the social component of the costs that is not redeemed, and indicate whether the required subsidisation is for capital costs or only for interest repayments. In the light of the current fiscal constraints, bridge funding as well as proposals for phased construction over a prolonged period must be investigated. Any special technical and financial support for the emerging farmers need clarified in consultation with key stakeholders (i.e. Department of Agriculture, Land Reform and Rural Development, and others).

Funding arrangements must also provide for the acquisition of land required for construction of the dam walls, dam basins, agricultural developments, and other infrastructure requirements of the Project.

3.21.3 Institutional Arrangements

The PSP must investigate options for **Institutional Arrangements** needed for the implementation of all components of the Project. Key role players that are responsible for implementation and operation as well as for funding the different components of the scheme must be identified. The key role players include the Department of Water and Sanitation, the Office of the Premier, Department of Agriculture, Land Reform and Rural Development (national and provincial), Department of Mineral Resources and Energy, Eskom, OR Tambo District Municipality and others. Roles and responsibilities must be clearly defined including ownership of the different components of the infrastructure. This requires extensive consultation of the key role players. **Memoranda of Agreement** must be signed to secure commitment of each key role player.

Co-ordination of the activities of role players is critical to the successful implementation of the Project. It is therefore necessary to develop a Project Governance Structure indicating work streams and human resource requirements.

3.22 CAPACITY BUILDING AND TRAINING

The appointed PSP is required to provide capacity building and training to junior DWS officials and/or interns on any of the following aspects of this Study, among others:

- General water resource development methodology;
- Water resource planning process (data processing, yield analysis, flood hydrology, etc.);
- Engineering investigations for the various components (geological and materials investigations, dam site selection, hydropower analysis, etc.); and
- Other topics approved by DWS.

Nominated DWS officials and/or interns may be seconded to the PSP for certain tasks of this Study in order to gain practical experience. The cost to the PSP would entail professional time to mentor the seconded officials/interns, provision of office space and resources. A maximum of 3 officials must be assumed at any one time during the Study for the purpose of bidding.

In addition to the mentoring of officials/interns, the PSP is also required to organise training workshops on the above topics, among others, in order to capacitate DWS officials (other government employees may also be considered). Copies of all the presentations and other training materials must be submitted to DWS. Furthermore, the PSP is required to email electronic copies of all the training materials to the workshop attendees. The training workshops should preferably be registered with SAICE and SACNASP, as appropriate, for CPD accreditation.

A **Capacity Building and Training Report** is required, which must be of a high standard.

3.23 MAIN FEASIBILITY REPORT

When all the tasks are nearing completion, it will be required of the appointed PSP to compile a **Main Feasibility Report**, which must be of a high standard. The main feasibility report is a consolidation of findings from all task analyses and should not exceed two-hundred (200) pages. It makes reference to the supporting feasibility study reports, and hence does not have

appendices. The structure of the main feasibility report will be developed for DWS approval during the course of the Study.

3.24 SUMMARY REPORT

Upon completion or near completion of the Main Feasibility Report, the appointed PSP is required to compile a **Summary Report**, which must be of a high standard. The Summary Report is an abbreviated version of the main feasibility report and may be considered as an **Executive Summary of the Project**. It should not exceed forty (40) pages. The structure of the Summary Report will be developed for DWS approval during the course of the Study.

3.25 IMPLEMENTATION DOCUMENTS

3.25.1 Implementation Programme

This task entails the development of the recommended **Implementation Programme,** in **Microsoft Project Format**, for the preferred scheme, comprising the following main components:

- Approvals, authorisations, funding and institutional arrangements;
- Appointment of project management teams;
- Supplementary geotechnical and materials investigations for detailed design;
- Tender design of the preferred scheme configuration;
- Compliance with conditions of environmental authorisation;
- Appointment of an environmental control officer and a heritage specialist;
- Detailed design which will follow on from the tender design and continue during construction;
- Land acquisition and relocation of affected people;
- Relocation of affected infrastructure, e.g. roads, power-lines and others;
- Procurement process for construction; and
- Construction of the different components of the scheme.

3.25.2 Project Summary

The **Project Summary** must cover the technical aspects, environmental aspects and other aspects dealt with outside of the feasibility investigations. Information on some of these aspects may only become available after completion of the feasibility investigations and

therefore the appointed PSP will essentially produce a **Preliminary Project Summary** for the preferred scheme for implementation.

The **Project Summary** will be drafted in a format suitable for publication in the **Government Gazette** if the proposed Mbokazi Dam and Hydropower Scheme is approved for implemented as a Government Waterworks. This format must also be suitable for other uses, such as applications for funding.

The **Project Summary** shall be in **Arial 11 font** with a length of about ten (10) to twenty (20) pages. The project summary must provide some elementary drawings to illustrate the Project Area and the most important infrastructure components.

3.25.3 Record of Implementation Decisions

The PSP is required to compile the **Record of Implementation Decisions (RID) Report** for the Project which a summary of the important elements of the Project presented to the **implementing agent**. A template for the format of the RID will be provided by DWS and discussed with the PSP to ensure common understanding of the requirements. The RID must include the following:

- Scope of the project;
- Summary of the feasibility investigations, designs and costing;
- Specific scheme configuration to be implemented;
- Required implementation timelines;
- Finalisation of required institutional arrangements;
- Summary of environmental impact assessment findings; and
- Environmental authorisation and conditions prescribed by DEFF.

3.26 CLOSE-OUT REPORT

Upon completion of this Study and approval of all the deliverables, the appointed PSP will be required to prepare and submit a **Close-out Report**, which must be of a high standard. The Close-out Report is the final deliverable for this Study and should serve as feedback on all the deliverables, milestones, stakeholder participation, capacity building and training, contact details of all the stakeholders challenges and lessons learned during the Study, as well as recommendations for improvement.

The Close-out Report should not exceed thirty (30) pages and must not contain annexures. The structure and contents of the Close-out Report will be developed for DWS approval in the course of the Study.

4. PROJECT PROGRAMME

The envisaged **Project Programme** is summarised below in **Table 4.1.** The appointed PSP is required to develop a detailed Program for the Feasibility Study which must include an activity(ies) for the EIA process. The Program must be prepared with Microsoft Project (and not Excel). A similar but less detailed Program must be prepared separately for the implementation phase. Once Project Planning has been completed the time frames for the design and construction phases will be reviewed. Overlapping of the project stages (Table 4.1) is allowed.

Table 4.1: Envisaged Project Programme

Project Stage	Duration	Start	Finish
Feasibility Study	36 months	December 2021	November 2024
Environmental Impact Assessment and Authorisation	24 months	December 2023	November 2025
Borrow Areas Assessment and Authorisation	24 months	April 2024	March 2026
Water Use Authorisation (After Submission of Licence Application)	12 months	April 2024	March 2025
Project Approval (Ministerial and Funding Approvals)	24 months	July 2026	June 2028
Detail Design	24 months	July 2029	June 2031
Construction (to commence in dry season)	72 months	November 2032	October 2038

5. PROJECT PROPOSAL

Bidders are required to submit, at their own cost, a Proposal (Bid), which consists of the following documents:

- Standard Bidding Documents, as described under **Section 5.3**;
- A Technical Proposal, to demonstrate the capability of the bidder to perform the full scope of the Feasibility Study presented in this Terms of Reference; and
- A Financial Proposal, to provide the cost to undertake this Feasibility Study. The Financial Proposal must be submitted sealed in a separate envelope.

Bidders should submit comprehensive Technical and Financial Proposals as this Study is managed to avoid variation orders as far as possible. There is a limit to the amount of variation of the original Contract Amount that is permitted by National Treasury regulations; and any variation of scope or cost requires the approval of DWS regardless of extent. Bids that show a lack of understanding of the Scope of Services and that are not comprehensive enough will be evaluated accordingly.

5.1 TECHNICAL PROPOSAL

5.1.1 Introduction

An introductory section should provide a brief overview of the bidding organization with particular emphasis on available capacity to perform this Study.

5.1.2 Past Experience

Bidders are required to provide information on recent (past 10 years) relevant assignments undertaken by the bidding organisation. Specific details must be given to indicate the extent to which these studies relate to the Scope of Services for this Study. The responsibility of the proposed Study Leader and the other key team members (Task Leaders and Specialists) for these past assignments must be specified. The Client organisation and contact details (name and telephone number), indicative professional fees and duration of the work programme must also be specified for each assignment.

5.1.3 Approach and Methodology

The Scope of Services indicates that this assignment should be undertaken in a modular manner, structured around clearly defined and related tasks.

Bidders are expected to provide a brief description of the approach, methodology and comments on the ToR, illustrating their understanding of the challenges of the Study, time frames, and proposed method to complete the project on programme. The bidder is required to provide a brief outline of the work to be undertaken, placing emphasis on the important or critical aspects of each task. Particular attention must be given to compliance with standing legislation.

Where the Scope of Services is silent on particular issues, bidders must be clear in stating which issues can be expected to arise during the study and which additional tasks may be necessary. These assumptions / additional tasks must be clearly indicated in the Technical Proposal.

Bidders are required to propose their own programme of work, in a Gantt chart in MS Project, illustrating their understanding of the best way to organise the assignment. This representation should show phases of the assignment, tasks within phases and, where necessary, sub-tasks. The work programme must also indicate the dates at which critical milestones can be reached and the critical path.

5.1.4 Team Capability and Availability

Bidders are required to provide a team of professionals with the necessary knowledge, experience and expertise to undertake and complete all the tasks contained in this Terms of Reference. A **project team organogram** must be presented indicating key positions such as Study Leader, Task leaders and Specialists. Persons proposed for these positions must be identified and supported by CVs of one to two A4 pages each, which are to be included in an Appendix. Brief capability statements must be given for each designated team member, emphasising recent experience relevant to the task envisaged.

The availability of each designated team member for the expected duration of the assignment must be indicated by reference to limitations that may be placed by other known commitments. Information must also be given on the key support staff envisaged for the assignment, supported by brief CVs, also included in an Appendix. **CVs, with telephone numbers, must be signed and dated** to show commitment by each team member.

Company profiles and other commercial information may be **provided in a separate appendix** but will not be used for the evaluation of bids, so keep this section to a minimum.

5.2 FINANCIAL PROPOSAL

The **Financial Proposal** is a stand-alone document that should provide comprehensive information on the cost of undertaking the Feasibility Study. This Proposal must be submitted in a sealed separate envelope.

Bidders shall make provision in their Financial Proposal for all costs and expenses to undertake and complete the tasks described in the Scope of Services. DWS will make provision for necessary **Contingencies** and bidders must not add them to the Proposal.

The Financial Proposal shall include the following:

- **Breakdown of deliverables** and associated costs based on the allocation of resources to the various tasks, sub-tasks and other activities described in the Scope of Services;
- **Value Added Tax** (VAT) at 15% on the total estimated cost. VAT must only be added as a penultimate item before the total cost, right at the bottom of the table;
- **Escalation of professional fees** over the contract period must be built into the deliverable costs and may not be claimed separately later. However, escalation of professional fees beyond the contract period, if the contract is extended, must be stated separately as a percentage;
- **Monthly cash flow** for the contract period based on the work programme; and
- **Breakdown of professional fees** to show the amount earned each team member and the fees earned by **Historically Disadvantaged Individuals** (HDIs).

5.2.1 Cost of Deliverables

The cost of deliverables must be defined in the **Financial Proposal** as it is the intention to manage this Study based on deliverables and not on the number of hours worked. The person-hours, which also need to be provided, must therefore be linked to suitable deliverables that can be achieved on a regular basis to provide a smooth cash flow that meets the requirements of the PSP. Past experience has shown that, on average, most service

providers cannot survive periods longer than three months without a payment. A guideline of the expected deliverables is presented in **Section 6** below.

This information on the cost of deliverables will form the basis of the **Study Budget** and shall include the following:

a) Professional time-based costs and disbursements for each task;

b) Sub-consultants whose costs are part of this Bid;

c) Provisional Sums provided by DWS (refer **5.2.2** below);

d) Value Added Tax (VAT) at 15% on the total estimated cost (must appear on Summary Sheet);

e) Cash flow and estimated total cost;

f) Links to the proposed work programme; and

g) Breakdown by study team member fees including fees earned by HDIs.

5.2.2 Specialist Sub-contractors and Sub-consultants

Specialist sub-contractors and sub-consultants will need to be appointed during this Study to undertake the following specialised tasks that are described in this ToR:

a) **Reserve Sub-consultant** to re-run the Reserve determination model with the updated hydrology from this Study and, if required, to re-calibrate this model and update the **Reserve for the Lower Mzimvubu River** to determine downstream ecological water requirements (refer to **3.5.3** above). The sub-consultant is required to consult with the Directorate: Reserve Determination before commencement of this task. **The bidder MUST PROVIDE for the cost** of this appointment in the Financial Proposal. Only unforeseen additional scope required by Directorate: Reserve Determination will be paid from the Provisional Sum;

b) **Materials Investigations** for dam type selection for both the pre-feasibility and feasibility investigations (refer to **3.13.3** above). **The bidder MUST NOT PROVIDE** for the cost of this appointment in the Financial Proposal, it is covered by the Provisional Sum;

c) **Geotechnical Investigations** for both the pre-feasibility and feasibility investigations (refer to **3.13.6** above). **The bidder MUST NOT PROVIDE** for the cost of this appointment in the Financial Proposal, it is covered by the Provisional Sum;

d) **Topographical Surveys** for both the pre-feasibility and feasibility investigations (refer to **3.13.7** above). **The bidder MUST NOT PROVIDE** for the cost of this appointment in the Financial Proposal, it is covered by the Provisional Sum;

e) **Post Feasibility Bridging Study** for the Lalini Dam and Hydropower Scheme (component of the Mzimvubu Water Project: Phase 1). **The bidder MUST PROVIDE** for the cost of this appointment in the Financial Proposal. However, the **bidder MUST NOT PROVIDE** for the cost of additional geological investigations that might be required; this will be covered by the Provisional Sum; and

f) **Technical Support** for implementation of the Ntabelanga Dam and Associated Infrastructure (component of the Mzimvubu Water Project: Phase 1). **The bidder MUST NOT PROVIDE** for the cost of this appointment in the Financial Proposal, it is covered by the Provisional Sum.

The appointed PSP shall, when required during this Study, obtain the necessary **quotations** from **reputable sub-contractors** and/or **sub-consultants** for the tasks specified above. These quotations, accompanied by a recommendation from the appointed PSP, shall be presented for the approval of DWS before appointments may be made. The relevant **government procurement regulations** shall apply to these appointments.

> Bidders are **not** required to provide an estimate in the **Financial Proposal** for the payment of these sub-contractors and sub-consultants except for the Reserve Sub-consultant and for the Post Feasibility Bridging Study for the Lalini Dam and Hydropower Scheme whose fees **must be included in the Proposal**. Bidders may, however, make provision for management fees to manage sub-consultants.
>
> DWS shall provide **Provisional Sums** in the **Study Budget** for the payment of sub-contractors and sub-consultants, which will be paid through the **Contract** of the **appointed PSP**. The **only exception** is the Reserve Specialist who must be included in this bid and whose budget must therefore be priced in the Financial Proposal as explained above.
>
> An **Administrative Fee** of 10% shall cover the handling by the PSP of the appointment, management and payment of the above specialist sub-contractors and sub-consultants, on behalf of DWS. DWS will also make provision for this fee in the **Study Budget**.

5.3 EVALUATION SYSTEM

The Department of Water and Sanitation shall evaluate all proposals (bids) in terms of the latest Preferential Procurement Regulations. A copy of the Preferential Procurement Regulations 2017 can be downloaded from www.treasury.gov.za. In accordance with the preferential procurement regulations, submissions are adjudicated on the 80/20 points system and the specified evaluation criteria.

A four-phase evaluation system will be followed in evaluating the bids. On receipt of the proposals, the evaluation criteria shown below will be used for the selection of the most suitable bidder to undertake the assignment.

- Phase 1: Pre-qualification criteria;
- Phase 2: Administrative compliance;
- Phase 3: Functional / Technical evaluation; and
- Phase 4: Price and B-BBEE status level of contribution (80/20 preferential system).

5.3.1 Phase 1: Prequalification Criteria

Only bidders that are BBBEE Level 1 status contributor will be considered for this bid.

NB: Bidders who do not qualify with the prequalification criteria will be disqualified and not considered for phase 2.

5.3.2 Phase 2: Administrative Compliance

Bidders are required to comply with the criteria listed below.

Table 5.1: Administrative Criteria

No	Criteria	Yes	No
1	Bidders must be registered with National Treasury's Central Supplier Database (CSD). Proof in the form of print-out from CSD is required.		
2	Tax compliance with SARS (verified through CSD and SARS).		
3	Bidders must complete, sign and submit forms SBD 1, SBD 3.2, SBD 4, SBD 6.1, SBD 8 and SBD 9		

5.3.3 Phase 3: Functional / Technical Evaluation

Bidders must score at least 70% for functionality to qualify for Phase 4 of adjudication. Bids that score less than 70% will be disqualified as technically incompetent and unacceptable.

The weights that are allocated to each functionality criterion are as follows:

Definition of values: 1= Very Poor 2 = Poor 3 = Average 4 = Good 5 = Excellent

Table 5.2: Functionality Criteria

Functionality Evaluation Criteria	Points value	Weighting Points Awarded
Past Experience: a) This criterion relates to the experience of the bidding company in water resource assessment and engineering aspects of Technical Feasibility (or similar) studies over the past 10 years. b) It is essential that the bidding company (including joint ventures, etc.) has the required experience and expertise in both water resource assessment and engineering design of water projects. c) Points will be awarded for past experience in these two fields on a 50-50 basis. d) In the case of a joint venture (JV) or sub-consultant the relevant experience of all companies should be provided. Points will then be awarded on a pro rata basis according to the JV agreement (50:50 or 75:25, etc.).		**25**
Past experience of 10 years or more in required fields	5	
7 to 9 years	4	
5 to 6 years	3	
4 years	2	
0 to 3 years	1	

Methodology: The methodology provided by bidders will be evaluated according to the following criteria: a) Detailed method statement for each task in the study b) The critical aspects of tasks are emphasised c) The expected challenges associated with tasks are highlighted d) A detailed work programme for the study is provided		**35**
All 4 criteria are adequately addressed in Technical Proposal	5	
3 criteria are adequately addressed in Technical Proposal	4	
2 criteria are adequately addressed in Technical Proposal	3	
Only 1 criteria is adequately addressed in Technical Proposal	2	
No criteria are adequately addressed in Technical Proposal	1	
Team Capability: Study Leader The Study Leader needs to comply with the following criteria: a) He/she should have relevant technical and project management experience, knowledge and expertise of at least 10 years. b) He/she should have the ability to manage the technical, financial and personnel aspects of this study, as well as ensure that the study programme is achieved. c) He/she should have been a study leader of one or more large relevant studies or projects.		**10**
10 years or more of relevant experience, required ability and previous study leader experience	5	
9 years	4	
8 years	3	
7 years	2	
Less than 7 years	1	
Team Capability: Team members a) Task leaders and specialists should have the relevant experience, knowledge and expertise required to ensure that their respective tasks can be successfully undertaken. b) Team members should have the necessary qualification, knowledge and experience for their respective tasks. c) A balanced team for the required tasks should be provided. d) An organogram of the project team showing their position and role in the study should be provided.		**20**

Balanced team with task leaders/ specialists with 10 years or more of relevant experience	5	
8 to 9 years	4	
6 to 7 years	3	
4 to 5 years	2	
0 to 3 years	1	
Capacity Building and Training: Provide clear proposals on capacity building and training, which includes secondment of DWS officials and presentation of training workshops. Topics for workshops should also be provided.		**10**
Adequate provision is made for 3 DWS officials and 2 workshops	5	
Provision is made for 2 DWS officials and 2 workshops	4	
Provision is made for 1 DWS official and 1 or 2 workshops	3	
Provision is made for secondment of DWS officials only	2	
Provision is made for presentation of workshops only OR no provision is made for training and capacity building	1	
TOTAL		**100**

5.3.4 Phase 4: Price & B-BBEE status level of contribution (80/20 system)

Price

A maximum of **eighty (80) points** are allocated for **Price** on the following basis:

$$Ps = 80\left(1 - \frac{Pt - P\min}{P\min}\right)$$

Where:

Ps = Points scored for comparative price of the bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

Preference (B-BBEE Status Level of Contribution)

In terms of Regulation 5(2) and 6(2) of the Preferential Procurement Regulations, preference points are awarded to a bidder for attaining B-BBEE status level of contribution in accordance with **Table 5.3** below.

Table 5.3: B-BBEE Status Levels of Contributor

B-BBEE Status Level of Contributor	Number of points (80/20 system)
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

Bidders must submit their original valid **B-BBEE status level verification certificate** or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.

Scores obtained for Price and B-BBEE status level are combined to obtain the overall score for each bid. The Functionality score is not factored in the final score, but is only used for screening bids to qualify for the last stage of evaluation.

6. DELIVERABLES

Deliverables such as reports, presentations, analyses, letters, minutes of meetings and databases must be provided in **Microsoft applications** and in **PDF format** (where applicable). The text for all documents shall be **Arial 11 font** at **1.5 spacing**, unless otherwise stated or agreed.

Provision must also be made to submit deliverables, such as reports and letters, in hard copy format. The format of reports must be confirmed with DWS before issuing final versions of reports. Reports are typically submitted as First Draft, Draft Final and Final version.

A guideline of the deliverables required for this Study is provided in **Table 6.1** below, which is not an exhaustive and final list. This list must be read in conjunction with the other sections of the Terms of Reference. Bidders should scrutinise the list, as well as relevant sections of the ToR, and submit an updated comprehensive list of the expected deliverables for this Study in the **Technical Proposal**. Smaller deliverables submitted frequently to provide a steady cashflow over the duration of this Study are preferable to big deliverables that take too long to complete.

Table 6.1: Guideline of Deliverables

No.	Description
A	**Work Plan** setting out the various tasks that must be undertaken, with detailed description of each task/sub-task/work package, and showing the expected technical deliverables
B	**Study Status Reports** to summarize information and progress to date on the various tasks, and provide other relevant information
C	**Study Gantt Chart** showing the various tasks, sub-tasks and work packages with delivery dates
D	**Formal Monthly Progress Reports** including information on expenditure
E	Minutes of PSC and SMC meetings as well as other meetings and workshops including presentations on study progress
F	**Decision Register** to record substantial decisions made to guide smooth execution of the Study
G	**Record of Liaison** with role players and stakeholders
H	**Applications** in the required form and supported by appropriate documentation for all permits, licences and authorisations required for the project to proceed to the implementation phase
I	**Executive Reports** on the findings and recommendations of this Study
J	This **Feasibility Study** is expected to consist but not limited to the following reporting as deliverables. The suggested report names may be rephrased and additional reports added in the course of the Study in the light of better

No.	Description
	information. Some reports may be combined while others may be divided into more reports as found necessary. Different sections of the TOR must be consulted to draw up a full list of the required reports. • Inception Report; • Water Resources (Hydrological) Assessment; • Groundwater Resources; • Reserve Determination; • Water Requirements; • Water Quality Assessment; • Materials Investigations; • Geotechnical Investigations; • Topographical Surveys; • Pre-feasibility Study Report • Post Feasibility Bridging Study for Lalini Dam and Hydropower Scheme; • Environmental Screening; • Bulk Potable Water Distribution Infrastructure; • Bulk Raw Water Distribution Infrastructure; • Land Matters Report; • Hydropower Potential Analysis; • Irrigation Development; • Engineering Feasibility Design; • Cost Estimates and Economic Analysis; • Legal, Institutional and Financing Arrangements; • Main Feasibility Report; • Book of Drawings and Maps; • Summary Report; • Close-out Report; and • Project Brochure published annually (10 hard copies every year)
K	**Record of Implementation Decisions (RID) Report** for handing over the Project formally to the implementing agent.
L	**Implementation Programme** for the Project.

7. GENERAL INFORMATION

7.1 CLIENT AND STUDY NAME

The DWS will act as **Client** for this Study. This Study shall be called **Mzimvubu Water Project Phase 2: Feasibility Study for the Mbokazi Dam and Hydropower Scheme.**

7.2 INTELLECTUAL PROPERTY

The ownership of **intellectual property** derived from this Study shall vest with the DWS.

7.3 INVOICES

The **Financial Proposal**, as well as invoices submitted for payment, must be structured in a way that makes it possible for payments to be linked to relevant deliverables. This information will enable DWS to **monitor study progress** by comparing invoices against approved contract deliverables. Invoice certification is required before payments are made.

The invoice format will need approval by DWS at Study commencement. A pro-forma invoice must be submitted for the approval process. Only **one (1) invoice** may be submitted for payment in any month of the Study although an invoice does not need to be submitted every month. Furthermore, the first invoice may only be submitted after the Contract has been signed between the Parties and an Order Number has been created.

Under no circumstances may the PSP commence work before signing of the Contract.

8. BRIEFING SESSION AND CONTACT DETAILS

Due to the COVID restrictions on gatherings and to allow for maximum participation of the prospective service providers, the Department will not be holding any formal briefing session.

•In order to attend to any specific questions to this Terms of Reference, service providers are required to submit formal enquiries directly to the Project Manager and the Supply Chain Management office, via email.

•Service Providers may submit questions and the Department will respond to such questions and also upload all questions and answers on the departmental website www.dwa.gov.za.

N.B: ALL PROSPECTIVE BIDDERS ARE REQUESTED TO SUBMIT/ PROVIDE BOTH HARD COPY AND A SOFTCOPY ON A USB OR DISC OF THEIR COMPLETE BID DOCUMENT. THIS IS DUE TO THE CURRENT PREDICAMENT WE FIND OURSELVES IN DUE TO COVID 19.

The contact persons listed in Table 8.1 below will attend to all questions.

The **Directorate: Options Analysis** working together with the **Directorate: Supply Chain Management** is administering this Terms of Reference and invitation to bid. The contact persons for enquiries about this Study are as given in **Table 8.1** below.

Table 8.1: Contact Details

Contact Person		Postal Address
For Technical Matters	**For Bid Administrative Matters**	
Mr Menard Mugumo Tel: 012 336 6838 Cell: 082 804 5162 Email: mugumom@dws.gov.za	Mr Patrick Mabasa Tel: 012 336 7518 Cell: 063 2519486 E-mail: mabasap@dws.gov.za	Private Bag X 313 PRETORIA 0001

NOTE: *Email correspondence regarding this Bid should be send to both contact persons listed in* ***Table 8.1*** *above.*