

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL

DEPARTMENT OF CENTRE FOR SYSTEM DESIGN
POST-SRINIVASNAGAR, MANGALORE – 575 025 (D K)

Phone: (0824) 2474000.

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Website: <http://www.nitk.ac.in>



TENDER DOCUMENT

Tender Notification No: NITK/CSD/2024/COF/PU-04

Date: 26/02/2024

Name of Goods	SMART AQUACULTURE NURSERY POND
The estimated amount put to Tender	₹ 4,90,000/- (Including GST) (Refer Section 1B,21)
EMD Amount (2% of estimated amount)	₹ 9,800/-
Time for Supply of item	1 Week
Bid Document Download Start Date	28-02-2024, 4:30 PM
Clarification Start Date	28/02/2024, 4:30 PM.
Clarification End Date	19/03/2024, 4:30 PM.
Online Bid Submission Start Date	28/02/2024, 4:30 PM.
Online Bid Submission End Date	19/03/2024, 4:30 PM.
Address for Submission of Tender	https://eprocure.gov.in/
Opening date of technical bid	20/03/2024, 4:30 PM.
Contact Details of Buyer	Dr.Pruthviraj U Associate Professor, Dept. WR&OF, Professor In charge (Transdisciplinary R & D) Centre for System Design NITK Surathkal-575025 (M): 9972797225, pruthviu@nitk.edu.in

**NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, SURATHKAL**

(Institute of National Importance Under Ministry of Education, Govt. of India)

POST-SRINIVASNAGAR, MANGALURU – 575 025

Phone: (0824) 2474 000.

Email: registrar@nitk.ac.in

Fax: (0824) 2474 033/ 2474 039

Website: <http://www.nitk.ac.in>

Tender Notification No: NITK/CSD/2024/COF/PU-04

Date: 26/02/2024

NOTICE INVITING e-TENDER (e-NIT)

The National Institute of Technology Karnataka, Surathkal (in short – NITK, Surathkal) is an Institute Of National Importance Under Ministry of Education, Govt of India imparting Technical Education and engaged in Research Activities.

Online Tender (<https://eprocure.gov.in/>) is invited for the following items in **two cover systems** (i.e., Technical bid and financial bid) subject to the following terms and conditions, from the reputed manufacturers or its authorized dealers so as to reach this office on or before scheduled date and time. The tender (Technical bid) will be opened online on the due date as mentioned. Bidders can verify their bid status through the online portal <https://eprocure.gov.in/>. The financial bid of only such bidders whose technical bid is accepted shall be opened on the same day or later pre-informed date.

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Sd/-
HOD

SECTION 1 A: Instructions for Online Bid Submission

The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submit their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at:

<https://eprocure.gov.in/eprocure/app>.

REGISTRATION

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>) by clicking on the link "**Online bidder Enrolment**" on the CPP Portal which is free of charge.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email addresses and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- 4) Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra, etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their user ID/password and the password of the DSC / e-Token.

SEARCHING FOR TENDER DOCUMENTS

- 1) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords, etc. to search for a tender published on the CPP Portal.
- 2) Once the bidders have selected the tenders they are interested in, they may download the required documents/tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / email in case there is any corrigendum issued to the tender document.
- 3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification/help from the Helpdesk.

PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.
- 2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the documents that need to be submitted. Any deviations from these may lead to the rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document/schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with the black and white option which helps in reducing the size of the scanned document.
- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates, etc.) has been provided to the bidders. Bidders can use the "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for the bid submission process.

Note: My Documents space is only a repository given to the Bidders to ease the uploading process. If Bidder has uploaded his Documents in the My Documents space, this does not automatically ensure these Documents being part of the Technical Bid.

SUBMISSION OF BIDS

1. Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
2. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
3. Bidder has to select the payment option as "online" to pay the tender fee/ EMD as applicable and enter details of the instrument.
4. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as the name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.
5. The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, the opening of bids, etc. The bidders should follow this time during bid submission.
6. All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening.

The confidentiality of the bids is maintained using the secured Socket Layer 128-bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system-generated symmetric key. Further, this key is subjected to asymmetric encryption using buyers/bid openers' public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

7. The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
8. Upon the successful and timely submission of bids (i.e. after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
9. The bid summary has to be printed and kept as an acknowledgment of the submission of the bid. This acknowledgment may be used as an entry pass for any bid opening meetings.
10. The off-line tender shall not be accepted and no request in this regard shall be entertained whatsoever.
11. All entries in the tender should be entered in online Technical & Commercial Formats without any ambiguity.
12. Any order resulting from this e-tender shall be governed by the terms and conditions mentioned therein.
13. No deviation to the technical and commercial terms & conditions are allowed.
14. The tender inviting authority has the right to cancel this e-tender or extend the due date of receipt of the bid(s).

ASSISTANCE TO BIDDERS

- 1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
- 2) Any queries relating to the process of online bid submission or queries relating to CPP Portal, in general, may be directed to the 24x7 CPP Portal Helpdesk.

SECTION 1 B: INSTRUCTION TO BIDDER (ITB)

1. The bid should be submitted in two covers System-Technical Bid and Financial Bid online through portal <https://eprocure.gov.in/>:

1.1 Envelope No.1 – Technical Bid: The agencies should give details of their technical soundness and provide a list of customers of a previous supply of similar items to Universities, Institutes, or Government Departments/ Undertakings/ public sectors with contact details. The details of the Bidder/ profile should be furnished along with a copy of all related documents. This envelope should be uploaded online tender (<https://eprocure.gov.in/>) and digitally signed as “Envelope No. 1 – Technical Bid i.e. Checklist (Excel format).

1.2. Document to be scanned and submitted by uploading in the technical bid:

- a) The Bidder should possess a Licence certificate for the manufacture /supply of the item.
- b) List of Owner/partners of the firm and their contact numbers
- c) The Bidder should possess an Income-tax PAN Number.
- d) The Bidder should possess a valid GST registration number.
- e) Catalogue of the Product with detailed product specifications.
- f) List of Service Centres
- g) List of customers with contact details.
- h) The average annual turnover should not be less than 30% of the estimated cost put to tender/Tender for the job work. A copy of the Balance sheet, Profit & Loss A/c., Trade or Manufacturing A/c for the last 3 years should be enclosed
- i) Warranty Period Offered for the tendered item to be specified. If the Warranty period is not conforming to the schedule of requirements given in section 3 of the document, the bid is liable to be treated as non-responsive and rejected.
- j) The contract form given in section 5 needs to be submitted.
- k) EMD must be in the form of Bank Guarantee **Annexure-“C”** (Fixed Deposit Receipt/Insurance surety bonds/DD/e-Payment mode (through Credit/Debit cards/Net Banking). It will be valid for 180 days from the date of opening of the tender. In case of EMD payment made through E-Payment, UTR Number with details should be uploaded. The firm registered with MSME/NSIC as per MSME procurement policy order 2012 will be exempted from submission of EMD. Intended parties will have to give proof of registration along with their tender. EMD of the unsuccessful bidders shall be refunded without any interest at the earliest after finalization of the purchase of the concerned item.

i) The EMD will be returned to the BIDDERS(s) whose offer is not accepted by NITK within one month from the date of the placing of the purchase order(s) on the selected BIDDER(s). In the case of the BIDDER(s) whose offer is accepted the EMD will be returned on submission of Performance Security

in the form of Bank Guarantee (BG). However, if the return of EMD is delayed for any reason, no interest/penalty shall be payable to the Bidders.

ii) The successful BIDDER, on the award of contract/order, must send the contract/order acceptance in writing, within 15 days of award of contract/order failing which the EMD will be forfeited.

iii) The EMD shall be forfeited in case a successful BIDDER fails to furnish the Performance Security.

iv) Bidder should prepare the EMD as per the instructions specified in the tender document. The original EMD should be posted/couriered/given in person to the concerned official, latest by the last date of bid submission as specified in the tender documents. The details of the BG/DD/FD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise, the uploaded bid will be rejected.

- i) The bidder needs to comply with restrictions under rule No 144 (xi) of GFR (General Financial Rules) 2017 and the clause pertaining to Dept of Expenditure (DOE) Public Procurement Division Order (Public Procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 and 24.07.2020). In this Connection Bidder has to submit Self Certification (as per Annexure A or B), depending on the status of the bidder.

The above documents should be furnished in the technical bid envelope.

2. Envelope No.2 – Financial bid: The agencies should submit their financial bid as per the (.xlsx) format is given in Section 4 of the Notice Inviting Tender in this cover. The rate should be quoted in figures and upload online bid. This envelope should upload online only as “Envelope No. 2 – Financial Bid”.

Both Envelope No. 1 and 2 should be uploaded through the online portal (<https://eprocure.gov.in/>).

- 3 The tender will be accepted only from the **manufacturers or its authorized supplier**.
- 4 The Institute **reserves the right to visit the factory** before or after the issue of supply order to satisfy itself regarding the quality of production. In case of any remarks /default noted, the Company will be debarred from competing for bids in our esteemed Institute for a period of one year from the date of occurring of such breach
- 5 **The Financial Bid shall be in the format of the Price Schedule given in Section 4. The Contract form as per the format is given in section 5 shall be submitted. The incomplete or conditional tender will be rejected.**
- 6 Details of the item to be carried out, approximate quantity and the specifications are mentioned in **“Section 3”** appended to this Notice Inviting Tender.
- 7 **The item to be used is strictly according to the specification and subject to test by the Institute/concerned authorities. It must be delivered and installed in good working condition.**
- 8 The Institute **reserves the right to cancel or reduce the quantity** included in the schedule of requirements at any time after acceptance of the tender with a notice. The Contractor/Supplier shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived

from the execution of the work/supply in full but he did not derive in consequence of the foreclosure of the whole or part of the works.

- 9 **Performance Security of 3 % of the contract value in terms of Bank Guarantee by scheduled banks shall be given by the successful bidder for the total period of Warranty. The validity of the Performance Security must cover the warranty period plus two months.**
- 10 **The validity of bids:** The rate quoted should be valid for a minimum of 90 days. No claim for escalation of the rate will be considered after opening the Tender. The bid validity date will start from the last date of bid submission (Including date corrigendum)
- 11 **Bid Evaluation:** On the due date, the Technical bids will be opened and referred to the Purchase Committee which is duly constituted by the Director, NITK. The committee will go through the technical aspects of the tender and recommend shortlisted firms. The recommendation of the committee is final and binding on all the parties. The committee may visit the manufacturing site to assess the capabilities to manufacture the tendered items as per the specifications. In case of any remarks/default noted, the EMD will be forfeited even if pre-qualified.
- 12 **Delivery Period:** The Delivery Period/Time shall be deemed to be the essence of the Contract and delivery must be completed not later than such date(s). If the Supplier does not perform its obligations within the Delivery Period/Date mentioned in the Contract, the same would constitute the breach of the Contract and the Institute shall have the right to cancel or withdraw the Contract for the unsupplied portion after the expiry of the original or extended delivery date or period stipulated in the Contract. Such cancellation of the contract on account of non - performance by the Supplier would entitle the Buyer to forfeit the EMD / Performance Security besides other actions such as debarment from the Institute as per GFR 2017.
- 13 **Clarification of Tender Document:** A prospective bidder requiring any clarification of the Tender Document may communicate to the contact person given in this notice inviting tender. The contact person will respond to any request for clarification for the Tender Document received not later than 5 working days prior to the last date for the receipt of bids
- 14 **Amendment of Tender document:** At any time prior to the last date for receipt of bids, Institute may for any reason, whether at its initiative or in response to a clarification requested by a prospective bidder, modify the Tender document by an amendment.
- 15 **Institute may at its discretion extend the last date for the receipt of bids.**
- 16 The bids shall be written in the English language and any information printed in another language shall be accompanied by an English translation, in which case for the interpretation of the bid, the English translation shall govern.
- 17 The Institute reserves the right of accepting any bid other than the lowest or even rejecting all the bids. The decision of the Institute Purchase Committee is final in all matters of tender and purchase.
- 18 The bidder should give the following declaration while submitting the Tender.
- 19 Relaxation for Start-up, MSEs, Make in India will be as per GOI norms.

20 Any other details required may be obtained from the contact person (Buyer) given in the Notice Inviting Tender during office hours.

21 Estimated price put up in tender is inclusive of all.

22 Abnormally quoted low bid will be liable for rejection as per the OM No.F.12/17/2019-PPD of Department of Expenditure, Ministry of Finance dated 6th February 2020.

23. Forfeiture of EMD/Performance Guarantee/Security Deposit: If NITK Surathkal has disqualified the Bidder(s) from the tender process prior to the award of the Contract or terminate/determinate the Contractor has accrued the right to terminate/determinate the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to NITK Surathkal, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Security of the Bidders/Contractor.

DECLARATION

I/we have not tampered with/modified the tender forms in any manner. In case, if the same is found to be tampered/modified, I /we understand that my/our tender will be summarily rejected and full Earnest money deposit will be forfeited and I /we are/are liable to be banned from doing business with NITK, Surathkal and/or prosecuted.

Signature of the Bidder : _____

Name and Designation : _____

Business Address : _____

Place:

Seal of the Bidder's Firm

Date:

SECTION 2: CONDITIONS OF CONTRACT

1. The supplier should quote the rate for Door Delivery (FOR).
2. The Rate should be quoted in INR only.
3. No custom duty exemption certificate will be provided from the institute.
4. The rate quoted should be on a unit basis. Taxes and other charges should be quoted separately, duly considering exemptions if any.
5. The rate quoted should be inclusive of Testing, commissioning and installation of equipment and Training.
6. Payment: No advance payment will be made. Payment will be made only after the supply and installation of the item in good and satisfactory condition and receipt of performance security by the supplier.
7. Guarantee and Warranty period should be specified for the complete period conforming to section 3 of this tender document.
8. The period required for the supply and installation of the item should be specified conforming to section 3 of this tender document.
9. In case of dispute, the matter will be subject to Mangalore Jurisdiction only.
10. **Liquidated Damages:** Timely delivery is the essence of the contract and hence if the Supplier fails to deliver Goods within the original/extended delivery period(s) specified in the contract, the Institute will be entitled to deduct/recover the Liquidated Damages for the delay, unless covered under Force Majeure conditions aforesaid, **@ 1% per week or part of the week of the delayed period** as pre-estimated damages not exceeding 5% of the contract value without any controversy/dispute of any sort whatsoever.

SECTION 3: SCHEDULE OF REQUIREMENTS, SPECIFICATIONS AND ALLIED DETAILS

[To be filled up by the Department / Center of NITK, Surathkal]

Item(s) Name to be procured : SMART AQUACULTURE NURSERY POND

Type (Equipment / Software / Furniture / Others) : Others

Brief Specifications of the Item(s) : **As per Annexure "D"**
(Attach Additional Sheet if necessary)

Quantity : 1 No.

Any other details / requirement : No

Warranty Period required : 3 Years

Delivery Schedule expected
after release of Purchase order
(In Weeks) : 1 Week

EMD (2% of the estimated amount) : ₹ 9,800/-

Performance Security to be given
by Successful Bidder after release of
Purchase Order (in Rupees) : 3% of PO value

SECTION 4 - PRICE BID

[To be used by the bidder for submission of the bid]

Tender Inviting Authority:

Name of Work/Goods/Services:

Contract No:

Name of the Bidder/ Bidding Firm / Company :

PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

Number	TEXT #	NUMBER #	NUMBER #	NUMBER	NUMBER	NUMBER	NUMBER #	TEXT #
Sr. No.	Item Description	Quantity	BASIC RATE in Figures To be entered by the Bidder in Rs. P	Cost	GST rate in %	GST Amount	TOTAL AMOUNT With Taxes in Rs. P	TOTAL AMOUNT In Words
1								
2								
Total in Figures								
Quoted Rate in Words								

SECTION 5: CONTRACT FORM

[To be provided by the bidder in the business letterhead]

1. (Name of the Supplier's Firm) hereby abide to deliver them by the delivery schedule mentioned in section 3 tender document for the supply of the items if the purchase order is awarded.

2. The item will be supplied conforming to the specifications stated in the tender document without any defects and deviations.

3. Warranty will be given for the period mentioned in the tender document and service will be rendered to the satisfaction of NITK, Surathkal during this period.

Signature of the Bidder : _____

Name and Designation : _____

Business Address : _____

Place:

Seal of the Bidder's Firm

Date:

BANK GUARANTEE FORMAT FOR Performance Security

To,
Director,
National Institute of Technology Karnataka,
Srinivasnagar P.O., Surathkal
Mangalore – 575025

LETTER OF GUARANTEE

Whereas..... (name and address of the contractor) (hereinafter called “the contractor”) has undertaken, in pursuance of contract no date..... to supply (description of goods and Works/ Services) (hereinafter called “the contract”).

And Whereas you have stipulated it in the said contract that the contractor shall furnish you with a bank guarantee by a Commercial bank for the sum specified therein as security for compliance with its obligations as per the contract;

And Whereas we have agreed to give the contractor such a bank guarantee.

Now Therefore we hereby affirm that we are guarantors and responsible to you, on behalf of the contractor, up to a total of(amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the contractor to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the sail debt from the contractor before presenting us with demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed thereunder or of any of the contract documents which may be made between you and the contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

This guarantee shall be valid until theday of20.....

Our.....branch at.....*(Name & Address of the*(branch) is liable to pay the guaranteed amount depending on the filing of a claim and any part thereof under this Bank Guarantee only and only if you serve upon us at our* branch a written claim or demand and received by us at our* branch on or before Dt..... otherwise, the bank shall be discharged of all liabilities under this guarantee after that.

(Signature of the authorized officer of the Bank)

.....

.....
Name and designation of the officer

.....

Seal, name & address of the Bank and address of Branch

*Preferably at the headquarters of the authority competent to sanction the expenditure for the procurement of goods or at the concerned district headquarters or the state headquarters.

Annexure -'A'

**(Compliance to be submitted in the bidder's letterhead)
(as applicable)**

Sub: Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017

Item Name:	
Enquiry No.:	

We M/s. _____ (name of the bidder company) have read the clauses pertaining to the Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country that shares a land border with India.

We hereby certify that **we are not from such a country** and eligible to be considered for this tender.

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead for commercial rejection of their bids by NITK)

For and behalf of _____ (Name of the bidder)

(Signature, date & seal of an authorized representative of the bidder)

Annexure –'B'

**(Compliance to be submitted in the bidder's letterhead)
(as applicable)**

Sub: Compliance to Government of India order OM No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020 regarding restrictions under Rule 144 (XI) of the General Financial Rules (GFRs), 2017

Item Name:	
Enquiry No.:	

We M/s. _____ (name of the bidder company) have read the clauses pertaining to the Department of Expenditure's (DoE) Public Procurement Division Order (Public procurement no 1,2 & 3 vide ref. F.No.6/18/2019-PPD dated 23.07.2020 & 24.7.2020) regarding restrictions on procurement from a bidder of a country which shares a land border with India.

We are from such a country which shares a land border with India & have been registered with the Competent Authority as specified in the above-said order. We hereby certify that we fulfill all requirements in this regard and are eligible to be considered.

Evidence of valid registration by the Competent Authority is attached.

(Note: Non-compliance of above said GoI Order and its subsequent amendment, (if any), by any bidder(s) shall lead for commercial rejection of their bids by NITK)

For and behalf of _____ (Name of the bidder)

(Signature, date & seal of an authorized representative of the bidder)

FORMAT FOR EARNEST MONEY DEPOSIT / BID BOND

(To be typed on Non-judicial stamp paper of value Indian Rupees One Hundred)

(TO BE ESTABLISHED THROUGH ANY OF THE NATIONAL BANKS (WHETHER SITUATED AT MANGALURU OR OUTSTATION) WITH A CLAUSE TO ENFORCE THE SAME ON THEIR LOCAL BRANCH AT MANGALURU OR ANY SCHEDULED BANK (OTHER THAN NATIONALISED BANK) SITUATED AT MANGALURU. BONDS ISSUED BY COOPERATIVE BANKS ARE NOT ACCEPTED)

LETTER OF GUARANTEE

To
Director,
National Institute of Technology Karnataka,
Srinivasnagar P.O., Surathkal
Mangaluru – 575025

IN ACCORDANCE WITH YOUR TENDER for the supply of, M/s..... (hereinafter called the "Bidder") having its Registered Office at, wish to participate in the said bid for the supply.....as an irrevocable Bank Guarantee against Earnest Money Deposit for an amount of Rs. (Rupees.....) valid up to **(180 days from the date of issue of Bank Guarantee)**, is required to be submitted by the bidder as a condition precedent for participating in the said bid, which amount is liable to be forfeited by the Purchaser on (1) the withdrawal or revision of the offer by the bidder within the validity period, (2) Non acceptance of the Letter of Intent/Purchase order by the Bidder when issued within the validity period, (3) failure to execute the contract as per contractual terms and condition within the contractual delivery period and (4) on the happening of any contingencies mentioned in the bid documents.

During the validity of this Bank Guarantee:

We,(Bank name) having the registered office at.....guarantee and undertake to pay immediately on first demand by NITK Surathkal, an amount of Rs..... (Rupees.....)without any reservation, protest, demur and recourse. Any such demand made by theNITK Surathkal shall be conclusive and recourse. Any such demand made by the purchaser shall be binding on the Bank irrespective of any dispute or difference raised by the Bidder.

The Guarantee shall be irrevocable and shall remain valid up to.....(180 days from the date of issue of Bank Guarantee) If any further extension is required, the same shall be extended to such required period on receiving instruction from the Bidder, on whose behalf the is Guarantee is issued.

Notwithstanding anything contained herein:

- * Our liability under this Bank Guarantee shall not exceed Rs..... (Rupees.....).
- * This Bank Guarantee shall be valid up to.....(date).
- * We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee Only and only if you serve upon us a written claim on or before(date).

This Bank further agrees that the claims if any, against this Bank Guarantee shall be enforceable at our branch office atsituated at(Address of local branch).

Yours truly,

Signature and seal of the guarantor: Name of Bank:

Address:

Date:

Instruction to Bank: Bank should note that on expiry of Bond Period, the Original Bond will not be returned to the Bank. The bank is requested to take appropriate necessary action on or after the expiry of the bond period

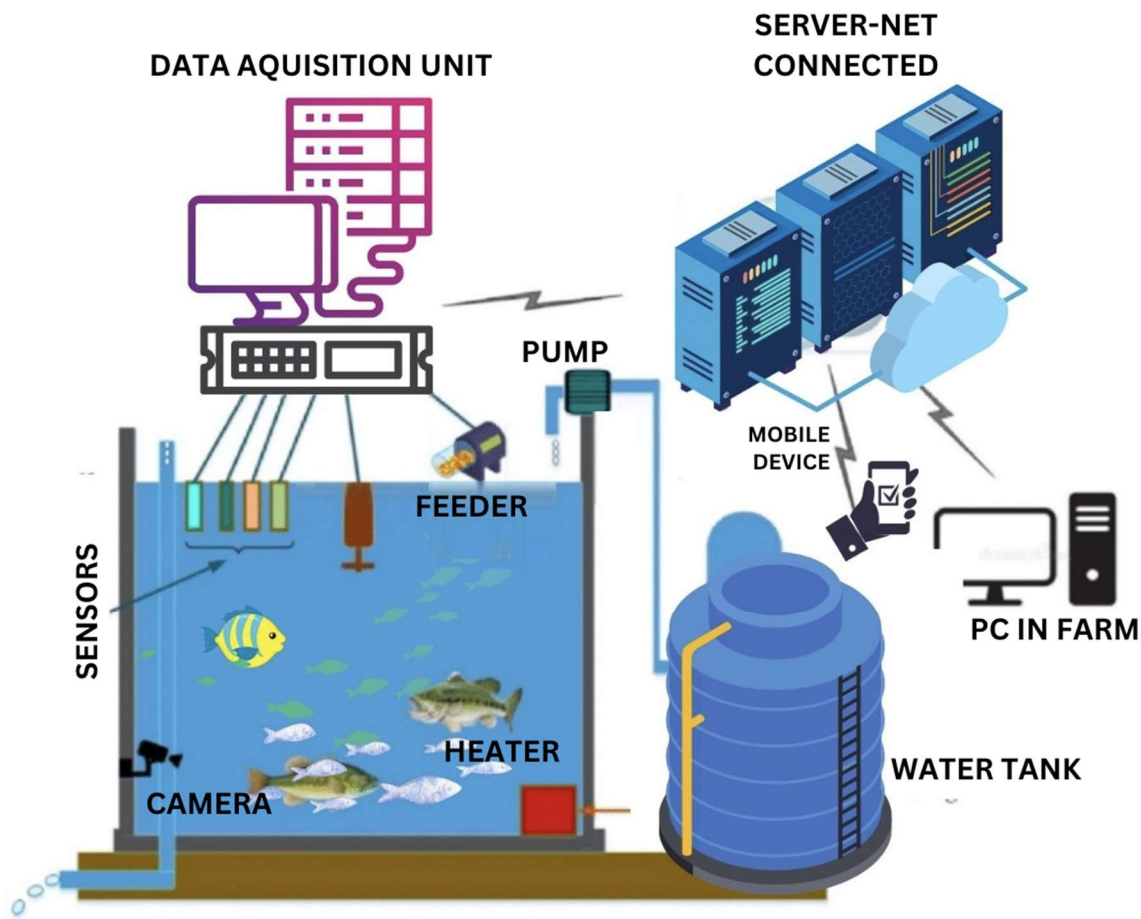
Detailed Technical Specifications**Specification : SMART AQUACULTURE NURSERY POND**

SMART AQUACULTURE NURSERY POND refers to the use of advanced technologies and smart systems in the management and operation of aquaculture ponds to enhance productivity, efficiency, and sustainability. This approach involves integrating various technologies to monitor, control, and optimize key parameters in aquaculture operations. Monitoring systems play a crucial role in intelligent rearing in aquaculture ponds by providing real-time data on various environmental parameters. Water Quality Sensors measure key parameters such as temperature, dissolved oxygen (DO), pH, ammonia, nitrate, turbidity, and salinity. They help in maintaining optimal water conditions for the health and growth of aquatic organisms. In the system Weather stations are used to monitor atmospheric conditions, including temperature, humidity, wind speed, and rainfall. Integration with pond management systems allows for better decision-making based on weather forecasts. Underwater cameras are employed to monitor the behavior and health of aquatic organisms. They can provide visual insights into the overall condition of the pond, helping to detect signs of stress, disease, or other issues. Security Cameras are necessary for security and monitoring for any unauthorized activities.

Automated feeding systems in SMART AQUACULTURE NURSERY PONDS are designed to optimize the feeding process, ensuring that the cultured organisms receive the right amount of feed at the right time. Implementing the automatic feeders that dispense the appropriate amount of feed based on the size, species, and nutritional requirements of the cultured organisms. Integrate feed monitoring technologies in the pond system to track consumption and adjust feeding regimes accordingly. Smart Feeders which Connected to a central control system, smart feeders can be remotely monitored and controlled. They often include features such as adjustable feeding schedules, portion control, and real-time monitoring of feed levels. Some advanced systems incorporate cameras and artificial intelligence to monitor fish behavior, estimate biomass, and adjust feeding rates based on visual data. Integrated camera systems in SMART AQUACULTURE NURSERY POND play a crucial role in monitoring the behavior, health, and growth of cultured organisms. These camera systems are often integrated with other sensors and technologies to provide a comprehensive view of the pond environment. Stationary cameras strategically placed to capture specific areas within the pond. These can be used to monitor fish behavior, feeding patterns, and overall pond conditions. Motorized cameras that can be remotely controlled to pan, tilt, and zoom. Pan-Tilt-Zoom (PTZ) cameras provide a more dynamic view and allow operators to focus on specific points of interest and has to be integrated into existing AI-based NVR. Fixed or PTZ Cameras to be placed above the water surface to monitor activities on the pond banks, feeding platforms, or other infrastructure. Useful for security purposes and general pond management. Smart cameras with artificial intelligence (AI) in

SMART AQUACULTURE NURSERY POND bring a new level of automation and efficiency to monitoring and managing aquatic environments. Smart cameras can automatically count the number of fish in the pond, providing accurate and real-time information on population density. AI-powered cameras can analyze fish behavior and detect deviations from normal patterns. Unusual swimming patterns, feeding behavior, or clustering may indicate stress, disease, or environmental issues. Smart cameras can identify signs of diseases in fish, such as lesions, abnormal coloration, or unusual behavior. Early detection allows for timely intervention to prevent disease outbreaks. Smart cameras can be integrated with other sensors to monitor environmental parameters such as water temperature, dissolved oxygen, and pH. This integration offers a holistic view of pond conditions. AI-powered cameras can generate real-time alerts based on predefined criteria. For example, alerts can be triggered for unusual behavior, sudden changes in water quality, or potential security threats. Smart cameras seamlessly integrate with aquaculture management software, providing a centralized platform for monitoring, analysis, and decision support.

Water circulation and aeration are critical components of SMART AQUACULTURE NURSERY POND management. Proper circulation and aeration contribute to maintaining optimal water quality, preventing oxygen depletion, and creating a favorable environment for the health and growth of aquatic organisms. Air is pumped through diffusers placed on the pond bottom, creating bubbles that rise to the surface. This promotes oxygen exchange and helps distribute oxygen throughout the water column. Agitators or paddlewheels at the pond surface create turbulence, enhancing the transfer of oxygen from the atmosphere into the water. Emergency Aeration Systems such as emergency generators should be there to ensure oxygen supply during power outages or equipment failures.



schematic diagram for SMART AQUACULTURE NURSERY POND

Data analytics and artificial intelligence (AI) play a crucial role in optimizing the management and operations of SMART AQUACULTURE NURSERY POND. These technologies enable the processing of large volumes of data collected from various sensors and monitoring systems to derive meaningful insights, improve decision-making, and enhance overall efficiency.

Data analytics and artificial intelligence (AI) play a crucial role in optimizing the management and operations of SMART AQUACULTURE NURSERY POND. These technologies enable the processing of large volumes of data collected from various sensors and monitoring systems to derive meaningful insights, improve decision-making, and enhance overall efficiency. Use AI algorithms to analyze data on feed consumption, growth rates, and biomass to optimize feeding regimes and improve Feed Management Optimization (FCR). Implement AI-driven systems that adjust feed quantities based on real-time conditions, such as water temperature, dissolved oxygen levels, and fish behavior. Integrate data from various sensors and IoT devices to create a comprehensive view of the aquaculture pond's conditions.

Environmental control systems in SMART AQUACULTURE NURSERY POND are designed to create and maintain optimal conditions for the health and growth of aquatic organisms. These systems leverage various technologies to control environmental parameters such as temperature, light, and humidity. Implement heating systems to maintain water temperatures within the desired range, especially in colder climates or during winter months. Use cooling technologies to prevent water temperatures from rising to levels that may stress or harm the cultured organisms. Installation of energy-efficient LED lighting systems to regulate light intensity and photoperiod, mimicking natural light conditions. This is crucial for the growth and behavior of aquatic organisms. Deploy shading materials to regulate the amount of sunlight reaching the pond. This helps prevent excessive algal growth and controls water temperature. Placing of UV sterilizers to control pathogens and reduce the risk of disease outbreaks. Installation of backup systems and alarms to respond to emergencies, such as equipment failures or sudden changes in environmental conditions. Implementation of centralized control systems that integrate various environmental control components. These systems allow for automated adjustments based on sensor inputs and environmental conditions.

Aquaculture management software plays a vital role in SMART AQUACULTURE NURSERY POND by providing a centralized platform for monitoring, analysis, and decision support. This software integrates data from various sources, including sensors, cameras, and environmental control systems, to optimize operational efficiency and enhance overall productivity. A centralized Data Hub can be created in the pond system to collect and integrate data from various sensors, monitoring systems, and IoT devices. For Communication and Reporting purposes generate alert Notifications which send the alerts and notifications for critical events or conditions that require attention and also Reporting Tools to Generates customizable reports for analysis, compliance, and regulatory purposes.

Security and surveillance systems play a crucial role in ensuring the safety and integrity of SMART AQUACULTURE NURSERY POND. These systems help prevent unauthorized access, monitor activities around the pond, and contribute to the overall security of the aquaculture operation. Installation of cameras at key locations around the pond, including entry points, equipment areas, and critical infrastructure. Use sensors or cameras with built-in motion detection to alert authorities in case of unauthorized entry. For security purpose construction of physical barriers, such as fences or netting, to restrict access to the pond area. Utilize cloud-based platforms for remote monitoring, enabling real-time access to camera feeds from anywhere with an internet connection and also Provide mobile applications for on-the-go monitoring by aquaculturists or security personnel. Use of Digital Video Recorder (DVR) or Network Video Recorder (NVR) systems for storing and retrieving video footage. Integration of surveillance systems with alarm systems to trigger alerts in case of security breaches or suspicious activities. Integratesurveillance systems

with aquaculture management software for centralized monitoring and management of security features.

Implementing energy-efficient systems in SMART AQUACULTURE NURSERY POND is crucial for minimizing operational costs, reducing environmental impact, and ensuring sustainable and responsible aquaculture practices. Energy-Efficient LED lighting systems for ponds and aquaculture facilities, which consume less energy compared to traditional lighting. Use of smart controls to adjust lighting schedules based on natural daylight conditions and aquaculture needs, optimizing energy use. Implementation variable speed drives to control the speed of pumps and aeration systems based on real-time requirements, reducing energy consumption during periods of lower demand. Use of pumps with high energy efficiency ratings to optimize water circulation while minimizing power consumption. Utilize solar energy to power aeration systems, reducing dependency on grid electricity and lowering operational costs. Integrate energy storage solutions, such as batteries, to store excess energy generated during sunny periods for use during low-light conditions. Use water heaters to meet the heating requirements for aquaculture systems, especially in hatcheries or nurseries based on experiments setup/ scheduled by Students at college of fisheries. By incorporating energy-efficient systems and practices, SMART AQUACULTURE NURSERY POND can reduce their environmental footprint, lower operating costs, and contribute to the sustainability of the aquaculture pond and should be remotely able to be monitored.

The implementation of an SMART AQUACULTURE NURSERY POND must offer several advantages, including improved fish health and growth, optimized resource utilization, reduced manual labour, and increased operational efficiency. It enables fish farmers to achieve better control over their operations and make data-driven decisions for sustainable and profitable fish farming. Fishes that are intended to be used in INTELLIGENT REARING PONDS are Green Zebra, White Molly Black Molly, Balloon Molly, Swordtail, Guppy, Goldfish, koi, Gourami, and Oscar Tentative quality range: pH - Maximum 7, Temperature- 28 - 30°C, Ammonia level - 0.0ppm or undetectable, Dissolved Oxygen- 5mg/L, Water level (freeboard) - 100cm. Automated cleaning must be incorporated into INTELLIGENT REARING PONDS as per the needs of the client. Any additional sensors. vision units that justify can be added that can meet the requirements. Monitoring can be displayed and controlled by using a compact PC with the minimum spec *of 13 10th , 4 GB RAM , 1 TB HDD , 19.5" Monitor, WIFI + Bluetooth, and HDMI with VESA mount.*

The Setup has to be installed at the College of Fisheries, Mangaluru. Costing of required sensors, appropriate servers, cabling etc has to be given in detail. An iPad, Tablet, or smartphone is not a requirement for this purchase. AI-based server-class PC must offer enhanced specifications for better performance in AI applications. It must be compatible with AI frameworks such as TensorFlow, Keras, Microsoft Cognitive Toolkit, Scikit-learn, and PyTorch with minimum spec. *Processor: Intel Xeon Silver 4210 10-Core (2.2GHz, 13.75MB cache), Component: Memory:*

16GB DDR4 RDIMM (expandable up to 768GB), Storage: 1TB SATA 7.2K RPM HDD, Linux-based OS, Graphics Card: NVIDIA GeForce RTX 2060 or AMD Radeon RX 5700 XT, Dual-port Gigabit Ethernet, PCIe 3.0 x16 (4 slots), PCIe 3.0 x8 (3 slots), 8 USB ports (4 x USB 3.2 Gen 1,

2 x USB 3.2 Gen 2, 2 x USB 2.0), Power Supply: 500W or higher. The location, depicted in the image below, measures 13ft X 48 ft and should include essential stone pitching and access for conducting experiments.



location: College of Fisheries, mangaluru

warranty : 3 years

For any technical clarification: Dr. Pruthviraj Umesh, Associate Professor, Department of Water Resources & Ocean Engineering, Professor InCharge Trans-disciplinary (R&D), National Institute of Technology Karnataka, Surathkal, Srinivasnagar - 575025, Mangalore, India, Mobile No: 9972797225, pruthviu@nitk.edu.in