

MODIFIED TENDER DOCUMENT AFTER PRE-BID MEETING

CONDUCTED ON 7TH August 2010

**TENDER DOCUMENT FOR THE SUPPLY, INSTALLATION,
COMMISSIONING AND TESTING OF PLANT GROWTH
CHAMBERS AT NABI, MOHALI**

Last date for sale of tender documents and downloading tender document	19.08.2010 up to 5.00 PM IST
Last date for submission of tenders	21.08.2010 up to 10.30 AM IST
Date of opening of Techno Commercial unpriced bids	21.08.2010 at 11.30 AM IST
Address for Communication	The Executive Director, NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE, C-127, INDUSTRIAL AREA, MOHALI PUNJAB - 160071

NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE
(Department of Biotechnology Ministry of Science and Technology, Govt. of India)
C-127, Industrial Area, Phase 8, SAS Nagar, Mohali, Punjab
Phone:0172-4604888 Fax: 0172-4011916

TENDER NOTICE
Tender No. NABI/2(1)/10-11/N-Pur

Sealed item rate Tenders (in two bid system) are invited on behalf of the Executive Director, NABI, Mohali, from manufacture or their authorized dealer, so as to reach his office upto 10.30 AM on or before 21-08-2010 for the following work at NABI, Mohali, Punjab.

Name of work: Supply, Installation, Testing & Commissioning of Plant Growth Chambers at NABI, Mohali

Sl. No.	EMD (In Rs.)	Time for Completion	Last date & time for sale of Tender Documents	Date & time of submission / opening of tenders
1.	2.	3.	4.	5.
1.	3.50 Lakhs	Four Months	19-08-2010 upto 1700 hrs	21-08-2010 & 1030 hrs/ 21-08-2010 & 1130 hrs.

The Earnest Money should be deposited along with the tender in the form of Demand Draft drawn in favour of the NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE, payable at Mohali. The Tender document will be issued to the manufactures / authorized dealer of the equipment having **ISO: 9001-2000 /CE** certification and must have completed at least ten installation of such Chambers from same manufacturer costing not less than 50% of the estimated cost put to tender during the last three years ending 31/07/2010 (preferably should be in Central/State Govt./Central/State Autonomous Bodies).

The contractor should have a solvency of the amount equal to 40% of the estimated cost of the work. The performance report of the contractor and certificate of having satisfactory completed the work, issued by Scientist-In-Charge shall be enclosed with the documents.

The Tender documents and detailed specifications can be obtained in person by the interested firms from the Purchase-Cum-Store Officer, NABI, Mohali during office hours against cash payment of Rs. 500.00 (Rupees Five Hundred only) (Nonrefundable) from 3rd August 2010 to 19th August 2010 (Time: 1000 hrs to 1700 hrs) on all working days.

Technical and financial bids are to be submitted separately in separate sealed covers duly superscribed with tender number & name of works addressed to the Executive Director, National Agri-Food Biotechnology Institute, C-127, Industrial Area, Phase 8, Mohali along with the Earnest Money Deposit so as to reach by the due date as specified above. Bids without EMD will be summarily rejected without any intimation to the vendor.

The tender document can also be downloaded from our website: www.nabi.res.in and the cost of Tender documents should be submitted in the form of Demand Draft drawn in favour of National Agri-Food Biotechnology Institute, Mohali payable at Mohali in separate sealed envelope along with the sealed Tender. In case the Tender cost is not submitted, the tender will not be considered.

Date of Pre-bid Conference: on 7th August 2010 at 11.00 AM (IST) at Board room, NABI, Mohali

Changes in the technical specifications and terms & conditions if any, for the above item after pre-bid, will be posted on the NABI website on 10th August 2010. All vendors are requested to quote accordingly.

The Executive Director, NABI, reserves the right to accept or reject all or any of the bids without assigning any reasons thereof.

TENDER DOCUMENTS

Name of work: **Supply, Installation, Testing & Commissioning of Plant Growth Chambers at NABI Campus, Mohali**

Owner : **Executive Director, NABI, C-127, Industrial Area, Phage 8, SAS Nagar, Mohali, Panjab**

Tender Issued to : _____

**Place for submission/
Place opening of tender document:** **National Agri-Food Biotechnology Institute
C-127, Industrial Area, Phage 8, SAS Nagar,
Mohali - 160071**

Last date & time for sale of Tender Documents: **19th August 2010 at 5.00 PM (IST)**

Date & Time of submission of Tender Documents: **21st August 2010 at 10.30 AM (IST)**

Date & Time of opening of Technical Bid: **21st August 2010 at 11.30 AM (IST)**

COST OF TENDER DOCUMENT: Rs. 500.00 (Non-refundable)

**Stores & Purchase Officer
NABI, Mohali**

TENDER FORM

To

**The Executive Director
NABI, Mohali**

Dear Sir,

I/We have read and examined the following Tender Documents relating to the **Supply, installation, testing and commissioning of Plant Growth Chambers at National Agri-Food Biotechnology Institute, C-127, Industrial Area, Phase VIII, Mohali.**

- General Conditions
- Instructions to bidders
- General Information
- Specific condition of contract
- Terms and Conditions of Contract Agreement
- Special Terms and conditions of Contract
- Technical specification and Bill of Quantities
- Price Bid

I/We hereby offer to execute the work complete in all respects specified in the under written Memorandum within the time specified therein at the rates specified in the bill of Quantities and in accordance, with the specifications, designs, drawings and instructions in writing referred to in the conditions of tender.

Tenderers Signature and Seal

GENERAL CONDITIONS

1. Sealed tenders are hereby invited from manufacturers/ authorized dealers for the **Supply, installation, testing and commissioning of Plant Growth Chambers at National Agri-Food Biotechnology Institute,**

The tender document consists of General Conditions, Instructions to bidders, General Information, Tender form, Terms and Conditions of Contract Agreement, Special Terms and conditions of Contract, Technical specification and Price Bid which can be had at a cost of Rs. 500.00 each (Rs. Five Hundred only each) (Non refundable) in cash from 01-08-2010 to 19-08-2010 (1000 hrs to 1700 hrs on all working days) from the **Stores-cum-Purchase Officer at NABI, C-127, Industrial Area, Phase VIII, Mohali.** Purchase of tender document is obligatory on the part of the tenderers & bid in no other form will be accepted. The tender document can also be downloaded from our website: www.nabi.res.in and the cost of tender document for Rs. 500/- each should be submitted in the form of Demand Draft in favour of National Agri-Food Biotechnology Institute payable at Mohali in separate envelope along with the Sealed Tender.

2. The tender documents shall be placed in sealed cover as mentioned in Procedure of Submission of tender and addressed to the The Executive Director, NABI, C-127, Industrial Area, Phase VIII, Mohali. The filled and sealed tender should be submitted in two separate envelopes containing technical & price bids to the Purchase Section of NABI, C-127, Industrial Area, Phase VIII, Mohali on or before 21st August 2010 upto 10:30hrs and shall be opened on the same day at 11:30 hrs. in the presence of tenderers or their authorized representative. Any envelope received after the said date and time shall not be entertained under any circumstances and no consideration what so-ever shall be given to anything that might be contained in any such envelope.
3. The time allowed for the supply, Installation, testing and commissioning of above equipments is 4 months to be reckoned from the 10th day after the date of written order to commence the work.
4. Every tender shall be accompanied by earnest money of Rs. 3,50,000 in the form of Demand Draft drawn in favour of the “National Agri-Food Biotechnology Institute” payable at Mohali. Any tender not accompanied by such earnest money will be rejected straight away.
5. The Tenderer will submit his tender in prescribed format after examining the tender documents, scope of work, specific conditions of contract, Instructions to bidders, General Information, Terms and Conditions of contract agreement, technical specification, Compliance statement, Price Bid, Price Schedule, special terms and conditions of contract, specific conditions of contract.
6. The offer shall remain valid for 90 days from the date of opening of Tender.
7. The tenderer shall submit a list of the similar equipments installed during the past three years along with complete details i.e names of person concerned, designation, telephone Nos., addresses of Institutes/Organizations, value of the works and copies of the completion certificates.
8. The tenderer shall submit a copy of the latest Income tax clearance certificate / Sales tax clearance certificate along-with the copies of the audited balance sheets of the past three years.
9. If a tenderer whose tender is accepted fails to undertake the work as per terms of the contract within 10 days to be reckoned from the date of issue of award letter, the earnest Money deposited will be forfeited.
10. NABI does not bind itself to accept the lowest or any tender and reserves the right to reject any or all tenders without assigning any reason.
11. NABI will not pay any expense, whatsoever incurred by tenderer for the preparation and submission of tenders.
12. The notice inviting tender, will form part of the contract agreement to be executed by the successful tenderer with the NABI.
13. All the correspondence on the tender shall be addressed to the The Executive Director, NABI, C-127, Industrial Area, Phase VIII, Mohali and any communication addressed to anyone else shall not in any manner to be binding upon the NABI, Mohali.

Tenderers Signature with Seal

Stores & Purchase Officer

INSTRUCTIONS TO BIDDERS

1. GENERAL INSTRUCTIONS:

The items referred here-in shall cover the entire scope of the proposal which includes supplying and installation of the equipment including the successful completion and the tests which the NABI desires testing and commissioning shall be carried out.

2. PROCEDURE FOR SUBMISSION OF TENDERS:

- a) The following procedure shall be adopted for submission and opening of tenders. The sealed envelope SUPERSCRIBED on top of envelope as **“Tender for: Supply, Installation, testing and commissioning of Plant Growth Chambers at National Agri-Food Biotechnology Institute, C-127, Industrial Area, Phase VIII, Mohali**

ENVELOPE NO.- 1 i.e. Technical bid

The sealed envelopes shall contain separately the Earnest money deposit and the cost of Tender document if downloaded from Website and Technical Bid will be opened first.

ENVELOPE NO.- 2 i.e. Price bid

This sealed envelopes shall contain only Financial bid of the tender as per the items /specifications given in Annexure-I. This envelope shall be opened only after the EMD contained in envelope No.1 is found in order and technically qualified as per the requirements of NABI. The date of opening of Price Bid shall be intimated to the technically qualified bidders in the later stage.

The sealed cover-containing envelope 1 & 2 shall be opened on the prescribed date and time in the presence of tenderers or their authorized representative.

- b) Quotation should be submitted directly by the original manufacturer/supplier or its sole authorized distributor/dealer. In case of bid by authorized dealer/distributor, the manufacturer authorization should be attached with the technical bid as per **Annexure-‘H’**.
- c) In case a bidder is not doing business within India, it shall furnish the certificate to the effect that the bidder is or will be represented by an agent in India equipped and able to carry out the supply, maintenance, repair obligations etc. during the warranty and post-warranty period or ensure a mechanism at place for carrying out the supply, maintenance, repair obligations etc. during the warranty and post-warranty period.
- d) The bidder shall bear all costs associated with the preparation and submission of its bid irrespective of the conduct or outcome of the bidding process.
- e) The bidder should not indulge in any corrupt, fraudulent, collusive, coercive practices during the entire process of procurement and execution of contract/order.
- f) Before the deadline for submission of the bid, NABI reserves the right to modify the bidding document and to extend or not to extend the date of submission. Such amendment/modification will be notified to bidders receiving the bidding document in writing or by cable/fax/ email and will also be hosted on NABI website.
- g) A bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice signed by the authorized signatory before the date of submission of the bid. Any re-submission or modification in the bid should be submitted before the date & time of submission of bid as originally conveyed in the invitation of bid.
- h) No bid may be withdrawn, substituted or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form or any extension thereof.
- i) First envelope marked “WITHDRAWAL” shall not be opened, but returned to the Bidder subject to submission of valid authorization to request the withdrawal. In case of substituted and modified bid, only the substituted bids and modified bids will be opened subject to production of authorization from the bidders.

- j) Each offer/quotation should be kept in separate envelope against each item of the tender notice.
- k) For items covered under Two-Bid -Tender System, quotation/offer should be submitted in two separate envelopes containing Technical and Price bid and these put in one envelope.

3. TENDERERS TO STUDY ENTIRE TENDER DOCUMENT CAREFULLY:

Submission of a tender by a tenderer implies that he has read all the stipulations contained in this tender document and has acquainted himself of the nature, scope and specifications of the items to be followed.

4. TENDERER TO SUBMIT THE ENTIRE TENDER DOCUMENT:

The tenderer shall submit all documents issued to him for the purpose of this tender after duly filling the same in all respects. Tenders which are found to be vague or incomplete shall be rejected summarily.

5. TENDER SHALL BE WRITTEN IN ENGLISH LANGUAGE:

Every tender shall be written in English language. All information such as documents and drawings supplied by the tenderer will also be in the English language only. Drawings and designs shall be dimensioned according to the metric system of measurements. Tenders shall be forwarded under cover or a letter type written on the tenderer's letter-head and duly signed by the tenderer. Signatures must be in long hand, executed in ink by a duly authorized principal of the tendering firm. No oral, telegraphic or telephonic tenders or subsequent modifications there-to shall be entertained; If a tender is submitted on behalf of the firm, then all the partners shall sign or may be signed by one in whose favour all the partners have given General Power Of Attorney. In case of tender submitted by a company, it shall be signed by one who has been authorized by the Board of Directors through a resolution. Copy of resolution and the authority letter in favour of the person signing must accompany the tender.

6. VALIDITY PERIOD OF OFFERS:

The rates quoted in the tender shall hold good for 90 days from the date of opening of the tender. The validity period shall be extendable with the mutual consent of both the parties. No tenderer can withdraw/or modify his tender or revoke the same within the said period of 90 days. If a tenderer on his own withdraws or revokes the tender or revises or alters or modifies the tender for any item or condition within a period of aforesaid 90 days his earnest money deposit shall stand forfeited.

7. TENDERER TO SIGN ALL PAGES:

The tenderer shall stamp and sign at the bottom right hand corner of every page of the tender documents in token of acceptance of tender conditions and for the purpose of identification.

8. ERASURES AND ALTERATIONS:

Tenders containing erasures and alterations of the tender documents are liable to be rejected unless these are authenticated by the person signing the Tender Documents.

9. TENDERER TO SATISFY HIMSELF OF SITE CONDITIONS:

Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tender regarding nature of the site conditions, the means of access of the site, the accommodation they may require and in general obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender in any manner. A tenderer shall be deemed to have full knowledge of the site, whether he inspects it or not and no compensation or otherwise of any charges incurred or to be incurred consequent on any misunderstanding or otherwise shall be admissible.

10. EARNEST MONEY:

The tender shall be accompanied by earnest money of Rs. 3,50,000/- in the form of Demand Draft only drawn in favour of the The Executive Director, NABI payable at Mohali. Earnest money of the unsuccessful bidder(s) shall be refunded after expiry of the validity period of the tenders/allotment of works whichever is earlier.

11. TENDERER TO QUOTE BOTH IN FIGURES AND WORDS:

The bidder shall quote their rates for all the items both in figures as well as words given as per the attached Schedule of quantities at Annexure-I. The amount of each item shall be worked out and the requisite total given. Special care shall be taken to write percentage in figures and words, and the amount in figures only in such a way that interpolation is not possible. The total amount shall be written both in figures and in words.

12. TENDER LIABLE TO REJECTION:

Tenders which do not fulfill all or any of the conditions laid down in this notice, or contain conditions not covered and / or not contemplated by the Conditions of tender document and/or expressly prohibited therein or stipulate additional/alternative conditions shall be liable to be rejected and his earnest money will be forfeited.

Tenders shall also be liable for rejection on any of the following grounds:-

- i) Tenders submitted late
- ii) Tenders containing remarks uncalled for.
- iii) Conditional tenders
- iv) Tenders not submitted on prescribed Performa.
- v) Telegraphic tenders.
- vi) Tender submitted without EMD/Cost of Tender Documents

13. CORRESPONDENCE:

Tenderers must mention their postal address and telephone number(s) of the Chief Executive/authorized agent or attorney in the tender. The tender submitted by the tenderer will be rejected if he or his agent cannot be contacted on the last known address or on the intimated telephone number(s) after reasonable search in which event earnest money may be forfeited by the NABI.

14. NABI NOT TO ASSIGN ANY REASON FOR REJECTION OF TENDER:

Executive Director, NABI hold absolute discretion to accept or reject the lowest or any other tender without assigning any reason. No claim on this account shall be entertained.

15. AMENDMENT IN TENDER DOCUMENTS:

NABI reserves the right to revise or amend the Bid Documents upto the date prior to the date notified for opening of the tenders and also the right to postpone the date of submission and opening of tenders without assigning any reason, whatsoever.

NABI also reserves the right to change the quantities of the units while issuing the letter of award of work.

16. REFERENCE IN TENDER DOCUMENTS:

Executive Director, NABI, shall be referred as "Owner" in all the documents of Tender documents/contract agreement.

17. SCIENTIST INCHARGE

Where ever the word "Scientist Incharge" occurs it shall mean the authorized Scientist appointed by the NABI for the superintendence of the execution of related works.

18. INTEGRITY PACT:

In case of purchases valuing more than Rs. 3 crore, it is mandatory for the supplier(s) to enter into an Integrity Pact with NABI as per the proforma enclosed as '**Annexure –K**', failing which their bid will not be considered.

19. REASONABILITY OF PRICES :

- a) Please quote best minimum prices applicable for a premier Research Institution, **leaving no scope for any further negotiations on prices.**

- b) **The quoting party should give a certificate to the effect that** the quoted prices are the minimum and they have not quoted the same item on lesser rates than those being offered to NABI to any other customer nor they will do so till the validity of offer or execution of the purchase order, whichever is later.
- c) Copies of **at least last three supply orders of the last 3 years** received from other customers along with details of such supply orders preferably in India for the same item/model **may be submitted with the offer** giving reasons of price difference of their supply order & those quoted to us, if any. (As per **Annexure –G**).
- d) The party must give details of identical or similar equipment, if any, supplied to any CSIR lab during last three years along with the final price paid and Performance certificate from them.

18. The offers must contain the following documents :-

(A) Techno-commercial offers must contain:

- i. Manufacturer authorization Form (as per clause 2b) as per **Annexure –‘H’**.
- ii. Certificate by bidder not doing business in India (as per clause 2c)
- iii. Technical literature/ leaflets and complete specifications of quoted model(s) along with commercial terms and conditions.
- iv. Compliance statement of specifications as per **Annexure- ‘B’**
- v. Bid Security/EMD as per **Annexure- ‘E’**
- vi. Integrity Pact- Only in case of bids of more than Rs. 3.00 Crore (as per **Annexure- K**)
- vii. Performance Statement Form (Details of last supply orders) as per **Annexure –‘G’**.

(B) Price Bid offers must contain: (Only in case of two bid system)

- i. Bid price in format enclosed as **Annexure – ‘A’, Annexure- ‘E’ and Annexure- ‘F’** as applicable.
- ii. Certificate of price reasonability (as per clause 19 b)

19. ANNUAL MAINTENANCE CHARGES: The party **must** mention in the quotation, the rate/amount of annual maintenance charges, if we opt for maintenance contract after expiry of the warranty period. This is mandatory to mention.

20. IMPORTANT NOTE

- 1. Vendor should quote entire Project.**
- 2. Vendor should enclose the user list (satisfactory certificate/s of at least 10 installations of similar specifications in India (preferably research institutes like CSIR, DBT etc.)**
- 3. Vendor should have local factory trained engineers to extend the service support.**
- 4. Supply, Installation, Testing & commissioning should be done within four months from the date of Purchase Order.**
- 5. Point to Point Compliance of the Technical specification should be provided with the Technical Bid.**

Tenderers Signature with Seal

Stores & Purchase Officer

GENERAL INFORMATION

- | | | |
|----|---|--|
| 1. | Accepting Authority | Executive Director, NABI, Mohali. |
| 2. | Earnest Money | Rs. 3,50,000/- (Rs. Three Lakhs fifty thousand only) to be furnished with the tender in the form of the demand draft in favour of “ National Agri-Food Biotechnology Institute payable at Mohali.
(No interest is payable on this deposit) |
| 3. | Security Deposit | A sum @ 10% of the gross amount of the bill shall be deducted from each R/Bill of contractor till the sum along with the sum already deposited as earnest money will amount to Security Deposit of 5% of the Tender value of the work. In addition, the contractor shall be required to deposit an amount equal to 5% of the Tender value of the contract as performance security within 10 days from the date of issue of award letter. Performance Security may be deposited as Bank Guarantee of Scheduled Banks and State Bank of India. |
| 4. | Authority competent to grant extension of time | Executive Director, NABI. |
| 5. | Tools & Plants | To be arranged by Tenderer |
| 6. | Authority competent to reduce the Compensation amount | Executive Director, NABI. |
| 7. | Defect Liability/warranty period | 60 months from the date of acceptance of completion by the NABI. |
| 8. | Authority Competent to Appoint Arbitrator | Executive Director, NABI |
| 9. | Release of Security Deposit | The Performance Security shall be refunded to the Contractor on completion of the work and recording of completion certificate by the Scientist Incharge. The balance shall be released after defect liability period. |

Tenderers Signature with Seal

Specific Conditions of Contract

Name of work: Supply, Installation, Testing & Commissioning of Plant Growth Chambers at NABI Campus, New Delhi

1. **Scope of work:** The scope of work generally consist of providing of Plant Growth Chambers as described in the description of work, schedule of equipment and bill of quantities and equipment specifications as described in the contract documents. The contractors shall carryout and complete the said work under the contract in every respect in accordance with this contract documents and under directions and to the entire satisfaction of the Scientist-In-Charge. If any item of the work to be executed is not covered under specification, the same shall be executed as per ISI standard / ISI code of practice as decided by the Scientist-In-Charge.

It is not the intent to specify completely herein all aspect of design and constructional features of equipment and details of work to be carried out, nevertheless, the equipment and work shall confirm in all respect to high standard of engineering, design and workmanship and shall be capable of performing in continuous commercial operation in a manner acceptable to the Scientist-In-Charge, who will interpret the meaning of the specifications and drawings and shall have the right to reject or accept any work or material, which in his assessment is not complete to meet the requirements of the specifications and or applicable code, and standards mentioned elsewhere in the specifications.

2. **Sub-contracting:** The contractor may sub-contract part of the work with the permission of Scientist-In-Charge. However overall responsibility of the contractor for compliance with the contract terms does not alter by Sub-contracting.
3. **Conformity with statutory Acts, Rules, Standards and Codes:** The installation shall be carried out inconformity with DBT guidelines / rules. The installation shall also conform to requirements of Punjab Pollution Control Committee.
4. **Safety codes and regulations:** The contractor shall at his own expenses arrange for the safety provisions as per statutory regulations wherever applicable.
5. **Related documents:** These technical specifications shall be read in congestion with the general conditions of contract as well as schedule. In the event of any discrepancy between these specifications and inter connected contract documents, the technical requirements as per tender specifications shall be followed and deemed to be having over-riding value.
6. **(i) Power supply:**
 - a) Unless otherwise specified 3Ø415V.50HZ power supply (5KW) shall be provided by the department free of charge at one point for installation at site. Termination switchgear shall be provided by the contractor. Further extension if required shall be done by the contractor.
 - b) For equipments, the power supply shall be made available by NABI at the main incomer unit. The termination of their feeder in the main incomer unit shall be the responsibility of the contractor and nothing extra will be paid. Dedicated Earthing bus 2x2Nos. shall be provided with copper strip by NABI.**(ii) Water supply:** Water supply shall be provided free of charge for construction purposes.
7. **Works to be done by the Contractor:** The following works including their cost deemed to be included in their tender cost whether specially indicated in the BOQ or not
 - a) Installation and commissioning charges including material and equipment handling
 - b) Foundations for equipment including foundation bolts & vibration isolation spring / pads
 - c) Brackets & floor / walls supports
 - d) Suspenders and cable tray for laying of cables / pipe
 - e) All building work necessary for installation of equipment such as making openings in the walls / floor / slabs or modifications in the existing opening wherever provided.
 - f) Making good all damages caused to the structure during installation and restoring the same to their original finish
 - g) Water supply pipelines from de-ionized water tank at centralized location inside the building to individual units including providing & installation of Elect. Pumps with relief value of adequate capacity.
 - h) Earthing from the earthing bus to individual equipment
 - i) Power supply feeding individual units on cable tray including cable. Drainpipe from individual unit upto covered drain in the floor.

- j) All other materials including voltage stabilizer (if required) of adequate capacity and specification for each chambers
- k) The connection of individual chamber with control controlled system along with all the related material should be supplied and installed by the contractor.
8. **Information to be supplied by Contractor after award of work:** within a period of 4 weeks from the date of receipt of letter of acceptance, the contractor shall provide the department his program bar chart for submission of preliminary drawings, manufacturing of equipment, installation, testing, commissioning and handing over. This should be co-related with the building completion programme. The contractor shall be required to submit in triplicate the following drawings & information for approval of the department before commissioning the work:
- 1) All general arrangement drawings
 - 2) Details of foundations for equipments, load data, locations etc., of various assembled equipments as may be needed generally by other agencies for purpose of their work.
 - 3) Complete layout dimensions for every unit / group of units with dimensions required for erection purposes.
 - 4) Any other drawing / information not specifically mentioned above but deemed to be necessary for the job by the contractor.
 - 5) List of items to be carried out by the department in accordance with the tender accepted.
9. **Commencement of Work and Completion drawings:** On award of work, the contractor shall within 4 weeks submit 3 sets detailed working drawings, containing details of equipment layout, piping routes & size, Electrical wiring, critical sectional details as required. Any alternatives proposed by the Scientist-In-Charge shall be incorporated and three fresh sets of drawings along with commented drawings shall be resubmitted by the contractor. After final approval 6 sets of approved working drawings (to scale) shall be submitted for the exclusive use of and retention by the Scientist-In-Charge.
10. **Operation & Maintenance manuals:** Prior to completion of the work and handing over the Plant Growth Chambers the contractor shall submit 3 sets of following details:
- i) Comprehensive operation instructions, preventive and routine maintenance schedules
 - ii) Manufacturer's equipment catalogues and operating & maintenance instructions
 - iii) Electrical control diagrams, piping scheme diagrams
 - iv) List of recommended spare parts with spare part codes, specifications & source of procurements.
- Contractor to provide all for testing:** The contractor shall provide and pay for all necessary tools, instruments gadgets and testing equipment required for conducting various tests. Any defects in material and / or in workmanship detected during initial testing shall be rectified by the contractor at his own cost. Initial testing shall be carried out in the presence of Scientist-In-Charge or his representative to his entire satisfaction. The installation shall be commissioned after approval by Scientist-In-Charge.
11. **Virtual completion:** On satisfactory completion of initial testing and commissioning, the installation shall be put to continuous running test for a period of 2 days for the purpose of taking over. Any defect in material and/ or in workmanship detected in the course of testing shall be rectified by the contractor at his own cost to the entire satisfaction of the Scientist-In-Charge. The test shall be repeated after removal of defects. After successful completion of above tests, the chambers shall be taken over.
12. **Guarantee & Defect liability period:** The equipment covered by this contract shall be guaranteed by the contractor against faulty material and workmanship for a period of **36 months** from the date of virtual completion and taking over the installation. Any part found defective shall be replaced free of all costs by the contractor. The contractor shall guarantee that all equipment shall work satisfactorily and that the performance and efficiency of the equipment shall not be less than the specified values. If performance of equipment during guarantee period is not found satisfactory, the guarantee period will be extended till satisfactory performance is established for further period of reasonable time decided by NABI.
- The services of the contractor's personnel if requisitioned during the defect liability period shall be made available free of any cost to NABI. If the defects noticed during the guarantee period are not remedial within a reasonable time and / or some equipment or system as a whole remain out of order for a total period of one month (4 weeks) (Unless or otherwise extended) NABI shall have the right to remedy the defects at the contractor's risk & cost without prejudice to any other rights.
13. **Maintenance:** During the guarantee & defect liability, the contractor shall provide at no extra cost necessary material and personal to carry out the repairs & routine maintenance of chambers. The contractor shall attend to

all problems experienced in the operation of the system within a reasonable time but not more than 48 Hrs. of receiving the complaint and take corrective action immediately.

14. **Training of Personnel at site:** In order to enable NABI's staff to get acquainted with the operation and maintenance of the Chambers, the contractor at no extra cost to NABI shall train the departmental personnel during the period of installation, testing, commission and prior to virtual completion and taking over by NABI.
15. **Storage of materials & safe custody:** Lockable storage space, if available shall be made available to the contractor by NABI. However, the contractor shall be responsible for watch & ward and safe custody of his equipment and installation till they are formally taken over by NABI. Non-availability of lockable storage space due to any reasons shall not relieve the contractor of his contractual obligations in any way.
16. **Completion period:** All works, of supply installation, testing, commissioning and handing over of the Plant Growth Chambers in accordance with this contract shall be completed within the stipulated period or within the extended time as has been allowed by the Scientist-In-Charge.

Tenderers Signature with Seal

TERMS & CONDITIONS OF CONTRACT AGREEMENT

SECURITY DEPOSIT

1. The earnest money amounting of Rs. 3,50,000/- will be treated as security deposit of the successful tenderer.

COMPENSATION CLAUSE

2. The time allowed for carrying out the work as entered in the tender shall be strictly observed by the Tenderer, and shall be reckoned from the **10th day** of the date on which the order to commence the work is given to the Tenderer. The Tenderer shall prepare and submit the details of delivery and installation for the execution of the said work within ten days of award of work for approval of the Scientist Incharge, NABI. The work on the contract shall be executed according to the approved schedule as aforesaid and shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of the contract on the part of the Tenderer) **and the Tenderer shall pay as compensation an amount equal to one percent or such smaller amount as Scientist Incharge, NABI may decide on the value of work as per contract,** for every week that the work remains un-commenced or unfinished after the dates mutually agreed upon by the parties. Further to ensure good progress during the execution of the work, the Tenderer shall be bound in all cases in which the time allowed for any work exceeds one month to complete one fourth of the whole of the work before one fourth of the whole time allowed under the contract has elapsed, one half of work before one half of such time has elapsed and three fourth of the work before three fourth of such time has elapsed. In the event of the Tenderer failing to comply with this condition he shall be liable to pay as compensation an amount equal to one percent or such smaller amount as the Scientist Incharge, NABI, may decide of the value of balance work for everyday that the due quantity of work remains incomplete. Provided always that the entire amount of compensation to be paid under the provisions of this clause shall not exceed ten percent of the awarded cost of work as shown in the tender. The Director, NABI, on a representation from the Tenderer, is however, empowered to reduce the amount of compensation and his decision in writing shall be final.

TIME EXTENSION

3. If the Tenderer shall desire an extension of the time limit for completion of the work on the grounds of his having been unavoidably hindered in its execution or on any other ground he shall apply in writing to the Scientist Incharge, NABI within 10 days of the date of the hindrance on account of which he desires such extensions as aforesaid but before the expiry of time limit and the Scientist Incharge, if in his opinion (which shall be final) reasonable grounds as shown thereof, authorized such extension of time if any, as may, in his opinion be necessary or proper.

COMPLETION OF WORK

4. Without prejudice to the rights of Scientist Incharge under any clause hereinafter contained on completion of the work, the Tenderer shall be furnished with a certificate by the Scientist Incharge or his representative of such completion, but no such certificate shall be given nor shall the work be considered to be complete until the Tenderer shall have removed from the premises on which the work has been executed, all surplus materials and rubbish, and cleaning off the dirt from all doors, walls, floors, or any other parts of buildings said to have been completed, and the measurements in the said certificate shall be binding and conclusive against the Tenderer, if the Tenderer shall fail to comply with the requirements of this clause as to the removal of scaffolding, surplus materials, and rubbish and cleaning off dirt on or before the date fixed for the completion of the work, Scientist Incharge, NABI may at the expense of the Tenderer have removed such scaffolding, surplus materials and rubbish and dispose of the same as he thinks fit and clean off such dirt as aforesaid and the Tenderer shall forth with pay the amount of all expenses so incurred, and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any such sale proceeds actually realized by the sale thereof.

ARBITRATION

5. Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications, designs, drawings and instructions here in before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever, in any arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution or failure to execute the same whether arising during the progress of the work or after the completion or abandonment thereof shall be referred to the sole arbitration of the person selected from out of a panel of names to be supplied upon a request in writing by party invoking the arbitration by the Executive Director, NABI, at the time of the dispute. It will be no objection to any such appointment that the arbitrator so appointed was associated with

the work and that he had to deal with the matters to which the contract relates and that in the course of his duties in association with the Scientist Incharge, NABI, he had expressed views on all or any of the matters in dispute or difference. The arbitrator to whom the matter is originally referred being unable to act for any reason, the Executive Director shall appoint another person to act as arbitrator in accordance with the terms of the contract. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. It is also a term of this contract that no person other than a person appointed by the Executive Director as aforesaid shall act as arbitrator. In all cases where the amount of the claim in dispute is Rs.50000/- (Rs. Fifty thousand only) or above, the arbitrator shall give reasons for the award.

Subject as aforesaid the provisions of Arbitration and Cancellation Act 1996 or any statutory modifications or reenactment thereof and the rules framed there under and for the time being in force shall apply to the arbitration proceeding under this clause.

It is also a term of the contract that while invoking arbitration the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.

It is also a term of the contract that if a party does not make any demand for arbitration in respect of any claim(s) in writing within 90 days of receiving the intimation from the Scientist Incharge that the bill is ready for payment, the claim if any, shall be deemed to have been waived and absolutely barred and the owner shall be discharged and released of all liabilities under the contract in respect of these claims.

CARRYING OUT OF WORK

6. All the work shall be carried out strictly and in accordance with the specifications given in the tender to the total satisfaction of the Scientist incharge. In the case of an item for which specification are not available in the said specifications relevant BIS specifications applicable as on the date of tenders shall be followed.

INSPECTION OF WORK

7. All work under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of Scientist Incharge, NABI or his subordinate in-charge of the work and the Tenderer shall at all times, during the usual working hours and at all other times at which reasonable notice of the intention of the Scientist Incharge to visit the works shall have been given to the Tenderer, either himself be present to receive order and instructions or have a responsible agent duly accredited in writing present for that purpose. Orders given to the Tenderer's agent shall be considered to have the same force as if they had been given to the Tenderer himself.

INSURANCE

8. The following insurance cover is to be provided by the Tenderer in the joint names of the employer and the Tenderer for the period from the start date till completion of entire work.
 - a) Cover against damage to other people's property caused by the Tenderer's acts or omission;
 - 1) Cover against death or injury caused by the Tenderer's acts or omission to:
 - i) Anyone authorized to be on the site;
 - ii) Third parties who are not on the site;
9. No Escalation in rates shall be paid.
10. Tenderer Superintendence, Supervision, Technical Staff & Employees.
The Tenderer shall provide all necessary superintendence during execution of the work and as along thereafter as may be necessary for proper fulfilling of the obligations under the contract.
11. The tenderer must visit the site at NABI, C-127, Industrial Area, Phase VIII, Mohali before quoting the rates.
12. Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the Tenderers who resort to canvassing will be liable to rejection.
13. The rates quoted for foreign equipments shall be CIF Mohali/FOR NABI.
14. The rates for Local equipments shall be inclusive of VAT, Service Tax, other taxes, octroi, etc., and nothing extra will be paid.
15. No T&P will be issued by the department.

16. The final payment shall be made only after completion of the work subject to certification by Scientist –in- Charge.
17. The site of work is at NABI, C-127, Industrial Area, Phase VIII, Mohali
18. The Technical specifications of the equipments required are detailed at page **19-31** of this Tender Document.
19. Installation, Testing & Commissioning of the supplied equipments will be done at our site by the bidder in the presence of Scientist -in-Charge of our Institute.

Tenderers Signature with Seal

SPECIAL TERMS AND CONDITIONS OF CONTRACT

1. TENDERER TO BE LIABLE FOR ALL TAXES ETC.

The rates specified in the tender shall be CIF Mohali/ FOR NABI and inclusive of VAT, or any taxes, duties and other charges etc., in respect of the contract and the rates shall be firm irrespective of any variation in the prevailing rates of taxes, levies, octroi, etc., and any fresh imposition of any of these by State/Central/Statutory bodies. The contractor shall indemnify the Director against levy of any taxes, etc., in regard to this contract and in the event of the Director being assessed for any of the said imports, Director shall have the right to recover the total amount so assessed from the contractor's dues and the contractor shall also be responsible for all costs or expenses that may be incurred by Director in connection with any proceedings or limitation in respect of the same.

2. FORCE MAJEURE:

The right of the Tenderer to proceed with the work shall not be terminated because of any delay in the completion of the work due to unforeseeable causes beyond the control and without the fault or negligence of the Tenderer, including not limited to acts of God, or of the public enemy, restraints of a sovereign state, firms, floods, unusually severe weather.

3. JURISDICTION:

Notwithstanding any other courts having jurisdiction to decide the questions forming subject matter of a suit any and all actions and proceedings arising out of or relative to this contract (including any arbitration in terms thereof) shall lie only in the court of competent Civil jurisdiction in this behalf at Chandigarh, where this contract is to be signed on behalf of Executive Director, NABI and only the said court shall have jurisdiction to try any such actions and/or proceedings to the exclusion of all other courts.

4. SCOPE OF WORK:

The scope of work is as per enclosed details. The Tenderer should note that during the preparation of detailed working drawings, according to which the Tenderer has to execute the work covered under this contract, may undergo changes. The scope drawings for the entire work are not enclosed, but only a few indicating the probable nature of construction are attached. The scope of work is thus not limited only to the details.

5. Scientist Incharge Role:

The Scientist Incharge shall carry out general supervision and direction of the work. He has authority to stop the work. Whenever he considering such stoppage necessary to ensure the proper execution of the work. He shall also have authority to inspect and reject all work and materials, which do not conform to the specifications and to direct the application of Tenderer's forces to any portion of the work, as in his judgment is required, and to order the said force increased or diminished and to decide questions which arise in the execution of the work.

The Scientist Incharge shall have the right to suspend the work or part thereof at any time and no claim whatsoever on this account shall be entertained. In case of any clarification the Tenderer may appeal to the Director, NABI whose decision shall be final and binding on the Tenderer. The above inspection shall, however, not relieve the Tenderer of his responsibilities in regards to defective materials or workmanship and the necessity for rectifying or replacing the same.

6. TENDERER'S RESPONSIBILITY FOR THE MANNER OF EXECUTION OF WORKS

The Tenderer shall be solely responsible for the manner and the method of executing the work. The work shall be subject to the approval of Scientist Incharge from time to time for purposes of determination of the question whether the work is executed by the Tenderer in accordance with the contract.

7. SUBMISSION OF BILLS:

Tenderer is to submit the bills in triplicate along with delivery challans to the Scientist Incharge for works executed by him. Payment will be released on completion of entire work subject to certification by the Scientist Incharge.

8. ACTION AND COMPENSATION PAYABLE IN CASE OF BAD WORK:

If it shall appear to Scientist Incharge, NABI or his representatives, that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of any inferior description or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to the contracted for, or otherwise not in accordance with the contract specifications the Tenderer shall on demand in writing from the Scientist Incharge specifying the work materials, articles complained or not with-standing that the same have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct the work so specified in whole or in part as the case may require, or as the case, remove the materials or articles so specified and provide other and suitable materials or articles so specified at his own cost and in the event of his failing to do so within a period to be specified by the Scientist Incharge in his demand aforesaid, then the Tenderer shall be liable to pay compensation at the rate of one percent on the amount of the estimate for every day not exceeding ten days while his failure to do so that continue and in the case of any such failure Scientist Incharge, NABI may rectify or remove, and re-execute the work or remove and replace with other materials or articles complained of, as the case may be at risk and expenses in all respects of the Tenderer.

- 9.** It shall always prevail, unless otherwise specifically stated, that the entire provisions of Tender document been opened upon and accepted for compliance by the Tenderer without any reservation.

10. Exemption of Customs Duty and Excise Duty

NABI is exempted from payment of Custom Duty and Excise Duty for supply of equipments etc. vide Govt. of India Notification No. 51/96 dt. 23/07/1996. Since the Customs Duty/ Excise Duty and clearance charges will be borne by the Institute, Bidders are requested to quote their rates accordingly. **However it will be the responsibility of the Contractor to shift the equipment (including RAC) to site of work including opening of crates, transportation, loading and unloading. Nothing extra will be paid on any account.**

11. Terms of payment

- a) Imported Equipments: 100% of the equipments value against irrevocable LC on receipt of order acknowledgement from Principles of supplier or telegraphic transfer after completion of work. All banking Charges outside India will have to be borne by the supplier.
- b) Installation and commissioning – 75% against delivery of material at site and balance within 10 days of satisfactory testing and commissioning.

- 12. The supplier will provide detail layout of the location of the chambers, copper and water piping.**

- 13. Water draining coming out from the plant growth chamber should be treated for Bio-safety. Draining will be provided by the supplier.**

Tenderers Signature with Seal

MODIFIED TECHNICAL SPECIFICATIONS AFTER PRE-BID MEETING

Technical Specification

Item No. 1 Plant Growth Chamber (Reach-in)

Quantity of Unit – 1

A) CONSTRUCTION:

- 1) **Interior Dimension:** Not less than 1800mm Width X 800mm Depth X 1600mm Height
- 2) **Floor:** Uniform upward airflow with perforated aluminum channel floor.
- 3) **Growth Area:** Not less than - 1.3 Sq. Meter \pm 2.5%
- 4) **Growth Capacity:** Not less than 1968 lts.
- 5) **Growth Height:** Not less than 1500 mm minimum from Unifloor to Lightright in the up position.
- 6) **Cabinet:** Woodless with CFC-free insulation.
- 7) **Interior Finish:** Reflective white enameled smooth surface.
- 8) **Condensing unit:** Easy access to compressor and refrigeration component.
- 9) **Doors:** Two reach-in doors with magnetic lock of min. 725mmW X 1350mmH.
- 10) **Observing Window:** Dual pane with tight cover 250mmX350mm Approx.
- 11) **Instrument Ports:** Minimum Two ports of at least 25mm diameter with light tight caps for probe insertion

B) LOCAL CONTROL SYSTEM:

- 1) **User Interface Screen:** All functions to be performing by touching the back-lit high resolution Minimum 10 inch Colour VGA Liquid Crystal Display. Display of actual & set point conditions for all control parameters. Continuous on-screen-graphical display of the 24 hours of Chamber performance and also next 8 hrs of Chamber set point program. System should have easy entry and correction of user program. Up to 8 closed loop parameters and 16 open channels for programming.
- 2) **Data logging and Graphical Display:** All controlled parameters to be recorded log of actual result. Graphing of set point and actual performance and historical data.
- 3) **Multiday Programming:** Daily program linking facility to simulate weekly or monthly conditions.
- 4) **Security:** Multi-level password protection.
- 5) **Trouble shooting:** On screen HELP, On board diagnostic screen, Service life of components etc.
- 6) **Program Start-up Delay:** Chamber can be performed with varying restart times to reduce start up load.
- 7) Virtual control software for desktop monitoring
- 8) All the units will be connected to a central control system (wiring and gadgets included) and can be controlled from that.

Virtual Chamber Software:

- 1) To work on networked Windows XP Pro computer
- 2) To facilitate user to communicate directly with the local control system
- 3) Same programming facilities as local control system
- 4) Access able via. Internet from anywhere
- 5) On line service diagnostic by service personal

C) LIGHTING:

- 1) **Intensity:** Minimum 1200 micromoles /m sq./s ,
- 2) **Programming and control:** Close loop dimmable system. (LMMCL) programming to set up day/night programming.
- 3) **Lamps:** Balanced spectrum for plant growth using fluorescent and incandescent lights.(No metal Halide)
- 4) **Light Meter:** Quantum light meter for display and recording of light output.

Note : light canopy should be adjustable form Upward to downward depending on crop height.

D) TEMPERATURE CONTROL

- 1) Temperature Range: +4°C to + 45°C lights OFF, +10°C to +45°C lights ON (Full fresh air)
- 2) Temperature Control: +/- 0.5°C at control point.
- 3) **Temperature Safety Limits:**
 - a) Programmable High and Low temperature limits tracking alarm, automatically following programmed set point.
 - b) Independent, high and low temperature limits for secondary safety.
 - c) Audible alarm for both safety devices and automatic Chamber power off on reaching limits.
- 4) **Vertically adjustable sensing device** in the growth area to sample Chamber area of accurate temperature and humidity control and recording to avoid measurement error by lamp radiation.

E) REFRIGERATION

- 2) **Air-cooled condenser (outdoor Unit only):** capable of trouble free working at temperature +48°C.

- 3) **Evaporator:** Copper – tubed construction.
- 4) **Refrigerant:** CFC-free refrigerant.
- 5) **Circulation:** Electromagnetically controlled valve-based circulation of air for smooth modulation of heating and cooling.

F) AIR FLOW

- 1) **Vertical:** Uniformly upward through unifloor less than 15.2m/min. Vertical through entire growth area, filtered fresh air, adjustable input and exhaust.
- 2) Fresh air exchange approx. 20% of growth volume per minute or more.
- 3) Fresh Air: Individual sealed inlet and outlet from open.

Note : Steam generation humidity system not acceptable.

G) HUMIDITY CONTROL

- 1) **Range :** Up to 90% RH lights OFF and 85% Light ON,
- 2) **Additive humidity** through use of spray nozzles.
- 3) **Control:** +/- 5% RH.
- 4) **System :** Should have a dry sensor to direct measure humidity in % RH
- 5) PVC connection for de-ionized water supply from a single point source

H) ELECTRICAL

1. Chamber to be compatible with 415 Volt $\pm 10\%$, 3-Phase- 50 Hz-A.C. supply Neutral and Ground. (60 Hz systems will Are not acceptable)
2. Suitable Indian make Voltage Stabilizer
3. Energy saving system
4. Warranty 5 years including spares.

Item No. 2 Plant Growth Chamber (Reach-in with additional 3 independent shelves)
Quantity of Unit – 1

A) CONSTRUCTION:

- 1) **Interior Dimension:** Not less than 2455 mm Width X 770mm Depth
- 2) Exterior Height should not be more than 2570mm
- 3) **Floor:** Uniform upward airflow with perforated aluminum channel floor.
- 4) **Growth Area:** Not less than 1.9 Sq. Meter \pm 2.5%
- 5) **Growth Height:** 1500 mm minimum from Unifloor to Lightright in the up position.
- 6) **Cabinet:** Woodless with CFC-free insulation.
- 7) **Interior Finish:** Reflective white enameled smooth surface.
- 8) **Condensing unit:** Easy access to compressor and refrigeration component.
- 9) **Doors:** Two reach-in doors with magnetic lock of min.725mmW X 1350mmH.
- 10) **Observing Window:** Dual pane with tight cover 250mmX350mm Approx.
- 11) **Instrument Ports:** Minimum Two ports of at least 25mm diameter with light tight caps for probe insertion
- 12) This chamber should have additional 3 independent canopy (shelves) with light canopy with growth height of 609mm. Please quote this as an optional item, (Light level should be 500 micromoles/m²/s.in
In 3 independent canopy (shelves).
- 13) Note: This independent canopy should be removable when not in use. Airflow should change from vertical to horizontal with the removal canopy.

B) LOCAL CONTROL SYSTEM:

- 1) **User Interface Screen:** All functions to be performing by touching the back-lit high resolution Minimum 10 inch Colour VGA Liquid Crystal Display. Display of actual & set point conditions for all control parameters. Continuous on-screen-graphical display of the 24 hours of Chamber performance and also next 8 hrs of Chamber set point program. System should have easy entry and correction of user program. Up to 8 closed loop parameters and 16 open channels for programming.
- 2) **Data logging and Graphical Display:** All controlled parameters to be recorded log of actual result. Graphing of set point and actual performance and historical data.
- 3) **Multiday Programming:** Daily program linking facility to simulate weekly or monthly conditions.
- 4) **Security:** Multi-level password protection.
- 5) **Trouble shooting:** On screen HELP, On board diagnostic screen, Service life of components etc.
- 6) **Program Start-up Delay:** Chamber can be performed with varying restart times to reduce start up load.
- 7) Virtual control software for desktop monitoring
- 8) All the units will be connected to a central control system (wiring and gadgets included) and can be controlled from that.

Virtual Chamber Software:

- 1) To work on networked Windows XP Pro computer
- 2) To facilitate user to communicate directly with the local control system
- 3) Same programming facilities as local control system
- 4) Access able via. Internet from anywhere
- 5) On line service diagnostic by service personal

C) LIGHTING:

- 1) **Intensity:** Minimum 1600 micromoles /m sq./s ,
- 2) **Programming and control:** Independent level programming to set up day/night programming.
- 3) **Light Meter:** Quantum light meter for display and recording of light output.

D) TEMPRATURE CONTROL

- 5) Temperature Range: +4°C to + 45°C lights OFF, +10°C to +45°C lights ON (Full fresh air)
- 6) Temperature Control: \pm 0.5°C at control point.
- 7) **Temperature Safety Limits:**
 - a) Programmable High and Low temperature limits tracking alarm, automatically following programmed set point.
 - b) Independent, high and low temperature limits for secondary safety.
 - c) Audible alarm for both safety devices and automatic Chamber power off on reaching limits.
- 8) **Vertically adjustable sensing device** in the growth area to sample Chamber area of accurate temperature and humidity control and recording to avoid measurement error by lamp radiation.

E) REFRIGERATION

- 6) **Air-cooled condenser (outdoor Unit only):** capable of trouble free working at temperature +48°C.
- 7) **Evaporator:** Copper – tubed construction.
- 8) **Refrigerant:** CFC-free refrigerant.
- 9) **Circulation:** Electromagnetically controlled valve-based circulation of air for smooth modulation of heating and cooling.

F) AIR FLOW

- 4) **Vertical:** Uniformly upward through unifloor less than 15.2m/min. Vertical through entire growth area, filtered fresh air, adjustable input and exhaust.
- 5) Fresh air exchange approx. 20% of growth volume per minute or more.
- 6) Fresh Air: Individual sealed inlet and outlet from open.

G) HUMIDITY CONTROL

- 6) **Range :** Up to 90% RH lights OFF and 85% Light ON,
- 7) **Additive humidity** through use of spray nozzles.
- 8) **Control:** +/- 5% RH.
- 9) **System :** Should have a dry sensor to direct measure humidity in % RH
- 10) PVC connection for de-ionized water supply from a single point source

Note : Steam generation humidity system not acceptable.

H) Carbon dioxide additive control only for two units with high intensity lights (0-3000 ppm)

Consisting of:

- 1. Gas analyzer
- 2. Control valve
- 3. Injection system

I) ELECTRICAL

- 1. Chamber to be compatible with 415 Volt $\pm 10\%$, 3-Phase- 50 Hz-A.C. supply Neutral and Ground. (60 Hz systems will Are not acceptable)
- 2. Suitable Indian make Voltage Stabilizer
- 3. Energy saving system
- 4. Warranty: 5 years including spares.

Technical Specification

Item No. 3 Plant Growth Chamber (Walk-in)

Quantity of Unit – 1

A) CONSTRUCTION:

- 1) Interior Floor Area: Minimum 3.3 Sq. Meter (Width 2.5Mt and Depth 1.4 Mt ,)
- 2) Growth Height: Minimum 2040mm from floor to light source, (Please quote for additional growth height as optional Or make provision for additional growth height facility if require in future)
- 5) **Floor:** Perforated aluminum channel for uniform upward air flow
- 6) Cabinet insulation: CFC-free glass wool fiber
- 7) Exterior Finish: Enamel baked on patterned aluminum
- 8) Interior finish: Reflective white enamel baked on smooth aluminum
- 9) Door: Minimum four (4Nos) reach -in doors with light tight gasket and magnetic lock, size approx. 750 x 1900mm
- 10) Instrument Ports: Minimum Two ports, minimum 25mm diameter with light tight cap for insertion of probes.

B) LOCAL CONTROL SYSTEM:

- 1) **User Interface Screen:** All functions to be performing by touching the back-lit high resolution Minimum 10 inch Colour VGA Liquid Crystal Display. Display of actual & set point conditions for all control parameters. Continuous on-screen-graphical display of the 24 hours of Chamber performance and also next 8 hrs of Chamber set point program. System should have easy entry and correction of user program. Up to 8 closed loop parameters and 16 open channels for programming.
- 2) **Data logging and Graphical Display:** All controlled parameters to be recorded log of actual result. Graphing of set point and actual performance and historical data.
- 3) **Multiday Programming:** Daily program linking facility to simulate weekly or monthly conditions.
- 4) **Security:** Multi-level password protection.
- 5) **Trouble shooting:** On screen HELP, On board diagnostic screen, Service life of components etc.
- 6) **Program Start-up Delay:** Chamber can be performed with varying restart times to reduce start up load.
- 7) Virtual control software for desktop monitoring
- 8) All the units will be connected to a central control system (wiring and gadgets included) and can be controlled from that.

Virtual Chamber Software:

- 1) To work on networked Windows XP Pro computer
- 2) To facilitate user to communicate directly with the local control system
- 3) Same programming facilities as local control system
- 4) Access able via. Internet from anywhere
- 5) On line service diagnostic by service personal

C) LIGHTING:

- 1) **Intensity:** Minimum 1200 micromoles /m sq./s
- 2) **Programming and control:** Close loop dimmable system. (LMMCL) programming to set up day/night programming.
- 6) **Lamps:** Balanced spectrum for plant growth using fluorescent and incandescent lights (No metal Halide)
- 4) **Light Meter:** Quantum light meter for display and recording of light output.

Note : light canopy should be adjustable form Upward to downward depending on crop height.

D) TEMPERATURE CONTROL

- 1) Temperature Range: +4°C to + 45°C lights OFF, +10°C to +45°C lights ON (Full fresh air)
- 2) Temperature Control: +/- 0.5°C at control point.
- 3) **Temperature Safety Limits:**
 - a) Programmable High and Low temperature limits tracking alarm, automatically following programmed set point.
 - b) Independent, high and low temperature limits for secondary safety.
 - c) Audible alarm for both safety devices and automatic Chamber power off on reaching limits.
- 7) **Vertically adjustable sensing device** in the growth area to sample Chamber area of accurate temperature and humidity control and recording to avoid measurement error by lamp radiation.

E) REFRIGERATION

- 1) **Air-cooled condenser (outdoor)door unit only:** capable of trouble free working at temperature +48°C.
- 2) **Evaporator:** Copper – tubed construction.
- 3) **Refrigerant:** CFC-free refrigerant.
- 4) **Circulation:** Electromagnetically controlled valve-based circulation of air for smooth modulation of heating and cooling.

F) AIR FLOW

- 1) **Vertical:** Uniformly upward through unifloor less than 15.2m/min. Vertical through entire growth area, filtered fresh air, adjustable input and exhaust.
- 2) Fresh air exchange approx. 20% of growth volume per minute or more.
- 3) Fresh Air: Individual sealed inlet and outlet from open.

G) HUMIDITY CONTROL

- 1) **Range :** Up to 90% RH lights OFF and 85% Light ON,
- 2) **Additive humidity** through use of spray nozzles.
- 3) **Control:** +/- 5% RH.
- 4) **System :** Should have a dry sensor to direct measure humidity in % RH
- 5) PVC connection for de-ionized water supply from a single point source

Note: Steam generation humidity system not acceptable.

H) ELECTRICAL

1. Chamber to be compatible with 415 Volt $\pm 10\%$, 3-Phase- 50 Hz-A.C. supply Neutral and Ground. (60 Hz systems will not be acceptable)
2. Suitable Indian make Voltage Stabilizer
3. Energy saving system
4. Warranty: 5 years including spares.

Technical Specification

Item No. 4 Plant Growth Chamber (Walk-in with Carbon dioxide additive control) **Quantity of Unit – 01**

A) CONSTRUCTION:

- 1) Interior Floor Conditioned Area: 2360mmW x 4790mmD x 2410mmH
- 2) **Growth Area:** Minimum 11.3 Sq.Meter \pm 2.5%
- 3) **Growth Height:** Minimum 2415mm from floor to light source
- 4) **Floor:** Perforated aluminum channel for uniform upward air flow
- 5) Sub floor: Stainless steel panel with floor drain
- 6) Cabinet insulation: CFC-free glass wool fiber
- 7) Exterior Finish: Enamel baked on patterned aluminum
- 8) Interior finish: Reflective white enamel baked on smooth aluminum
- 9) Door: Minimum one walk in door with light tight gasket and magnetic lock, size approx. 800 x 2000mm
- 10) Observation Window: Dual pane with minimum size of 350mm x 350mm
- 11) Instrument Ports: Minimum Two ports, minimum 25mm diameter with light tight cap for insertion of probes.

B) LOCAL CONTROL SYSTEM:

- 1) **User Interface Screen:** All functions to be performing by touching the back-lit high resolution Minimum 10 inch Colour VGA Liquid Crystal Display. Display of actual & set point conditions for all control parameters. Continuous on-screen-graphical display of the 24 hours of Chamber performance and also next 8 hrs of Chamber set point program. System should have easy entry and correction of user program. Up to 8 closed loop parameters and 16 open channels for programming.
- 2) **Data logging and Graphical Display:** All controlled parameters to be recorded log of actual result. Graphing of set point and actual performance and historical data.
- 3) **Multiday Programming:** Daily program linking facility to simulate weekly or monthly conditions.
- 4) **Security:** Multi-level password protection.
- 5) **Trouble shooting:** On screen HELP, On board diagnostic screen, Service life of components etc.
- 6) **Program Start-up Delay:** Chamber can be performed with varying restart times to reduce start up load.
- 7) Virtual control software for desktop monitoring
- 8) All the units will be connected to a central control system (wiring and gadgets included) and can be controlled from that.

Virtual Chamber Software:

- 1) To work on networked Windows XP Pro computer
- 2) To facilitate user to communicate directly with the local control system
- 3) Same programming facilities as local control system
- 4) Access able via. Internet from anywhere
- 5) On line service diagnostic by service personal

C) LIGHTING:

- 1) **Intensity:** Minimum 1600 micromoles /m sq./s
- 2) **Programming and control:** Independent, 3 level programming of each lamp type.
- 3) Lamps: Balanced spectrum for plant growth using metal halide and tungsten incandescent lamps.
- 4) Light Meter: Quantum light meter for display and recording of light output.

D) TEMPERATURE CONTROL

- 1) Temperature Range: +4°C to +45°C lights OFF, +10°C to +45°C lights ON (Full fresh air)
- 2) Temperature Control: \pm 0.5°C at control point.
- 3) **Temperature Safety Limits:**
 - a) Programmable High and Low temperature limits tracking alarm, automatically following programmed set point.
 - b) Independent, high and low temperature limits for secondary safety.
 - c) Audible alarm for both safety devices and automatic Chamber power off on reaching limits.

Vertically adjustable sensing device in the growth area to sample Chamber area of accurate temperature and humidity control and recording to avoid measurement error by lamp radiation.

E) REFRIGERATION

- 1) **Air-cooled condenser (outdoor unit only):** capable of trouble free working at temperature +48°C.
- 2) **Evaporator:** Copper – tubed construction.
- 3) **Refrigerant:** CFC-free refrigerant.
- 4) **Circulation:** Electromagnetically controlled valve-based circulation of air for smooth modulation of heating and cooling.

F) AIR FLOW

- 1) Vertical: Downward
- 2) Fresh air exchange approx. 20% of growth volume per minute or more.
- 3) Fresh Air: Individual sealed inlet and outlet from open.

G) HUMIDITY CONTROL

- 1) **Range** : Up to 90% RH lights OFF and 85% Light ON,
- 2) **Additive humidity** through use of spray nozzles.
- 3) **Control**: +/- 5% RH.
- 4) **System** : Should have a dry sensor to direct measure humidity in % RH
- 5) PVC connection for de-ionized water supply from a single point source

H) Carbon dioxide additive control (0-3000 ppm)

Consisting of:

1. Gas analyzer
2. Control valve
3. Injection system

I) ELECTRICAL

- 1) Chamber to be compatible with 415 Volt $\pm 10\%$, 3-Phase- 50 Hz-A.C. supply Neutral and Ground. (60 Hz systems will not be acceptable)
2. Suitable Indian make Voltage Stabilizer
3. Energy saving system
4. Warranty 5 years including spares.

Technical Specification

Item No. 5 Arabidopsis Growth Chamber

Quantity of Unit – 01

A) CONSTRUCTION:

- 1) **Interior Dimension:** Not less than 2460mmW x 770mmD . Exterior should not be more than 2950 mm
- 2) **Floor:** Uniform upward airflow with perforated aluminum channel floor.
- 3) **Growth Area:** Minimum 57ft² on three (3Nos)shelves \pm 2.5%
- 4) **Growth Height:** Minimum 545mm per shelf leaving light source
- 5) **Cabinet:** Woodless with CFC-free insulation.
- 6) **Interior Finish:** Reflective white enameled smooth surface.
- 7) **Condensing unit:** Easy access to compressor and refrigeration component.
- 8) **Doors:** Two reach-in doors with magnetic lock .
- 10) **Observing Window:** Dual pane with tight cover 250mmX350mm Approx.
- 11) **Instrument Ports:** Minimum Two ports of at least 25mm diameter with light tight caps for probe insertion
- 12) **Control Panel:** Center mounted.

B) LOCAL CONTROL SYSTEM:

- 1) **User Interface Screen:** All functions to be performing by touching the back-lit high resolution Minimum 10 inch Colour VGA Liquid Crystal Display. Display of actual & set point conditions for all control parameters. Continuous on-screen-graphical display of the 24 hours of Chamber performance and also next 8 hrs of Chamber set point program. System should have easy entry and correction of user program. Up to 8 closed loop parameters and 16 open channels for programming.
- 2) **Data logging and Graphical Display:** All controlled parameters to be recorded log of actual result. Graphing of set point and actual performance and historical data.
- 3) **Multiday Programming:** Daily program linking facility to simulate weekly or monthly conditions.
- 4) **Security:** Multi-level password protection.
- 5) **Trouble shooting:** On screen HELP, On board diagnostic screen, Service life of components etc.
- 6) **Program Start-up Delay:** Chamber can be performed with varying restart times to reduce start up load.
- 7) Virtual control software for desktop monitoring
- 8) All the units will be connected to a central control system (wiring and gadgets included) and can be controlled from that.

Virtual Chamber Software:

- 1) To work on networked Windows XP Pro computer
- 2) To facilitate user to communicate directly with the local control system
- 3) Same programming facilities as local control system
- 4) Access able via. Internet from anywhere
- 5) On line service diagnostic by service personal

C) LIGHTING:

- 1) **Intensity:** Minimum 500 micromoles /m sq./s ,
- 2) **Programming and control:** Close loop dimmable system. (LMMCL) programming to set up day/night programming.
- 3) **Lamps:** Balanced spectrum for plant growth using fluorescent and incandescent lights.(No metal Halide)
- 4) **Light Meter:** Quantum light meter for display and recording of light output.

D) TEMPRATURE CONTROL

- 1) Temperature Range: +4°C to + 45°C lights OFF, +10°C to +45°C lights ON (Full fresh air)
- 2) Temperature Control: +/- 0.5°C at control point.
- 3) **Temperature Safety Limits:**
 - a) Programmable High and Low temperature limits tracking alarm, automatically following programmed set point.
 - b) Independent, high and low temperature limits for secondary safety.
 - c) Audible alarm for both safety devices and automatic Chamber power off on reaching limits.
- 4) **Vertically adjustable sensing device** in the growth area to sample Chamber area of accurate temperature and humidity control and recording to avoid measurement error by lamp radiation.

E) REFRIGERATION

- 1) **Air-cooled condenser (outdoor Unit only):** capable of trouble free working at temperature +48°C.
- 2) **Evaporator:** Copper – tubed construction.
- 3) **Refrigerant:** CFC-free refrigerant.
- 4) **Circulation:** Electromagnetically controlled valve-based circulation of air for smooth modulation of heating and cooling.

F) AIR FLOW

- 1) **Vertical:** Conditioned air should be directed to growth areas horizontally via a rear wall plenum.
- 2) Fresh air exchange approx. 20% of growth volume per minute or more.
- 3) Fresh Air: Individual sealed inlet and outlet from open.

G) HUMIDITY CONTROL

- 1) **Range :** Up to 90% RH lights OFF and 85% Light ON,
- 2) **Additive humidity** through use of spray nozzles.
- 3) **Control:** +/- 5% RH.
- 4) **System :** Should have a dry sensor to direct measure humidity in % RH
- 5) PVC connection for de-ionized water supply from a single point source

Note : Steam generation humidity system not acceptable.

H) ELECTRICAL

1. Chamber to be compatible with 415 Volt $\pm 10\%$, 3-Phase- 50 Hz-A.C. supply Neutral and Ground. (60 Hz systems will Are not acceptable)
2. Suitable Indian make Voltage Stabilizer
3. Energy saving system
4. Warranty: 5 years including spares.

Technical Specification

Item No. 6 Arabidopsis Growth Chamber (With Carbon di-oxide additive control)

Quantity of Unit – 01

A) CONSTRUCTION:

- 1) **Interior Dimension:** Not less than 2460mmW x 770mmD . Exterior should not be more than 2950 mm
- 2) **Floor:** Uniform upward airflow with perforated aluminum channel floor.
- 3) **Growth Area:** Minimum 57ft² on three (3Nos)shelves \pm 2.5%
- 4) **Growth Height:** Minimum 545mm per shelf leaving light source
- 5) **Cabinet:** Woodless with CFC-free insulation.
- 6) **Interior Finish:** Reflective white enameled smooth surface.
- 7) **Condensing unit:** Easy access to compressor and refrigeration component.
- 8) **Doors:** Two reach-in doors with magnetic lock .
- 10) **Observing Window:** Dual pane with tight cover 250mmX350mm Approx.
- 13) **Instrument Ports:** Minimum Two ports of at least 25mm diameter with light tight caps for probe insertion
- 14) **Control Panel:** Center mounted.

B) LOCAL CONTROL SYSTEM:

- 1) **User Interface Screen:** All functions to be performing by touching the back-lit high resolution Minimum 10 inch Colour VGA Liquid Crystal Display. Display of actual & set point conditions for all control parameters. Continuous on-screen-graphical display of the 24 hours of Chamber performance and also next 8 hrs of Chamber set point program. System should have easy entry and correction of user program. Up to 8 closed loop parameters and 16 open channels for programming.
- 2) **Data logging and Graphical Display:** All controlled parameters to be recorded log of actual result. Graphing of set point and actual performance and historical data.
- 3) **Multiday Programming:** Daily program linking facility to simulate weekly or monthly conditions.
- 4) **Security:** Multi-level password protection.
- 5) **Trouble shooting:** On screen HELP, On board diagnostic screen, Service life of components etc.
- 6) **Program Start-up Delay:** Chamber can be performed with varying restart times to reduce start up load.
- 7) Virtual control software for desktop monitoring
- 8) All the units will be connected to a central control system (wiring and gadgets included) and can be controlled from that.

Virtual Chamber Software:

- 1) To work on networked Windows XP Pro computer
- 2) To facilitate user to communicate directly with the local control system
- 3) Same programming facilities as local control system
- 4) Access able via. Internet from anywhere
- 5) On line service diagnostic by service personal

C) LIGHTING:

- 5) **Intensity:** Minimum 500 micromoles /m sq./s ,
- 6) **Programming and control:** Close loop dimmable system. (LMMCL) programming to set up day/night programming.
- 7) **Lamps:** Balanced spectrum for plant growth using fluorescent and incandescent lights.(No metal Halide)
- 8) **Light Meter:** Quantum light meter for display and recording of light output.

D) TEMPRATURE CONTROL

- 5) Temperature Range: +4°C to + 45°C lights OFF, +10°C to +45°C lights ON (Full fresh air)
- 6) Temperature Control: +/- 0.5°C at control point.
- 7) **Temperature Safety Limits:**
 - a) Programmable High and Low temperature limits tracking alarm, automatically following programmed set point.
 - b) Independent, high and low temperature limits for secondary safety.
 - c) Audible alarm for both safety devices and automatic Chamber power off on reaching limits.
- 8) **Vertically adjustable sensing device** in the growth area to sample Chamber area of accurate temperature and humidity control and recording to avoid measurement error by lamp radiation.

E) REFRIGERATION

- 5) **Air-cooled condenser (outdoor Unit only):** capable of trouble free working at temperature +48°C.
- 6) **Evaporator:** Copper – tubed construction.
- 7) **Refrigerant:** CFC-free refrigerant.
- 8) **Circulation:** Electromagnetically controlled valve-based circulation of air for smooth modulation of heating and cooling.

F) AIR FLOW

- 1) **Vertical:** Conditioned air should be directed to growth areas horizontally via a rear wall plenum.
- 2) Fresh air exchange approx. 20% of growth volume per minute or more.
- 3) Fresh Air: Individual sealed inlet and outlet from open.

G) HUMIDITY CONTROL

- 1) **Range :** Up to 90% RH lights OFF and 85% Light ON,
- 2) **Additive humidity** through use of spray nozzles.
- 3) **Control:** +/- 5% RH.
- 4) **System :** Should have a dry sensor to directly measure humidity in % RH
- 5) PVC connection for de-ionized water supply from a single point source

Note : Steam generation humidity system not acceptable.

H) Carbon dioxide additive control only for two units with high intensity lights (0-3000 ppm) (For One Chamber only)

Consisting of:

1. Gas analyzer
2. Control valve
3. Injection system

I) ELECTRICAL

1. Chamber to be compatible with 415 Volt $\pm 10\%$, 3-Phase- 50 Hz-A.C. supply Neutral and Ground. (60 Hz systems will not be acceptable)
2. Suitable Indian make Voltage Stabilizer
3. Energy saving system
4. Warranty: 5 years including spares.

Note :

1. Vendor should quote entire Project.
2. Vendor should enclose the user list (satisfactory certificate/s of at least 10 installations of similar specifications in India (preferably research institutes like CSIR & DBT Institutes etc.)
3. Vendor should have local factory trained engineers to extend the service support.
4. Supply, Installation, Testing & commissioning should be done within four months from the date of Purchase Order.
5. Point to Point Compliance of the Technical specifications must be provided.
6. The supplier has to provide compatible compressor according to the distance of the chamber to RAC. - (PRE-BID MODIFICATION)

BILL OF QUANTITIES

NAME OF WORK: **Supply, Installation, Testing & Commissioning of Plant Growth Chambers at NABI Campus, Mohali**

Tender No.: No. NABI/2(1)/10-11/N-Pur

Sl. No.	Description	Qty Req.	Rate per Unit	Rate in INR, FOR Institute	Rate in Foreign currency, CIF Mohali
	Supply, Installation, testing and commissioning of Plant Growth Chamber and Arabidopsis Chamber at NABI				
1.	Plant Growth Chamber (Reach in) (As per detailed specifications above in the tender document)	1 No			Rates not to be quoted
2	Plant Growth Chamber (Reach in with three additional shelves) (As per detailed specifications above in the tender document)	1 No			
3	Plant Growth Chamber (Walk in) (As per detailed specifications in the tender document)	1 No			
4	Plant Growth Chamber (Walk in with Carbon di-oxide additive control) (As per detailed specifications above in the tender document)	1 No			
5	Arabidopsis Growth Chamber (As per detailed specifications above in the tender document)	1 Nos			
6	Arabidopsis Growth Chamber with Carbon di-oxide additive control (As per detailed specifications above in the tender document)	1 No			

**Name & Signature of Bidder/
Company with Seal**

PRICE BID

NAME OF WORK: Supply, Installation, Testing & Commissioning of Plant Growth Chambers at NABI Campus, Mohali

Tender No.: No. NABI/2(1)/10-11/N-Pur

Sl. No.	Description	Qty Req.	Rate per Unit	Rate in INR, FOR Institute	Rate in Foreign currency, CIF Delhi
	Supply, Installation, testing and commissioning of Plant Growth Chamber and Arabidopsis Chamber at NABI				
1.	Plant Growth Chamber (Reach in) (As per detailed specifications above in the tender document)	1 No			
2	Plant Growth Chamber (Reach in with three additional shelves) (As per detailed specifications above in the tender document)	1 No			
3	Plant Growth Chamber (Walk in) (As per detailed specifications in the tender document)	1 No			
4	Plant Growth Chamber (Walk in with Carbon di-oxide additive control) (As per detailed specifications above in the tender document)	1 No			
5	Arabidopsis Growth Chamber (As per detailed specifications above in the tender document)	1 Nos			
6	Arabidopsis Growth Chamber with carbondi-oxide additive control (As per detailed specifications above in the tender document)	1 No			

**Name & Signature of Bidder/
Company with Seal**

ANNEXURE “B”***FORMAT OF COMPLIANCE STATEMENT OF SPECIFICATIONS***

S. N.	Name of specifications/ part / Accessories of tender enquiry	Specifications of quoted Model/ Item	Compliance Whether “YES” Or “NO”	Deviation, if any, to be indicated in unambiguous terms	Whether the compliance / deviation is clearly mentioned in technical leaflet/ literature
1	2	3	4	5	6

ANNEXURE "C"**PRICE SCHEDULE FOR GOODS BEING OFFERED FROM ABROAD**

Name of the Bidder _____
 No. _____

Tender

1	2	3	4	5	6		7		8		9
Sl No	Item Description	Country of origin	Unit	Qty	Unit Price		Total price (5x6)		Charges for Insurance & transportation to port/ place of destination		Total Price (7+8)
					FOB (named port of shipment)	FCA (named place of delivery)	FOB (named port of shipment)	FCA (named place of delivery)	Ocean	Air	CIF

Total Bid price in foreign Currency _____
 in words.

Signature of Bidder

Name:

Business Address:

Note:

- (a) Indian agents name & address _____
- (b) Cost of Spares _____
- (c) The Indian agent's commission shall paid in Indian Rupees only based
 on the Exchange Rate prevailing on the date of negotiation of documents
 in accordance with clause 22.1 of GCC.

(d) The cost of optional items shall be indicated separately.

ANNEXURE "D"

PRICE SCHEDULE FOR GOODS BEING OFFERED FROM INDIA

Name of the Bidder _____
No. _____

Tender

1	2	3	4	5	6	7	8	9	10	11
Sl. No.	Item Description	Country of Origin	Unit	Qty	Ex-Works. Ex-Warehouse, Ex-show room off the shelf price (inclusive of all taxes already paid)	Total price Ex-Works. Ex-Warehouse, Ex-show room off the shelf price (inclusive of all taxes already paid) 5x6	VAT & other taxes like excise duty payable, if contract is awarded	Packing & forwarding up to station of dispatch, if any	Charges of inland transportation, insurance up to Lab./Instt.	Installation, Commissioning & training charges, If any.

Total Bid price in _____ in words.

Signature of Bidder

Name:

Business Address:

Note:

(a) The cost of optional items shall be indicated separately.

(b) Cost of spares _____

BID SECURITY FORM

Whereas1 (hereinafter called "the Bidder") has submitted its bid dated..... (Date of submission of bid) for the supply of..... (Name and/or description of the goods) (Hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that WE (Name of bank) of (Name of country), having our registered office at (Address of bank) (Hereinafter called "the Bank"), are bound unto (Name of Purchaser) (Hereinafter called "the Purchaser") in the sum of _____ for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this ____ day of _____ 2007.

THE CONDITIONS of this obligation are:

1. If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity:
 - (a) Fails or refuses to execute the Contract Form if required; or
 - (b) Fails or refuses to furnish the performance security, in accordance with the Instruction to Bidders.

We undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions. This guarantee will remain in force up to and including forty-five (45) days after the period of the bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the Bank)

Name of Bidder

PERFORMANCE SECURITY FORM

To: (Name of Purchaser)

WHEREAS (Name of Supplier)

Hereinafter called "the Supplier" has undertaken, in pursuance of Contract no.....

Dated,..... 2007 to supply.....(Description of Goods and Services) hereinafter called "the Contract".

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Supplier a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, 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 Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limit 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.

This guarantee is valid until theday of.....20

Signature and Seal of Guarantors

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

Date.....2007

Address:.....

.....
.....

PERFORMANCE STATEMENT FORM
(For A Period Of Last 3 Years)

Name of the Firm.....

Order placed by (full address of purchaser)	Order No. and date	Description and quantity of ordered equipment	Price	Date of completion of delivery as per Contract/Actual	Remarks indicating reasons for late delivery, if any	Has the equipment been installed satisfactorily? (Attach a certificate from the purchaser/Consignee)	Contact Person alongwith Tel. NO., Fax No. & e-mail address

Signature
 Rubber stamp

Place :
 Date :

MANUFACTURERS' AUTHORIZATION FORM

Tender No. _____

Dated _____

**The Executive Director,
National Agri-Food Biotechnology Institute
C-127, Industrial Area
Phase VIII, Mohali**

Dear Sir:

We _____ who are established and reputable manufacturers of _____ having factories at *(address of factory)* do hereby authorize M/s _____ *(Name and address of Agent)* to submit a bid, negotiate and receive the order from you against your tender enquiry.

No company or firm or individual other than M/s _____ is authorized to bid, and conclude the contract in regard to this business.

We hereby extend our full guarantee and warranty as per Clause 12 of the General Conditions of Contract and Clause of the Special Conditions of Contract for the goods and services offered by the above firm.

Yours faithfully,

(Name)

(Name of manufacturers)

Note: This letter of authority should be on the **Letterhead of the manufacturer** and should be signed by a person competent and having the power of attorney to bind the manufacturer. It should be included by the Bidder in its techno-commercial unpriced bid.

SERVICE SUPPORT DETAILS FORM

Sl. No.	Nature of training imparted	List of similar type equipments serviced in the past 3 years	Local Address, Telephone Nos. Fax Nos and e mail address of the firm located at Chennai or adjoining areas	Value of minimum stock of consumable spares held at all Times.

Signature and Seal of the manufacturer/Bidder.....

Place:

Date:

BID FORM

To

Name and address of purchaser

Sir,

Having examined the bidding document the receipt of which is hereby duly acknowledged, we the undersigned offer to supply and deliver _____(Description of Goods) in conformity with the said bidding documents for a sum of _____(total bid price in words & figures) or such other sums as may be ascertained from the bid.

We undertake that if our bid is accepted to deliver the goods in accordance with the delivery schedule specified.

If our bid is accepted we will obtain the guarantee of the bank in a sum equivalent to _____ percent of the contract price for the due performance of the contract, in the form Prescribed by the purchaser.

We agree to abide by this bid for a period of _____(number) of days after the date fixed for bid opening under the clause No. of the instructions to the bidders and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award shall constitute a binding contract between us.

Commissioning and gratuities, if any, paid or to be paid by us to the agents relating to this bid, and to contract executions if we are awarded the contract, are listed below:

Name and address Commission of agent	Amount in Rupees	Purpose of

(if none, state "none")

We understand that you are not bound to accept the lowest or any bid you may receive. Dated this _____ day of _____ 2010. _____ Signature
 _____ In the capacity
 of _____ Duly authorized to sign the bid for and on
 behalf of _____.

FORMAT OF THE INTEGRITY PACT

Integrity Pact
Between
NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE (NABI) hereinafter called to as “The Principal”
 And

..... hereinafter referred to as “**The Bidder/Contractor**”

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s for The Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relations with its Bidder(s) and /or Contractor(s).

In order to achieve these goals, the Principal will appoint an Independent External Monitor (IEM), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

- (1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - a. No employee of the Principal, personally or through family members, will in connection with the tender for , or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - b. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - c. The Principal will exclude from the process all known prejudiced persons.
- (2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the chief Vigilance Officer and in addition can initiate disciplinary action.

Section 2 – Commitments of the Bidder(s) / Contractor(s)

- (1) The Bidder(s) /Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution
 - a. The Bidder(s)/ Contractor(s) will not, directly or through any other person of form, offer, promise or give to any of the Principal’s employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

- b. The Bidder(s)/ Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- c. The Bidder(s)/ Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- d. The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the agents/representatives in India, if any. Similarly the Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the “guidelines on Indian agents of Foreign Suppliers” shall be disclosed by the Bidder(s)/ Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian Agent/representative have to be in Indian Rupees only. Copy of the “Guidelines on Indian Agents of Foreign Supplies” is annexed and marked as Annexure.
- e. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

- (2) The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidders(s) / Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidders(s) / Contractor(s), from the tender process or take action as per the procedure mentioned in the “Guidelines on Banning of Business Dealing”. Copy of the “Guidelines on Banning of Business Dealing” is annexed and marked as Annex –“B”.

Section 4- Compensation for Damages

- (1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest money Deposit/Bid Security.
- (2) If the Principal has terminated the contract according to Section 3 or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damage of the contract value or the amount equivalent to Performance Bank Guarantee.\

Section 5 – Previous transgression

- (1) The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti corruption approach or with any other Public Sector enterprises in India that could justify his exclusion from the tender process.
- (2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as per procedure mentioned in “Guidelines on Banning of business dealings.”

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub Contractors

- (1) The Bidder(s)/ Contractor(s) undertake(s) to demand from all sub contractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
- (2) The Principal will enter into agreement with identical conditions as this one with all Bidders, Contractors and Sub contractors.
- (3) The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7 – Criminal charges against violating Bidders/ Contractors/ Sub Contractor

- (1) The Principal appoints competent and credible Independent External monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- (2) The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Executive Director, NABI.
- (3) The Bidder(s)/ Contractor(s) accepts that the monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s) Contractor(s)/ sub Contractor(s) with confidentiality.
- (4) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- (5) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor can in this regard demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- (6) The monitor will submit a written report to the Executive Director, NABI within 8 to 10 weeks from the date of reference or intimate to him by the Principal and should the occasion arise, submit proposals for correcting problematic situations.
- (7) Monitor shall be entitled to compensate on the same terms as being extended to/provide to Independent Directors on the NABI
- (8) If the Monitor has reported to the Executive Director, NABI a substantiated suspicion of an offence under relevant IPC/PC Act, and the Executive Director, NABI has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.
- (9) The word 'Monitor' would include both singular and plural.

Section 8 – Pact Duration

This pact begins when both parties have legally signed it. It expires for the Contractor 10 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Director, NABI.

Section 9 – Other provisions

- (1) This agreement is subject to Indian Law, Place of performance and jurisdiction is the Registered Office of the Principal, i.e. Chandigarh.
- (2) Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- (3) If the Contractor is a partnership or consortium, this agreement must be signed by all partners or consortium members.

- (4) Should one or several provisions of this agreement turn out to be invalid, the remained of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(For & on behalf of the Principal)
Office Seal

(For & on behalf of the Bidder/ Contractor)
Office Seal

Place.....

Date

Witness 1:

(Name & Address) : _____

Witness 2:

(Name & Address): _____
