



Expression of Interest (EOI)
seeking
Detailed Project Report

For

Construction of
Photo auto-tropic Growth chamber under the project entitled "*Commercial Hi-Tech Potato Seed -Tuber
Production by Low-Cost Approaches in North Bengal*" at Uttar Banga Krishi Viswavidyalaya

FUNDED UNDER
RASTRIYA KRISHI VIKASH YOJANA

UTTAR BANGA KRISHI VISWAVIDYALAYA
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Abridged Expression of Interest (EOI)

EOI is hereby invited seeking proposal for construction of a Photo-Autotropic Growth Chamber under the project “*Commercial Hi-Tech Potato Seed -Tuber Production by Low-Cost Approaches in North Bengal*” at Uttar Banga Krishi Viswavidyalaya from reputed and experienced Organisation / Agency having experience of handling / developing similar infrastructures at Govt. Organization / Institute of Higher Learning / Research Institute of repute/ any Agriculture Institute etc. **Last date of submission of EOI is 27.06.2023.** For details log on to University website www.ubkv.ac.in

Sd/-
Registrar (Actg.)
UBKV

Detailed Expression of Interest (EOI)

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Detailed Project Report

EOI is hereby invited seeking proposal for construction of a Photo Autotropic Growth Chamber under the RKVY sponsored Project “*Commercial Hi-Tech Potato Seed -Tuber Production by Low-Cost Approaches in North Bengal*” at Uttar Banga Krishi Viswavidyalaya from reputed and experienced Organisation / Agency having experience of handling / developing similar infrastructures at Govt. Organization / Institute of Higher Learning / Research Institute of repute/ any Agriculture Institute etc. Last date of submission of EOI is **27.06.2023**. For details log on to University website www.ubkv.ac.in

DISCLAIMER:

Uttar Banga Krishi Viswavidyalaya has prepared this document based on the approval received under RKVY, Government of India to provide the background / information for the Establishment of a Photo Autotropic Growth Chamber under the project entitled “*Commercial Hi-Tech Potato Seed -Tuber Production by Low-Cost Approaches in North Bengal*” at Uttar Banga Krishi Viswavidyalaya” hereafter referred as the “**Project**”.

This document is not an agreement, is not an offer or invitation to any party. The purpose of this document is to provide interested parties with basic information to assist the formulation of their Proposal. The information is not intended to be exhaustive. Interested agencies are required to make their own enquiries and respondents will be required to confirm that they have done so and they do not rely solely on the information provided in this document.

The information is provided on the basis that it is non – binding on UBKV, any of their respective officers, employees. UBKV reserves the right not to proceed with the project or to change the configuration / lay-out of the project, to alter the timetable reflected in this document or to change the process or procedure to be applied. While UBKV have taken due care in the preparation of information contained herein and believe it to be accurate, neither UBKV nor any of their respective officers, employee gives any warranty or make any representations, express or implied as to the completeness or accuracy of the information contained in this document or any information which may be provided in association with it. **No reimbursement of cost of any type will be paid to persons or entities submitting their Detailed Project Report.**

BRIEF DESCRIPTION OF THE PROJECT

Govt. of India has sanctioned the project entitled “*Commercial Hi-Tech Potato Seed -Tuber Production by Low-Cost Approaches in North Bengal*” at Uttar Banga Krishi Viswavidyalaya” under the Rastriya Krishi Vikash Yojana (RKVY). The project shall be implemented at the Head Quarter of *Uttar Banga Krishi Viswavidyalaya*, Pundibari; District: Cooch Behar; State: West Bengal. A Photo Autotropic Growth Chamber is proposed to be developed under the aegis of this project.

Uttar Banga Krishi Viswavidyalaya wishes to develop the facility / infrastructure under the Project through any reputed organization / agency having sound knowledge and expertise in this arena based on the basic requirement of the project as set by the project implementing team of UBKV. The nature of services to be provided by the intending agencies will include, visiting site, carry out site survey, preparation of surveyed

site plan, preparing Architectural Design and Details, Lay out plan, planning of all required components / services based on the lay-out plan approved by the UBKV, preparation of Cost Estimates including detailed specification etc. Any other services or work not specifically mentioned herein but required for the proper and comprehensive development of the proposed infrastructure may also be included.

Brief Scope of Work of the proposed Photo Autotropic Growth Chamber

Location of the Unit: 2nd Floor of Germplasm Conservation Building, *Uttar Banga Krishi Viswavidyalaya*, Pundibari, Cooch Behar, West Bengal, PIN - 736165

Total area under the Unit: 202.30 Sq. m.

Tentative Floor Plan: Attached as a broad conceptual plan which needs to be precisely arranged and oriented.

Different Components to be developed under the proposed facility: Media Preparation

Room, Autoclave room, Inoculation room, Growth chamber, Dry lab, Wet lab, Dark room

Tentative item of works:

- Partitioning, appropriate false ceiling, internal electrification including drawing power from nearest source, required illumination, power points, Air Conditioning, aeration through HEPA filter, Particle count machine, positive pressure machine, timer for light, relay for AC, racks humidifier (if required) etc.
- **The laboratory should be developed in such a way so that it can easily be recognized by National Certification System for Tissue Culture Raised Plants (NCS-TCP)”, Department of Biotechnology, Ministry of Science & Technology, GoI. All sorts of Technical Support shall have to be extended by the successful vendor.**

Details of the Work

Designing- Fabrication- Supply & Installation of Photo Autotropic Growth Chamber according to DBT NSC-TCP Certification standard for Production of Five Lacs Planting Materials Per Year

Complete Specification of Photo Autotropic Growth Chamber with all equipments and accessories

(According to NABL/ DBT NSC-TCP Certification standard Norms)

➤ **Total Laboratory Area: 202.30 sq.mtr as per below details**

- | | | |
|---|---|---------------------|
| • Growth RoomSize | : | 6.7mtr x 4.70 Mtr |
| • Growth RoomSize | : | 4.65mtr x 4.70 Mtr |
| • Inoculation RoomSize | : | 6.7mtr x 4.25 Mtr |
| • Wet Lab for Media preparation Size | : | 5.875mtr x 4.025Mtr |
| • Sterile ZoneSize | : | 4.25mtr x 2.70 Mtr |
| • Non-SterileZone Size | : | 4.25mtr x 3.10 Mtr |

- **Dark RoomSize** : 4.25mtr x 1.7Mtr
- **Dry LabSize** : 6.00mtr x 4.25Mtr
- **Ante Chamber before Dry LabSize** : 3.1mtr x 1.85 Mtr
- **Ante Chamber for Growth RoomSize** : 4.625mtr x 1.3 Mtr
- **Ante Chamber before Inoculation ChamberSize** : 2.25mtr x 2.2 Mtr
- **Ante Chamber after Growth Chamber Size** : 3.1mtr x 1.85 Mtr

- ✓ The infrastructure facility is specially designed to all the chambers(mentioned above) under one Canopy with common entry provision 1 set to enter within & at different chamber.
- ✓ **Temperature Range 22 °C to 32 °C ±1**
- ✓ **RH Range up to 70% to 95%**
- ✓ **Positive Air Pressure** Class 1000 for transfer rooms and class 10000 for growth rooms and media storage room including passage
- ✓ The complete **Photo Autotropic Growth Chamber** will be provided with **Wall Insulation**

Side wall and common wall will be insulated with aluminium frame & 6mm Metallic Polycarbonate sheet wall height up to 10'. **Total 280 Sq. Mtr.**

- **False ceiling:** Providing and fixing of 6mm Metallic Polycarbonate sheet (Make- Lexan Sabic/Ultralight) at a height of 10' from finished floor level with frame work made of Anodized/ powder coated Aluminium T/Angle sections suspended from roof structure. **Total Area 125 Sq. Mtr.** (1Complete Set)
- **Air curtain-** 1m wide with auto on/off system for time door closing & opening; Qty 1
Specification: Heavy duty, cabinets of Air curtain are made of cold Rolled Mild Steel Sheets. The blowers are made of high-quality aluminium Sheets/PP material with ½ HP motor & double blower system, powder coated finish, Limit Switch for the automatic operation with auto main ON / OFF limit switch operation at the time of door opening/ Closing

✓ **LIGHT ARRANGEMENT:**

- General Light arrangement minimum 02 No. in all chamber for illumination purpose only total qty. 20 Nos.

✓ **TISSUE CULTURE CASTOR RACK: 28Nos**

- Specification: Executive: For producing Circadian Rhythms Tissue Culture, Biotechnology & Allied Works with latest Electronic Ballast to produce excellent simulated natural light.
- **size of Racks: Height of rack 152 cm (7'2"). Width 127cm (4'.2")**
- **Shelf dimension: 122x45cm (50" x 18") Shelf to shelf distance: 35cm(16")**
- **Shelf Color:** Square M.S. pipe 32x32mm/Aluminum pipe white shade powder Coating finish with anti-corrosive and humidity resistant.
- **Shelf Material:** 3mm Hylem sheet. Shelves: illuminated shelves in one rack are: 05 nos. Total No. of shelves (including top) in one rack: 06 nos.
- **Fluorescent Tube lights:** Four 20W LED tube lights (Philips/ similar make) in each shelf of each rack, one is for operating two tubes.
- Total no. of tube lights in one rack: 20 nos.
- One main switch for each castor rack.
- With separate switch is provided for every LED tube. One fuse for one rack.
- Four castor wheels in a rack for easy movability.
- Side holder rods, on each shelf prevent the bottles etc. from falling from the three sides of a shelf, i.e. On the left, back & right. Front side is used for keeping or removing the bottles etc.
- HEPA Filter 4" thickness; qty 1 nos. imported glass fiber (fire retardant) media heap filter that eliminates

99.97% of all particles down to 0.3 microns and above pre-filter Manual & digital thermometer: qty 1 each.

- LUX on Each Shelf 4000 To 5000 Lux

PHOTOPERIODIC TIMER (PLC based programmable):

Qty -2

Specification:

- 4" HMI with color display
- Powered output can drive 120 tube lights of 40 watt, Auto –Manual Button.
- With min 100 Program setting 50 ON and 50 OFF setting
- Auto power back up of 60 Hrs,
- Internal safety switch inbuilt, Accuracy ± 1 sec/day
- Input 200 V to 240 VA.C, Phase- Single, 50Hz
- Ambient 5°C to 50°C, RH up to 95%

✓ **AUTOMATIC CONTROL ARRANGEMENT:**

Specification:

- **Microclimate Temp. Controller with PT- 100 sensor-**

Qty -2

Microprocessor based Controller, 4-digit LED display for displaying measured values and another 4-digit LED display for displaying settings, soft touch operation with Pt-100 sensor, Display resolution 0.1 °C, Accuracy ± 0.1 °C. Automatic hysteresis control. Wide selectable temperature ranges from 0 °C to 100 °C, 4.4KVA load heating & cooling along with the tissue Culturerracks –12 Nos. each can be directly connected to the power output, Input- 200-240 VAC, 50 Hz. Single phase operated, CE certified

✓ **Equipment Pass Box:**

MOC: M.S. Powder Coated 1.2 mm thickness Coving: Bottom &TopSide.

Door Interlocking: Electrically Operated Systemsolenoidlocking CoilOperated/Magnetic Sensor to operate the coil, timer controlled.

Salient Features: Type: Static PassBox External Dimensions: - W 745 x D 700 x H 745

DimensionsofWorkArea:-630x600x580Door & Side Wall: Double Skinned door with view panels & handles

- ✓ **Details of Associated Accessories:** Control panel &Fittings: Fluorescent Tube light: 18 watt x 01, Translucent top panel Controller:-MicroControllerBase Controller Ultraviolet Tube – light Culture room (1 complete set):- Temperature Range 22⁰C to32⁰C ± 1 RH Range up to 90% to 95%.

- **Air exchange Unit: with high pressure fan & HEPA Filter;** Importedglass fiber (fire retardant) media heap filter thateliminates 99. 97% of all particles down to 0.3micronsandabovepre-filter MS powder coated cabinet with Timer arrangement.**qty 2 nos.**

- **Manual&Digital Thermometer:** Qty 1noeach

✓ **Wall Insulation**

- Side wall will be insulated and one common wall insulated with aluminium frame & 6mm Metallic Polycarbonate sheet; wall height up to 10 feet.
- **False ceiling:** Providing and fixing of 6mm Metallic Polycarbonate sheet (Make- Lexan Sabic/Ultralight) at a height of 9 feet from finished floor level with frame work made of Anodized/ powder coated Aluminium T/Angle sections suspended from roof structure.

- **Doors Sliding:** 1.92 m tall & 1.1 m/1.2m wide sliding doors complete 6mm thick metallic polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware: **Qty 9 .**
- **Doors Swing:** 1.92 m tall & 1.05 m wide sliding doors complete 6mm thick metallic polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware: **Qty 6**
- **Light Arrangement:** General Light arrangement minimum 02 No. in all chamber for illumination purpose only total qty. 4 set. Manual thermometer qty1.
- **Microclimate Temp. Controller with PT- 100 or equivalent Sensor Control panel:**
Specification: Microclimate Temp. Controller with PT- 100 sensor. Microprocessor based Controller, 4-digit LED display for displaying measured values and another 4-digit LED display for displaying settings, soft touch operation with Pt- 100 sensor, Display resolution °C, Accuracy ± 0. 1°C. Automatic hysteresis control. Wide selectable temperature ranges from 0°C to 100°C, 4.4KVA load heating & cooling each can be directly connected to the power output, Input- 200-240 VAC, 50Hz. Single phase operated; CE certified
- **Granite marbled table:** Raised height platforms on 2 sides of lab area at least with WPC cupboards underneath it and 10 Nos of steel stools of adjustable height, Wash basins fitting with plumbing work on raised platforms
- **Laboratory Table with end Sink:** Acid / Chemical resistant and non-porous solid phenolic resin counter top 19mm. thick. Base cabinet made of phenolic compact board with sliding drawers and swing doors Sink-base cabinet made of phenolic compact board with swing doors.
- **Apron/Leg room with 1-sliding drawer** made of compact board. Two-deck chemical resistant reagent rack with shelf guard.
- Laboratory grade gooseneck water faucet with nozzle and fittings.
- Laboratory grade gas tap- spicket with nozzle and fittings. Chemical resistant polypropylene sinks with drain fittings.
- Chemical resistant pegboard with polypropylene pegs.
- Electrical outlet 2- gang universal 220V AC. Rubber-vinyl base.
- Shoe cover Dispensing machine – 1 Nos.
- **Air Conditioner: 02 Nos.** Heavy Duty 05 Ton refrigeration, Cooling capacity 4500 Kcal/Hr. (5 ton). Compressor 1.75 HP Power consumption at rated conditions 2100-watt, ambient operating: 16- 25°C, RH up to normal atmospheric.
- **Cooling system:** 5 TR /60000 BTU / HRS Machines Air-cooled single stage refrigeration system. Ozone friendly R-404a refrigerant with hermetically sealed compressor provided for better temperature controlling. Adequate safety provided for protection against excessive and low pressure and high temperature. Cool / bypass system to controls the required set temperature through the solenoid valves.
Special Features: With over load protector and fuses, specially designed Evaporator Coil & condensing coil, imported fan, with proper powder coated enclosure, defrosting and drainage system, Expansion valve ISI mark, Grooved copper tubing, Allied Fitting and pipe Insulation material with ISI Standards will be used for effective desired operation, refrigerant- CFC free. Sealed Fan motors for cooling unit & condensing unit. Make - Carrier.

➤ **Required Lab Equipment's**

- Chlorophyll Content Meter
- Digital Refractometer
- Digital Vernier Caliper
- Luxmeter
- NPK Uptake Pen Type Measurement Meter
- Nitrate Strips kit for Nitrate Uptake-One Unit Each

➤ **Inoculation Room Size:6.7mtr x 4.25mtr**

(1 complete set)

➤ **Wall Insulation**

Sides wall will be insulated and one common wall insulated with aluminium frame & 6mm Metallic Polycarbonate sheet wall height up to 10'.

- False ceiling: Providing and fixing of 6mm Metallic Polycarbonate sheet (Make- Lexan Sabic/Ultralight) at a height of 10' from finished floor level with frame work made of Anodized/ powder coated Aluminium T/Angle sections suspended from roof structure.
- **Air curtain-** 1m wide with auto on/off system for time door closing & opening, Qty 1
Specification: Heavy duty, cabinets of Air curtain are made of cold Rolled Mild Steel Sheets. The blowers are made of high-quality aluminum Sheets/PP material with ½ HP motor & double blower system, powder coated finish, Limit Switch for the automatic operation with auto main ON / OFF limit switch operation at the time of door opening/ Closing.
- **Air exchange Unit: with high pressure fan & HEPA Filter;** Imported glass fibre (fire retardant) media heap filter that eliminates 99.97% of all particles down to 0.3 microns and above pre-filter MS powder coated cabinet with Timer operation arrangement. **qty 2 no.**
- **Manual & Digital Thermometer:** Qty 1 each

✓ **Wet Lab for Media preparation: Size 5.875mtr x 4.025mtr**

(1 complete set)

- **Doors Sliding:** 1.92 m tall & 0.9m. wide sliding doors bottom tracks, jambs, flashings & installation hardware qty 2 . One door opens to passenger hall & one door open to Autoclave room.
- **Manual thermometer:** Qty1.
- **Air curtain-** 1m wide with auto on/off system for time door closing & opening, Qty 1
Specification: Heavy duty, cabinets of Air curtain are made of cold Rolled Mild Steel Sheets. The blowers are made of high-quality aluminium Sheets/PP material with ½ HP motor & double blower system, powder coated finish, Limit Switch for the automatic operation with auto main ON / OFF limit switch operation at the time of door opening/ Closing Horizontal Autoclave (325 Lit) will be place in the Centre of Sterile & Non-sterile zone (1 Complete set) Partition wall Insulation Sides wall will be insulated, and one common wall insulated with aluminium frame & 6mm Metallic Polycarbonate sheet wall height up to 8'.
- **Doors Sliding:** 1.92 m tall & 0.9 m. wide sliding doors complete 6mm thick metallic polycarbonate glazing, top & bottom tracks, jambs, flashings & installation hardware size: qty 1 & one door open to Passenger Hall.
- **Plant Stacking Trolleys Stainless steel** 2.5 x 2.5 cm size 2ft x 3ft x 3ft with good quality nylon wheel and four side protection support collar rods, SS Sq. Pipe Castor -4 nos. with 2 no shelves. Qty- 4 Nos.

- **Laminar Chair / Working chair** Steel frame cushioned chairs with or without arms. Qty-4 Nos.
- **Air Conditioner: 02 Nos.** Heavy Duty 2 Ton with inverter technology, Cooling capacity 6000 Kcal/Hr. Compressor with Power consumption at rated conditions 2800-watt, ambient operating: 16- 25°C, RH up to normal atmospheric.
- **Cooling system:** 2 TR /24000 BTU / HRS Machines Air-cooled single stage refrigeration system. Ozone friendly R-404a refrigerant with hermetically sealed compressor provided for better temperature controlling. Adequate safety provided for protection against excessive and low pressure and high temperature. Cool / bypass system to controls the required set temperature through the solenoid valves.
- **Special Features:** With over load protector and fuses, specially designed Evaporator Coil & condensing coil, imported fan, with proper powder coated enclosure, defrosting and drainage system, Expansion valve ISI mark, Grooved copper tubing, Allied Fitting and pipe Insulation material with ISI Standards will be used for effective desired operation, refrigerant- CFC free. Sealed Fan motors for cooling unit & condensing unit. Unit must be 3 Star rated with remote control operation **M**ake – Panasonic / Carrier / Blue star

Other Necessary Items for the complete operation of the Tissue Culture Lab.

- **Hygro Thermometer:** Selection of unit °C, °F for temperature and % for humidity, High or Low ranges humidity with display resolution 0.4°, accuracy ±2°C, capable to measure humidity Range:0- 100% at temperature ranging between 0- 59.9°C – Qty 3
- **Label Gun:** Two row, eight characters per row, Top line with alpha numeric band and bottom line with alp ha characters – Qty 2
- **Media Preparation Equipment:** Made of 304 gradestainlesssteel of 18 gaugeroundshape vessel with 14 “ dia and depth suitable to keep 50 ltr of water holding capacity with three legs on the bottom raised 1’ from the floor and with a dispensing nozzle fitted at the bottom of the vessel. – Qty 6
- **pH Meter:** Digital with auto temperature compensation with combine p H electrode, RTD probe and accuracy for pH ± 0.01, pH range 0- 14, Milivolt range 0 – 100 mv. Input 220 – 230V, 50Hz. Microprocessor based – Qty 1
- **Water purifier:**
Purified, Water Tank: 50 Litres (Hydrostatic) Purifying Capacity: 50 Litres /hour Duty Cycle: 75 Litres /day (Max) Min. Water– Pressure: 0.3Kg. /cmsquare Input Power: 220 V AC 50 Hz (100-300V) Booster Pump: 24 V DC (1 No.) Filter Cartridge: Sediments. pre- Carbon RO Membrane: 1812 - 75 GPD (1 no.)
- **Steel Trays:** Made up of 304 stainless steels, duly buffed provided with lifting collar Qty 12
- **UV tube light:** UV light 30 watt, 3’ with powder coated finish fixture fixed with simulator Qty 10
- **Aluminium ladder:** 5 step, 6ft height, foldable, with rubber foot base top with sitting / standing plate form of 12”x12”
- **Flooring:** Cement concrete floor base to be made of 40mm in 3-inch-thick and cement concrete of 1:2:4 in 2-inch-thick and further finished /flushed with Anti slippery vitrified flooring tiles (Preferred Make: Somany / Nitco/ Kajaria make & size of vitrified tiles: 2 feet x 2 feet) on the floor with proper drainage arrangements, slope etc. complete as required.
- **Electrical Wiring:** Electrical Device In all the Rooms with respect to the project requirement will be done with high quality ISI approved fittings with copper cable and rigid Stds of safety with proper M.C.B. with appropriate electrical points of 5 Amp & 15 Amps. which include complete concealed electrical fitting incorporating proper site location for 28 Tissue Culture Trolley, Temperature Controller, Photoperiodic Timer and. In addition, termination and

interconnection of 12 Nos. Heavy Duty Air Conditioners Split Type and connectivity of instruments, provision for Air Curtain Unit, AEU Ceiling Light points. There will be provision for future extension points for incorporating 5 additional Tissue Culture Castor Racks and Five additional 5/15 Amps power (Preferred Make: Havells / Wipro/Finolex/Polycab).

- **Bottle Trays:** Autoclavable Tissue Culture Trays are made with High Density PP materials which are tweaked to perform best at Autoclaving temperatures of 121 Degree Celsius for 20 minutes at 15 PSI. can be autoclaved for more than 100 times. Autoclavable Bottle Trays should surpass the 100 autoclaves

Features:

Size 410 x 410x 108 MM
 Made of Hi-Density PP
 Surpassed the 100 autoclave cycles
 Used Lifelong without any Count

- Qty 200 Pcs

- **Water connection** & plumbing arrangement for the Autoclave in Non-sterile zone & Dry lab etc. complete in all respect with CPC pipes & fitting of schedule 40 grade material. (Preferred Make/Model: Supreme /Finolex as per Schedule 40)

Racks for Storage & Bottle: MS pipe 25mm x 25mm with off white powder coating arrangement size 4ft x 2ft x 6ft with 5 storage/ working shelves

- **Air Conditioner: 03 Nos.** Heavy Duty 1.5 Ton with inverter technology, Cooling capacity 6000 Kcal/Hr. Compressor with Power consumption at rated conditions 2100-watt, ambient operating: 16- 25°C, RH up to normal atmospheric.
Cooling system: 1.5 TR / 18000 BTU / HRS Machines Air-cooled single stage refrigeration system. Ozone friendly R-404a refrigerant with hermetically sealed compressor provided for better temperature controlling. Adequate safety provided for protection against excessive and low pressure and high temperature. Cool / bypass system to controls the required set temperature through the solenoid valves.

Special Features: With over load protector and fuses, specially designed Evaporator Coil & condensing coil, imported fan, with proper powder coated enclosure, defrosting and drainage system, Expansion valve ISI mark, Grooved copper tubing, Allied Fitting and pipe Insulation material with ISI Standards will be used for effective desired operation, refrigerant- CFC free. Sealed Fan motors for cooling unit & condensing unit. Unit must be 3 Star rated with remote control operation, Make - Panasonic/Carrier/Bluestar

➤ **Following Required Instruments will be provided by University Authority during Installation for NABL Accreditation/ DBT NSC-TCP Certification standard:**

- Imported Laminar Air Flow 4'x2'x2' : Qty 6 Nos
- Glass bead sterilizer : Qty 6 Nos
- -20C Deep Freezer (500Lit approx.) (Celfrost / Equivalent) : Qty 2 nos
- Precision Analytical Balance: upto 0.01mg (Mettler Toledo / Sartorius). : Qty 2 nos
- Imported Fully Automatic Vertical Autoclave (80Lits) : Qty 2 nos
- Fully Automatic Horizontal Autoclave (325Lits) : Qty 1 nos
- Magnetic Stirrer with hot plate : Qty 1nos
- CO₂ Fire Extinguisher Capacity:5Ltr. : Qty 6 Nos

- **Major List of Glassware & plastic ware:** Beaker, test tube and others Conical flasks Measuring cylinder
Plastic Ware: Beaker, Measuring Cylinder Plastic Basket Capacity – 10 lit., 15 lit. and 20 lit Plastic dustbin
 Plastic tray Size: 402mm x 402mm x 105mm Material Poly Propylene Culture bottles & Caps Water Supply system Overhead Tank Water line fitting Furniture and Office supplies Working Chairs Tissue culture Lab Furniture & cupboard.

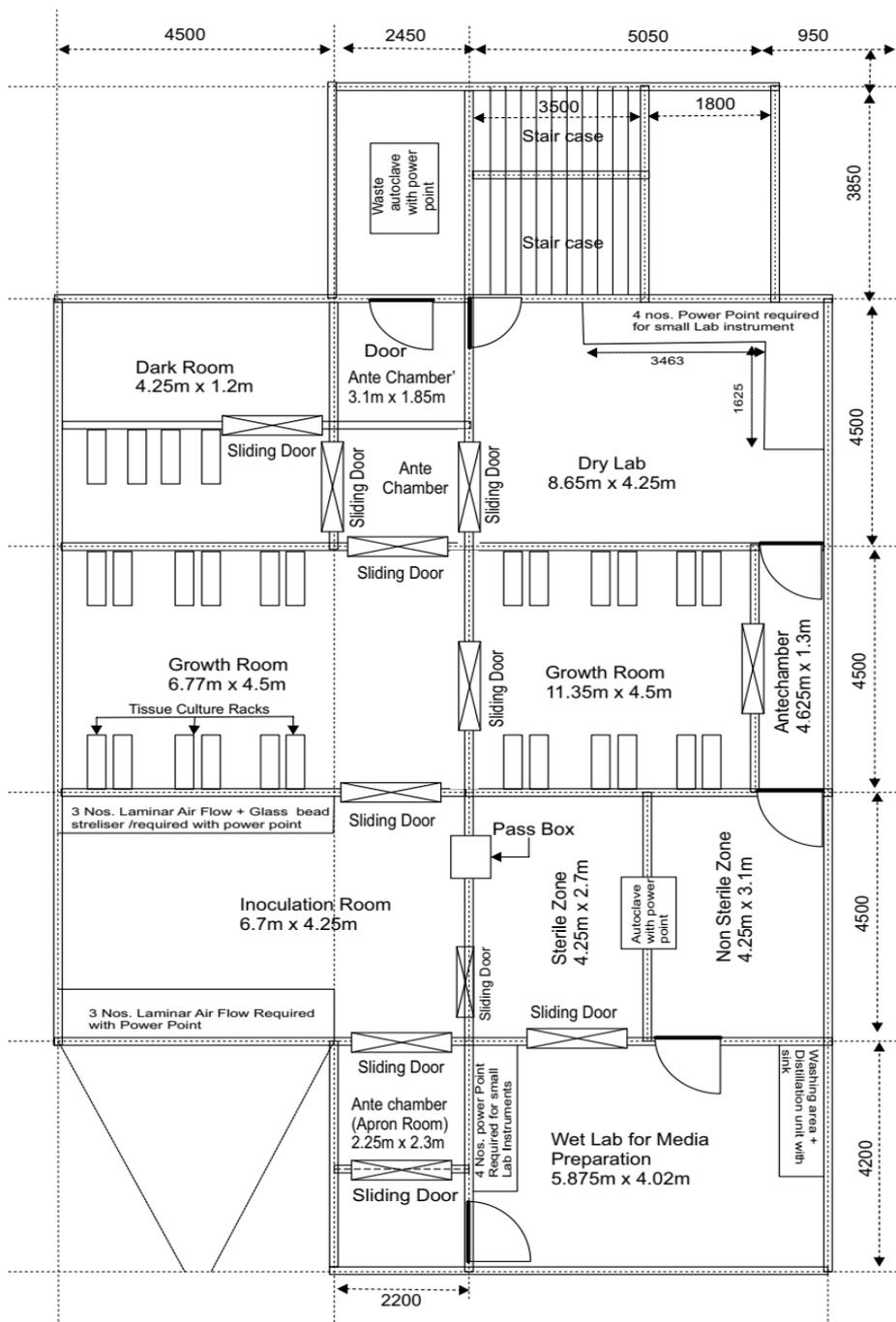
(Approximate) BOQ for Overall Project:

Sl.No.	Particular	Qty
01	Partition, Insulation in the Growth room Facility, Inoculation room & Wet Lab for Media preparation. Make: Hindalco /Jindal / Equivalent	280 Sq.M.
02	False Ceiling in the Growth room Facility, Inoculation room & Wet Lab for Media preparation Make: Hindalco / Jindal / Equivalent	175 Sq.M.
03	Providing & Fixing of Sliding Door size 1.92 mtr x 1.1mtr/1.2mtr : Fitting & accessories should be Godrej / Dorset / Ozone Make	09 Nos.
04	Providing & Fixing of Swing Door size 1.92 mtr x 1.1mtr/1.2mtr : Fitting & accessories should be Godrej /Dorset/Ozone Make	06 Nos.
05	Water connection & plumbing arrangement including all types of required sanitary wires like sink etc (make – Hindware / Parryware, / Cera) and fittings ordinary water tap / 3 way Swan neck water taps etc. (Make- Esco /Jaguar); Pipes (make- Supreme /Finolex) as per Schedule 40	1item Complete
06	Complete Electrical Wiring along with Fittings & necessary distribution system inside the Autotropic facility including the General Lighting arrangement in each Rooms: Make- Havells / Wipro/Finolex/Polycab	1 item Complete
07	Front Glass partition Entrance Door, Make: Saint Gobaint /Modi float /Asahi	1 item Complete
08	Fixing of Branded Vitrified Flooring including laying of Artificial Stone Flooring(2.5''-3'' thick)to be laid in the proportion of (1:2:4) (Preferred Make: Kajaria / Nitco / Somany / Asian Granito)	2300 Sq.ft
09	Instrumentation part:Growth Room Facility A) Tissue Culture Racks B) Positive Air Pressure Unit C) PLC based Programmable Photoperiodic Controller D) Automatic Control Arrangement for Temperature & Humidity system E) Air Curtain Unit-Make: Euronics /Equivalent F) Air Exchange Unit G) UV sterilization Unit H) Manual&Digital Thermometer I) Sequential Timer	28 Nos. 01 No 02 Nos. 02 Nos. 02 Nos. 02 Nos. 02 Nos. 02 Nos. 02 Nos 02 Nos

	J) Refrigeration Unit through 5TR capacity commercial, Make: Carrier	
10	Instrumentation part: Inoculation Room A) Manual&Digital Thermometer B) Air Curtain Unit, Make: Euronics /Equivalent C) Air Exchange Unit D) Laminar Chair / Working chair G) Plant Stacking/Media Trolley H) Pass Box Unit I) Air conditioning through 2 Tr Unit, Make: Panasonic/Carrier/Blue star	01 No. 01 No. 02 No. 04 No. 04 No. 01 No. 02 No.
11	Instrumentation part: Wet Lab for Media preparation A) Manual&Digital Thermometer B) Air Curtain Unit, Make: Euronics /Equivalent C) Granite marbled table D) Laboratory Table E) Apron/Leg room F) Pegboard with Polypropylene peg G) Shoe Cover Dispensing Machine	01 No. 01 No. 01 No. 01 No. 01 No. 01 No. 01 No.
12	Others Necessary Items / Equipment / apparatus: a) Imported Digital Refractometer b) Digital Vernier Calliper c) Lux meter d) Imported NPK Uptake Pen Type Measurement Meter e) Imported Nitrate Strips kit for Nitrate Uptake-One Unit Each f) Hygro Thermometer g) Label Gun h) Media Preparation Equipment i) pH meter j) Water Purifier k) Steel trays l) UV lights m) Aluminium Ladder n) Bottle Trays o) Racks for Storage & Bottle p) Slipper BI Colour laboratory grade q) All quartz Water Double Distillation Unit- Borosil/Riviera/Equivalent r) Dust Particle Counter	01 No. 01 No. 01 No. 01 No. 01 No. 03 No. 02 No. 06 Nos. 02 Nos. 01 Nos. 10 No. 10 No. 01 No. 200 Pcs 4 Nos. 20 PAIR 01 No. 01 No.
13	Air conditioning Unit Split Type	

	Dark room /Dry lab facility & Sterile Zone Facility 1.5 TR Unit	3 Nos.
14	Installation, Testing, Commissioning &labour charge for the above-mentioned items	Complete

Proposed Layout:



**Proposed Layout of Photo-Autotrophic Growth Chamber
at Wing-B, Second Floor of RKVY Building,
U.B.K.V. Pundibari, Cooch Behar, West Bengal
Floor Area : 202.30 sqm / 2177.53 sqft**

COMPULSORY TERMS & CONDITION FOR THE PARTICIPANTS:

a) The participating company/firm should have at least 3 years' experience for Setting up /Installation of Photo Autotropic Growth Chamber or Tissue Culture Lab work in any reputed organization or academic institute of national repute (Copy of supply orders and work completion certificate along with satisfactory performance certificate along with client details should be attached with the RFP.

b) The firm should provide the technical assistance for the DBT NSC-TCP Certification/ Accreditation up to the time of registration and fees for registration & other documentation support will be borne by the University Authority.

INSTRUCTION TO THE APPLICANTS BEFORE APPLY:

- Intending applicants are required to submit their proposal (DPR) giving details about their organization, experience, technical personal in their organization, proven competence to handle similar major works, etc. in both hard and soft copies.
- The prospective applicant should visit the work site to understand the nature and scope of work with prior intimation to UBKV authority, Pundibari, Cooch Behar, West Bengal.
- The validity of the EOI shall be for a period of 120 days from last date of submission.

The complete documents are to be sent by POST to the undersigned super-scribing on the top of the envelop "DPR for Photo auto tropic Growth Centre under the project entitled "Commercial Hi-Tech Potato Seed -Tuber Production by Low-Cost Approaches in North Bengal" at Uttar Banga Krishi Viswavidyalaya and should reach on or before **27th June, 2023** to:

The Registrar

Uttar Banga Krishi Viswavidyalaya

Pundibari, Cooch Behar

Pin: 736165

West Bengal

For any other queries, please contact through mail to:

1. Er. S. Dey, University Engineer (Actg.), UBKV: sdey1119@gmail.com
2. Er. S. S. Roy, Instrumentation Engineer, UBKV: sangeetsroy@gmail.com

Sd/-
Registrar (Actg.)