



Republic of the Philippines  
**CAVITE STATE UNIVERSITY**  
**Don Severino de las Alas Campus**

Indang, Cavite, Philippines

☎ (046) 4150-010 / 📠 (046) 4150-0013 loc 203

www.cvsu.edu.ph

**INVITATION TO SUBMIT QUOTATION**

**Supply, Delivery and Installation of Various Systems for Makapuno Project  
 (Renovation and Upgrading of the Greenhouse for the Makapuno Project)**

1. The Cavite State University (CvSU) invites interested firms/supplier to submit quotation for the project **“Supply, Delivery and Installation of Various Systems for Makapuno Project (Renovation and Upgrading of the Greenhouse for the Makapuno Project)”** with an Approved Budget for the Contract (ABC) of **Nine Hundred Sixty-Seven Thousand Four Hundred Ninety-Nine Pesos and 94/100 Only (Php 967,499.94)**. Quotation received in excess of the ABC shall be automatically rejected at the opening.

Item No.	Quantity	Unit	Description	Unit Cost	Total Cost
			<b>Misting System Materials and Labor</b>		
1.	26	pcs	Brass Misting Nozzle		231,210.00
2.	1	unit	3HP High Pressure Pump, Single Phase		
3.	1	unit	Pump control with Variable Frequency Drive (VFD)		
4.	1	roll	HDPE Pipe 1" SDR 11		
5.	4	pcs	Brass Gate Valve 1"		
6.	1	Lot	Fittings and Accessories (GI Elbow, Tee, Coupling, Teflon, Adapters)		
7.	1	Lot	LABOR		
8.			<b>Ventilation System Materials and Labor</b>		
9.	3	units	Heavy Duty Industrial-Horizontal Blowers 20" diameter		90,750.00
10.	3	pcs	Circuit Breaker Protection Device with Enclosure		
11.	3	box	Electrical Wires #12		
12.	5	pcs	Splicing/Utility Box		
13.	20	roll	Electrical Tape 3/4"		
14.	50	m	Electrical Conduit 1/2"		
15.	3	pcs	Electrical Switch		
16.			<b>Instrumentation and Control System for Misting and Ventilation Materials and Labor</b>		
17.	7	unit	Arduino Uno-		
18.	7	unit	Arduino Mega		
19.	5	pc	PIC16F877A microprocessor chip		
20.	2	unit	PIC Minimum System Development Board JTAG ICSP Program Emulator		
21.	20	unit	AM2302 Air Temperature & Relative Humidity Sensor		
22.	3	unit	Solar Cell, Polycrystalline Silicon, 0.2W Max Power, 1.5V Output Voltage, 2 panels		
23.	4	unit	LDR Photosensitive Light Dependent Resistor Module		
24.	2	pc	Wind Sensor, 10-12V operating voltagem		

			40mA current, 0-150MPH wind speed measure		
25.	2	pc	Differential Pressure Sensor		
26.	5	pc	Analog Infrared Carbon Dioxide Sensor Module		
27.	5	pc	I2C Oxygen Sensor Module		
28.	2	pc	PH Value Detect Sensor Module + PH Electrode Probe BNC with Cable		
29.	2	pc	DS18B20 Water Digital Temperature Sensor Module		
30.	2	pc	TDS Sensor Water Conductivity Sensor Module		
31.	3	pc	5VDC HC-SR04 Ultrasonic Sensor		
32.	2	pc	AC 110-220V DC 24V 2A 48W Switch Power Supply Transformer		
33.	2	pc	AC 110-220V DC 24V 1A 25W Switch Power Supply Transformer		
34.	6	pc	LM317 DC-DC 1.5A 1.2 ~ 37V Converter Step Down Power Supply Module		
35.	4	pc	AC 125V/15A 250V/10A Screw Cap Panel Mounted 5x20mm Fuse Holder		
36.	5	pc	Glass Fuse 1A 250V		
37.	5	pc	Glass Fuse 2A 250V		
38.	3	pc	Rocker Switch		
39.	5	pc	20x4 LCD Display with I2C Adapter Module		
40.	5	pc	SD/ MMC Card Shield/Breakout Board		
41.	2	pc	RTC Real Time Clock Module		
42.	5	pc	100Pcs/Pack Nylon Cable Tie, 1.9x100mm		
43.	4	pack	4 Channel 5V Relay Module		
44.	1	unit	Portable generator, 220-240V, 2500W, gasoline		
45.	10	unit	Soil moisture sensor		
46.	10	unit	Soil pH sensor kit		
47.	25	pc	6 long pins		
48.	25	pc	8 long pins		
49.	5	pc	40 pin male headers		
50.	5	pc	40 pin female headers		
51.	30	pc	3x8 Screws		
52.	30	pc	3x6 Screws		
53.	15	pc	3x18 screws		
54.	15	pc	3x20 screws		
55.	10	pc	3x25 Screws		
56.	50	pc	3mm nuts		
57.	20	pc	3x6 Brass Studs		
58.	15	pc	3x10 Brass Studs		
59.	15	pc	3x15 Brass Studs		
60.	15	pc	3x20 Brass Studs		
61.	10	pc	3x25 Brass Studs		
62.	2	pc	64 GB SD Card		
63.	10	m	Heat Shrink Tube 3:1 / 4mm		
64.	10	m	Heat Shrink Tubes 3:1 / 10mm		
65.	100	m	#22 stranded wire red		
66.	100	m	#22 stranded wire black		
67.	100	m	#22 stranded wire yellow		
68.	100	m	#22 stranded wire blue		
69.	100	m	#22 solid wire red		

222,745.00

70.	100	m	#22 solid wire black		
71.	2	pc	Presensitized PCB 8" x 12" Single		
72.	5	can	Ferric Chloride Solution		
73.	50	pc	2 pin/ 2 hole terminal blocks ( green)		
74.	5	pc	Armak Electric Tape Big 19mm x 16 mm		
75.	4	pc	Screw Mount 3 Pins IEC320 C14 Inlet Power Plug Socket AC 250V 10A black		
76.			<b>Benches Materials and Labor</b>		
77.	80	pc	GI Pipe 2" x 6m Sch 40		
78.	50	pc	GI Pipe 1" x 6m Sch 40		
79.	80	pc	Steel Matting 3/16, 4'x8'		
80.	50	pc	Flat Bar 1" x 3/16, 20 ft		
81.	2	box	Welding Rod		
82.	2	box	Cutting Discs		
83.	10	gal	Gray Oxide Primer		
84.	10	gal	QDE Paint		
85.	2	gal	Paint Thinner		
86.	20	pc	Paint Brush		
87.	10	pc	Paint Roller		
88.			<b>Shade Nets Materials and Labor</b>		
89.	6	rolls	Shade Net 50% Shade, 20m x 2m		
90.	50	rolls	Nylon String		
91.	3	pc	Heavy Duty Scissors		
92.				Direct Cost	948,165.00
93.				Contingency	19,334.94
<b>TOTAL AMOUNT</b>					<b>967,499.94</b>

## SCOPE OF WORK

### A. SUPPLY, DELIVERY AND INSTALLATION OF VARIOUS SYSTEMS FOR MAKAPUNO PROJECT (RENOVATION AND UPGRADING OF THE GREENHOUSE FOR THE MAKAPUNO PROJECT)

#### General Notes

1. The contractor must perform actual site inspection prior the execution of any renovation works. Inspection of existing irrigation lines, cables, pipes, water source, ground surface conditions, covering material, shading nets, and power lines is necessary to assess current condition of the infrastructure.
2. Supplies and materials to be used must be verified to meet the standard specifications and requirements for greenhouses.
3. The area should be cleared before and after the construction work.
4. Observe safety measures and adherence to health protocols in performing renovation works to ensure health and safety against possible COVID-19 infection and transmission.
5. The renovation shall be complete in 30-40 days.

### B. TECHNICAL DESCRIPTION

#### I. Installation of the Misting System and Ventilation System

1. The contractor will be responsible for the installation and testing of the misting system and ventilation system in accordance with the layout attached in this scope of work. Additional electrical installations shall be made by the contractor if necessary.
2. One mainline will be attached to high pressure pump connected to the water supply tank.
3. The high-pressure pump will be connected to a variable frequency drive for the control of water pressure.

4. Two laterals will be connected to the mainline to supply water to 13 brass-type misting nozzles per lateral.
5. The misting nozzles shall be spaced properly to cover the entire length of the greenhouse (approximately 2-m spacing between nozzles).
6. For the ventilation system, 3 heavy-duty horizontal flow fans with at least 20" diameter will be mounted on the ceiling of the greenhouse to provide a maximum ventilation rate of  $\frac{3}{4}$ -1 air change per minute.
7. Fans will be spaced not more than 7.5 m (24.61 ft) apart for uniform ventilation and located on the downwind side or end of the greenhouse. Two fans will be located on one side (half) of the greenhouse while the remaining fan on the other half.
8. The first fan should be placed 3 m away from the wall or end of the greenhouse.

## **II. Instrumentation and Control for the Misting and Ventilation System**

1. The contractor shall implement the design of the control system and ventilation system attached in this scope of work.
2. All the details of the electronics and control system were designed accordingly to facilitate the automation and control of the greenhouse operations.

## **III. Construction of the Benches**

1. Pre-fabricated greenhouses benches shall be delivered in good condition compliant with the fabrication requirements.
2. Standard benches with dimensions of 6.0 m x 1.8 m x 0.9 m (length, width, height) and laid-out with steel mat shall be fabricated.
3. Benches shall be painted to reduce corrosion.

## **IV. Installation of Shading Nets**

1. Removal of old and worn-out shading nets shall be done by the contractor along with the rehabilitation of clamping posts or beams.
2. Shading nets shall be laid-out and cut according to the installation design.
3. Shading nets will be sawn and clamped to walls, posts, and beams.

### **Notes:**

1. See/consult end user for details/extent of work. The silence of specification, plans, special provision and supplementary specifications as to any detail, or the apparent omission therein of a detailed description or definition of the quality of materials and workmanship shall be regarded to mean that only materials and workmanship of first-class quality are to be used or employed.
2. All tools and equipment necessary for executing the work will be provided by the contractor.
3. Works that are necessary but are not cited in the above specifications will be facilitated by the contractor.
4. No modifications will be done without the approval of the end user, project inspector and implementor.
5. Verify actual measurement on site.
6. See approved plans for details and reference.

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2. Delivery Period: \_\_\_\_ calendar days from the receipt of P.O.
  3. Price quotations must be valid for a period of sixty (60) calendar days from date of submission and shall include all taxes, duties and/or levies payable. Bidders shall also indicate the brand and model of the items being offered.
  4. Warranty shall be for a period of six (6) months for supplies and materials. Warranty for equipment must not be less than one (1) year from the date of acceptance and shall be accompanied with Warranty Certificate.
  5. The quotation must be submitted to the Supply Office through mail, fax or email at the

contact details listed below **on or before 5:00 PM of November 26, 2021.**

Address : Supply Office, Administration Building  
Cavite State University  
Indang, Cavite  
E-mail : supplyoffice@cvsu.edu.ph  
Telefax : (046) 862-0852

6. The CvSU reserves the right to reject any or all quotations and/or proposals and waive any formalities/informalities therein and to accept such bids it may consider as most advantageous to the agency and to the government. CvSU neither assumes any obligation for whatsoever losses that may be incurred in the preparation of bids, nor does it guarantee that an award will be made.

  
**PRECIOSA G. ERAÑA**  
BAC Secretary, Goods and Services