



TERMS OF REFERENCE

I. GENERAL INFORMATION

- **Project Title:** Innovative Environment Friendly Technologies for Sustainable Livelihood in the Countryside that Promote MSMEs - GF-G-24-02-003

Lot 1: Procurement of Other Machinery & Equipment

Lot 1b: Coffee and Cacao Machinery Development)

Lot 2: Procurement of Computer Software (Development of Automation Systems)

Lot 3: Procurement of ICT Equipment

Lot 7: Procurement of Other Supplies;

For Aquaculture System, Free Range Poultry & Egg Production, Integrated Smart Crop Production & Coffee Beans for the Coffee & Cacao Dev't Center

Approved Budget for the Contract (ABCD): Lot 1: PhP567,400.00

Lot 2: PhP700,000.00

Lot 3: PhP120,000.00

Lot 7: PhP593,532.00

Total ABCD: PhP1,980,932.00

- **Project Site:** IFUGAO STATE UNIVERSITY
- **Source of Fund:** General Fund (GF) - 2024

II. INTRODUCTION

This Terms of Reference (TOR) and Technical Specifications center on the Procurement of Computer Software (Development of Automation Systems), other machinery & equipment for Coffee and Cacao Machinery Development, and, other supplies for Aquaculture System, Free Range Poultry & Egg Production, Integrated Smart Crop Production & Coffee Beans for the Coffee & Cacao Dev't Center to be procured through competitive bidding.

III. SCOPE OF THE PROJECT

The delivery of computer software, machinery & equipment, and other supplies for the Innovative Environment Friendly Technologies for Sustainable Livelihood in the Countryside that Promote MSMEs project shall be within 45 calendar days reckoned five (5) days from the time the winning bidder received the copy of the Notice to Proceed. Interested Bidder must have successful previous transaction experiences regarding the requested items with any government agencies. The items to be procured should be provided in package and with installation for specific materials. As part of the inclusions, the winning bidder should conduct a seminar/training on the operation and maintenance of the equipment. The supplier shall ensure that all goods are appropriately delivered to Ifugao State University Supply Office in a good manner to avoid physical damage, breakage otherwise the supplier shall replace the damage, broken or leaking items free of charge within the specified time.

IV. OBJECTIVE

To procure computer software, machinery & equipment, and other supplies for the Innovative Environment Friendly Technologies for Sustainable Livelihood in the Countryside that Promote MSMEs project through competitive bidding, enabling the development of automation systems for coffee and cacao processing, aquaculture systems, free-range poultry & egg production, and integrated smart crop production & coffee beans.

Prospective bidders shall submit their bid documents following the instruction to bidders provided in the bidding documents issued. Bidders must state either "Comply" or "Not Comply" against each item and indicate specifications or model in the "Technical Specification" portion. Detailed item specification is shown in the table below.

Table 1. Lot 1: Procurement of Other Machinery & Equipment Lot 1b: Coffee and Cacao Machinery Development)

CONTRACT No. GF-G-22-__-__ (Lot 1)			
TECHNICAL SPECIFICATIONS			
Item No.	Unit	Item Description	Quantity
1	set	TIG Welding Machine, 300A, set, 4.5kva, 1.6-5.00 electrode	1
2	set	Angle Grinder, 900watts	2
3	kg	Stainless TIG Filler Rod T308L 2mm	3
4	box	cutting disc, 4 inch	5
5	box	grinding disc, 4 inch	5
6	set	14" Cut Off Saw (2,200W)	1

7	pcs	14" Cut Off Disc	5
8	pcs	stainless sheet, 1.2 mm	3
9	pcs	square tube 1/1/2x1/1/2, 1.5mm	10
10	set	Disc-type Coffee Depulper	1
11	set	Drum-type coffee depulpers	1
12	lot	Charcoal roaster, Cast iron, 5 kg capacity, fabricated	1
13	set	Coffee grinder, heavy duty, alloy materials, 2.2 hp	1
14	set	Espresso/ Coffee Machine, 1450watts, 220v	1
15	lot	infrared coffee roaster	1
16	lot	stainless table 100x300x80	2
17	pcs	Airtight Food Container, 304 stainless steel, 70L	20
18	lot	Display Cabinets, 4 compartments, 50x200x50	1
19	unit	Food dehydrator, 800watts	1
20	lot	Solar Dehydrator	1

Table 2. Lot 2: Procurement of Computer Software (Development of Automation Systems)

CONTRACT No. GF-G-22-__-__ (Lot 2)			
TECHNICAL SPECIFICATIONS			
Item No.	Unit	Item Description	Quantity
1	pc	AL-06 Energy Saving Timer Plug Programmable Electronic Plug Timer Socket Charger	10
2	pc	200*120*75 Outdoor Waterproof Case Enclosure Plastic Box Electronic Project Junction	50
3	pc	1 Channel 5V 10A Relay Module with Optocoupler	10
4	pc	12VDC/220VAC 1/2" Electric Solenoid Valve Magnetic Water Air Flow Normally Close 220v Brass Valve	10
5	pc	2 Channel 5V 10A Relay Module with Optocoupler	10

6	pc	2023 Advance Upgraded Starter Kit compatible with Arduino UNO R3 w/ PDF Manual	5
7	pc	4 Channel 5V 10A Relay Module with Optocoupler	5
8	pc	5 in 1 PH meter water quality tester TDS/EC/PH/salinity/thermometer digital water quality tester	6
9	pc	5 in 1 PH meter water quality tester TDS/EC/PH/salinity/thermometer digital water quality tester	5
10	pc	8 Channel 5V 10A Relay Module with Optocoupler	5
11	pc	AL-06 Energy Saving Timer Plug Programmable Electronic Plug Timer Socket Charger	15
12	pc	Analog TDS Sensor High Accuracy Water Conductivity Sensor	6
13	pc	Microcontroller board based on the ATmega328P PRO MINI 5V 16MHZ	10
14	pc	Calibrated thermohygrometer / thermometer with ISO/IEC	5
15	pc	Cooling Fan 3010 4010 5015 5v	10
16	pc	Crystal- 38 Pin ESP32 Breakout Board For ESP32 Development Board 2.4 GHz Wifi Dual Core NEW	10
17	pc	DFRobot Gravity: Analog pH Sensor / Meter Kit	10
18	pc	Digital 220V STC-1000 Temperature Controller Thermostat Regulator+Sensor	10
19	pc	Digital Humidity Controller Hygrometer Humidity Control Switch 0~99%Rh Hygrostat With Humidity Sensor AC220V	30
20	pc	Dissolved Oxygen Sensor Meter Kit For Arduino Gravity	6
21	pc	REAL TIME CLOCK MEMORY MODULE RTC: DS3231	10
22	pc	Development Board WiFi+Bluetooth Ultra-Low Power : ESP32	20
23	pc	WiFi IoT Development Board : ESP32	15
24	pc	Analog CO2 Gas Sensor For Arduino (MG-811 Sensor) Gravity:	2

25	pc	Analog TDS Sensor/ Meter for Arduino : Gravity	5
26	pc	GY-302 Bh1750 Light Intensity Module	10
27	pc	Incubator Egg tester Egg Candling Lamp LED Super Cold Equipment Stainless Steel Mini Keychain Poultry Incubation Flashlight	5
28	pc	LCD Display with I2C Adapter Module for Arduino	10
29	pc	Measuring and Logging Soil Moisture Temperature Humidity EC PH NPK Sensor with HMI touch screen	2
30	pc	Memory Card 2GB 4GB 8GB 16GB 32GB TF Micro SD	20
31	pc	MicroSD card module for Arduino	10
32	pc	MP901 AIR QUALITY SENSOR	5
33	pc	Nextion 3.5" UART TFT LCD Module Display Panel NX4832T035	5
34	pc	NPK PHCTH-S Soil Moisture Temperature Humidity EC PH NPK Sensor with optional 4-20mA 0-5V RS485 output	5
35	pc	OLED I2C module LCD Display Screen 0.96inch White	10
36	pc	Orange Pi 5 Development Board+Metal Case Kit RK3588S 8-Core ARM 64Bit RAM 8K Gigabit WiFi+BT Development Board	5
37	pc	5" Raspberry Pi Monitor Capacitive Touch Screen 800*480 IPS 5 inch Touchscreen	5
38	pc	OV7670 CAMERA MODULE	10
39	pc	PHOTO RESISTOR SENSOR MODULE	10
40	pc	SGP 30 Air Quality Sensor Breakout Board SGP3	5
41	pc	Smart Sensor Dual Digital Thermostat Temperature Controller Two Relay Output AC110-220VAC 50/60Hz /12V	20
42	pc	Soil Moisture Sensor Module for Arduino	10
43	pc	Standard Terminal Adapter Board For Nano 3.0 V3.0 AVR ATMEGA328P ATMEGA328P-AU Module Expansion Shield Module	10
44	pc	TEMPERATURE HUMIDITY SENSOR MODULE DHT 22	10

45	pc	Microcontroller board based on the ATmega328P R3 Basic Kit	5
46	pc	UNO R3 board compatible with IDE ATmega328P CH340	10
47	pc	USB Fan 5V	10
48	pc	Waterproof DS18B20 Sensor Kit	10
49	pc	XH-M203 Water Level Controller Board AC/DC 12V Relay Module Pump Switch Sensors Automatic for Smart Home Application	10
50	pc	Sim800L V2 5V Wireless Gsm GPRS Module	5
51	set	Nutrient Auto Dosing and Online Monitoring System for Hydroponic System	2
52	pc	Broadway Power Supply Kit 750MA 3v-12V DIY Power Supply Kit Heavy Duty Multiple Converter Kit	5
53	pc	DIGITAL MULTIMETER / TESTER	5
54	pc	LED GROW LIGHTS T8 , 36W , 4FT FULL SPECTRUM WHITE , DARK PINK 6500K Kelvin	50
55	pc	PeakMeter PM6612 Digital Analog Bar Light Lux Meter 200000 Lux Handheld Light Meter for Light Measuring	2
56	pc	Peristaltic Pump Aquarium Liquid Water Pump	20
57	pc	Analog Multimeter YX 360TR E-L-B	2
58	pc	Switching Power Supply 5V 5A 50W	10
59	pc	Battery 3S 11.1V 8A Charger 18650 BMS	10
60	pc	18650 Rechargeable Battery 10000mAh 4.2V High Capacity Lithium Battery	15
61	pc	50 Watt Solar Panel Kit Solar Cables High Efficiency Off Grid System Solar Powered Charger	5
62	pc	Downspout 8ft x 2.5" x 4" for Hydroponics	40
63	pc	Styro Foam 2x4 inches thickness	10
64	Box	Tuna Box with 18 holes	10
65	pc	FINE MESH INSECT NET 3.6 METERS BY 5 METERS	5
66	PC	UV TREATED PE FILM 150 MICRON (3 METERS WIDTH X 7 meters)	5
67	pc	Aquaspeed A6000 Submersible Pump 42W	3
68	pack	2 INCH HYDROPONICS NET CUPS 100 PCS	5

69	pc	Seedling Tray 105 Holes	1
70	pc	Horticultural Foam	1
71	sack	Coco Peat (Dry) 1Sack	10
72	pc	Dry Net 50 Shade Greenhouse 8Ft Width X 5M Long	2
73	pc	100 pcs. Rock wool for Hydroponics Grow Media 25x25x25mm	2
74	pc	IBC TANK 1000 LITERS	5
75	pc	Aquaspeed A6000 Submersible Pump 42W	2
76	pc	WATERLINE PVC PIPE 2" inches 3 meters	10
77	pc	Male Threaded Adaptor PVC Blue Fittings 1-1/2"	10
78	pc	Female Threaded Adaptor PVC Blue Fittings 1-1/2"	10
79	pc	Elbow Threaded 1-1/2"	10
80	pc	PLASTIC PVC Ball Valves 1/2	10

Table 3. Lot 3: Procurement of ICT Equipment

CONTRACT No. GF-G-22-__-__ (Lot 3)			
TECHNICAL SPECIFICATIONS			
Item No.	Unit	Item Description	Quantity
1	units	Branded Desktop Computer Specifications: Intel Core i5-13400 processor 8 GB DDR4 Memory 256 GB SSD + 1TB HDD Intel UHD 730 Graphics Win11 Home 21.5" LED Monitor	2

Table 4. Lot 7: Procurement of Other Supplies;
 For Aquaculture System, Free Range Poultry & Egg Production, Integrated Smart Crop Production & Coffee Beans for the Coffee & Cacao Dev't Center

CONTRACT No. GF-G-22-__-__ (Lot 7)			
TECHNICAL SPECIFICATIONS			

Item No.	Unit	Item Description	Quantity
Off-season Mango Production Technology Project			
1	bag	Potassium per manganate/ Muriate of Potash (0-0-60), 50kg	2
2	bag	Yara Liva Nitabor, 50kg	2
3	bag	Yara Mila winner, 50kg	1
4	pack	Great Planters, zinc sulfate heptahydrate, 1kg	25
5	bottle	Syngenta, Alika 247 ZC insecticide, 1L	3
6	bottle	Agway, Lauda 250 SC insecticide, 1L	6
7	pack	Dupont Lannate 40SP insecticide, 1kg	2
8	box	Agway, Thripshield 20SP insecticide, 400g	5
9	bottle	Syngenta, Score 250 EC fungicide, 1L	4
10	pack	Dupont Kocide fungicide/bactericide, 1kg	5
11	pc	Seedling bag, Black, 10 x 12 inches	500
12	pc	Jang-gum, mango fruit bag, made in korea, 19 x 30 cm	2,000
Free Range Poultry and Egg Production			
1	Heads	DekalbBrown Day old chicks 1-2 days	100
2	bg	Chick Booster	1
3	bag	Starter Crumble	2
4	bg	Grower crumble	11
5	pc	tubular auto feeder (3kg capacity) 5kg	10
6	pc	waterer (1 gal. capacity)	10
7	set	brooder lamp/poultry heater	3
8	sachet	vetracin powder 5g	30
9	sachet	vetracin gold 5g	30
10	sachet	vetracin ultimax 5g	50
11	sachet	Pidro (dewormer)5g	30
12	bots	New Castle Disease vaccines 20ml	13
13	bots/kg	dextrose powder 100g	5
14	roll	Ranging nets 1.5 x 9ftx100	1
15	kg	Azolla plant	10
16	kg	Sunflower	10
17	kg	Peanut (local)	10
18	kg	Mungbean (ordinary)	10
19	kg	Soy bean (local)	10
20	bg	Corn seeds (local)	4
21	bg	Urea 46-0-0	2
22	bg	Complete 14-14-14	3
23	gal	Herbicide (Clear out)	1
24	liter	Insecticide (Magnum)	1
25	bg	rice hull	50
26	bg	fly ash	50

27	grams	Activator CHC Agritech foul odor	2
28	bag	chicken layer feeds	33
29	kg	pigeon pea	5
30	pc	lagundi seedling	5
31	pc	Sambong seeds	3
32	pc	Lemon Grass Seedling	5
33	pc	Oregano/Cuttings	10
34	pots	Rosemary	4
35	pots	Spearmint	4
36	pots	Lavender	4
Integrated SMART Crop Production			
1	pc	Shovel Round Point 40.5-inch	2
2	pc	Spading fork 40.5-inch	2
3	pc	Garden Hoe Without Handle 2.5 LB	2
4	pc	Digging Fork Grab Hoe Head Without Handle	1
5	pc	Garden Rake 16 Tines for Gardening 50-inch	1
6	pc	Long Handle Garden Sickle Multipurpose/ Tabas	2
7	pc	Tagalog Bolo 17-inches Blade Pure Molye	1
8	pc	Sharpening Stone 8-inches	2
9	pc	Large 9L Flower Sprinkler Lagadera	2
10	pc	16L Knapsack Electric Sprayer Agriculture Rechargeable	1
11	roll	Heavy Duty 15 Meters PVC Garden Hose	2
12	pc	Wheel Borrow Heavy Duty for Garden	1
13	kilo	Galvanized Iron Tie Wire No. 16	2
14	pc	Stainless Steel Knife	1
15	pc	Pail with Stainless Steel Handle Timba 16 Liters	2
16	pc	Tank 1000 Liter	1
17	pc	Plastic Straw	2
18	pack	Plastic Tabo 4pcs pack	1
19	pc	3 pcs Garden Crate Basket 53 cm x 37 cm x 31 cm	2
20	pc	Timbangan 30 Kilos Capacity	1
21	roll	Mulch Film 1.2m x 400 m Silver Black	1
22	pack	Seedling Trays (20 pcs/128 holes)	2
23	pc	Polyethylene Nursery Plastic Pot 10" x 10"	50
24	pc	Empty Sack 50 kgs Capacity	20

25	pack	100 Pcs/Pack Plastic Bag Medium 26cm x 31cm	3
26	pc	150 mm 6 inch Vernier Caliper with Electronic LCD	1
27	kilo	Yellow Sweet Corn Seed F1 1 kg	1
28	kilo	White Sweet Corn Seed F1 1 kg	1
29	kilo	Shelled Peanut Seeds	10
30	kilo	Soybean Seeds	10
31	kilo	Mungbean Seeds	5
32	kilo	Kadios Seeds	3
33	sachet	Sunflower 200 Seeds	3
34	can	Squash Glutinous 50 g Est. 400 Seeds	1
35	sachet	Hybrid White Eggplant Approx 228 Seeds	1
36	sachet	Variety Calixto F1 Hybrid Eggplant Approx 875 Seeds	1
37	sachet	Variety Beauty Eggplant Approx 545 Seeds	1
38	sachet	Watermelon Yellow Hybrid Approx 25 Seeds	3
39	sachet	Melon Best Jumbo Original and High Quality Approx. 160 Seeds	2
40	sachet	Red Color Passion Fruit 10 Seeds	5
41	sachet	Hybrid Tomato Approx 500 Seeds	2
42	sachet	Bell Pepper Vegetable Seeds Approx. 50 Seeds	3
43	sachet	Lettuce Curly Green 10 grams	3
44	sachet	Cabbage Copenhagen Approx 397 Seeds	2
45	sachet	Sweet Basil 100 Seeds	5
46	sachet	Arugula 100 Seeds	5
47	bag	Urea 46-0-0 50 kg/bag	2
48	bag	Complete Fertilizer 14-14-14 50/bag	2
49	bottle	Insecticide 500 mL	2
50	sachet	Fungicide 1 kg Sachet	1
51	bottle	Systemic Weed Killer 1 Liter	2
Other Supplies (Hydroponics, Aquaculture and Aquaponics)			
1	lot	Tilapia Fingerlings (POST-1)	3,500
2	sack	Booster	3
3	sack	Pre-starter zero	2
4	sack	Pre-starter	2
5	sack	Starter	2
6	sack	Grower	20

7	sack	Finisher	20
8	pc	200L Plastic Drum	6
9	pc	Mushroom Bags	50
10	pc	K-1 Filter Media for aquaponics 1kg	5
11	pc	Hydroton Clay Pebbles high quality	1
12	pc	10 pcs mechanical (30cm) filter	5
13	pc	3 in 1 set pH Buffer Powder Calibration Point 4.00/6.86/9.18 for pH meter calibration buffer solution	20
14	pack	Lalique Lettuce Pelletized seeds 100 pcs	2
15	pack	Romaine Lettuce Pelletized seeds 100 pcs	2
16	pack	Batavia Lettuce Pelletized seeds 100 pcs	2
17	pack	Omeltie Lettuce Pelletized seeds 100 pcs	2
18	pack	Lollo Bionda Lettuce Pelletized seeds 100 pcs	2
19	pc	Hydroponics Nutrient Solution A & B 500 ml	10
20	pc	Leafy Vegetables seedlings	100
21	pc	NFT Downspout 8ft 16 holes per NFT	40
22	pc	Styro foam 2 x 4 ft 1 inches	10
23	box	Tuna Box with 18 holes	10
24	pc	Fine mesh insect net 3.6 meters by 5 meters	5
25	pc	UV Treated PE Film 150 Micron (3 meters width x 7 meters)	5
26	pc	Aquaspeed A6000 Submersible Pump 42 w	3
27	pack	2 inch hydroponics net	5
28	pc	Seedling tray 105 holes	1
29	pc	Horticultural foam	1
30	sack	Coco peat (dry) 1 sack	10
31	pc	Dry Net 50 Shade Greenhouse	2
32	pack	100 pcs. Rock wool for hydroponics grow media (25x25x25 mm)	2
Other Supplies (Coffee and Cacao Development)			
1	kg	Coffee beans, Arabica	200
2	kg	Coffee beans, Robusta	200


IV. DELIVERY AND ACCEPTANCE

Delivered supplies must be inspected by the Technical Working Group assigned for the project who will sign the Inspection and Acceptance Report.


V. TERMS OF PAYMENT

Payment shall be processed after completion (100%) of delivery and submission of required papers as may be necessary. -----

Prepared by:


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