

**Supply and Delivery of 198 Units of Small-Scale Composting Facilities (SSCF)
Technical Specifications**

Item #	Item Description
	I. One (1) unit Biomass Shredder
	<p>A. <u>Shredding capacity: Minimum of 1 ton per hour</u> Verification: 1) AMTEC Test Report 2) Post-Qualification</p>
	<p>B. <u>Shredding efficiency: At least 90%</u> Verification: 1) AMTEC Test Report 2) Post-Qualification (actual testing) a) At least 90% of the shredded output shall pass through a 1inch-size screen b) Test Material: Young coconut (buko) shall be provided by the bidder Amount of Test Material: At least 75% of required input capacity of the Biomass Shredder (i.e. at least 750kg) (Based on PAES 245:2010- Methods of Testing)</p>
	<p>C. <u>Locally fabricated; can withstand the stresses of demanding use</u></p>
	<p>D. <u>Shall be free from manufacturing defects, sharp edges and surfaces other than the cutting mechanism to ensure safety of the operators</u></p>
	<p>E. <u>Shredding Chamber:</u> 1) Thickness: Not less than 10 mm 2) Material/Method: Cast iron/full-welded metal steel</p>
	<p>F. <u>With built-in woodchipper:</u> Chipping ability minimum requirement: Can chip up to 3cm diameter of softwood (If it can chip bigger diameter of softwood, better.)</p>
	<p>G. <u>Shredding blades and chipping blades:</u> 1) Material: minimum of 4140 steel properties or its equivalent, quenched and tempered steel Verification: a) Submitted during the submission of bid proposal as part of Technical Proposal: Submission of Mill Certificate certified by source dealer or its equivalent (ex. Chemical Analysis from DOST- Metals Industry Research and Development Center [MIRDC]), b) Post-Qualification: Chemical Analysis and Metal ID of the blade by DOST - Metals Industry Research and Development Center (MIRDC). Cost of analysis will be shouldered by Bidder. Number of sample blades: 2 (random sampling) c) Prior to distribution: Chemical Analysis, Metal ID, of the blades by DOST- MIRDC. Cost of analysis will be shouldered by winning bidder. Number of sample blades: 3 (random sampling) The bidder or its representative shall be present during the submission of samples to the testing center. NOTE: Failure to comply with the required specification prior to distribution shall be ground for termination of contract and/or blacklisting.</p>

Chemical composition of 4140 Steel:

Element	Required composition by ASM ^a (%) SAE# 4140/AISI# 4140	Required composition by UNS ^b (%) Unified# G41400
Chromium, Cr	0.80-1.10	same as ASM
Manganese, Mn	0.70-1.00	same as ASM
Silicon, Si	0.15-0.35	same as ASM
Carbon, C	0.38-0.43	same as ASM
Molybdenum, Mo	0.15-0.25	same as ASM
Sulfur, S	0.040	max=0.040
Phosphorus, P	0.035	max=0.035

^aASM (American Society for Metals) International Metals Handbook, Vol. 1, 10th ed.

^b UNS (Unified Numbering System, Metals & Alloys in the), 11th ed.

- 2) Blades shall be replaceable with minimal effort, with no cutting of parts needed, or any work that will compromise the durability of the shredder.
- 3) Blades can be sharpened.
- 4) Spare Blades: With one (1) set spare painted, quenched tempered 4140 (or its equivalent) steel shredding blades

∴ For verification and sampling, the following number of units are required:

- ✓ Post-Qualification: 2 blades
- ✓ Prior to distribution: 3 blades

Note: The bidder shall have replacement for the 2 blades (Post Qualification) and 3 blades (Prior to distribution) to be used for analysis.

H. Power Source/Engine

- 1) Power: At least 7-Hp
- 2) Diesel; water-cooled; single horizontal cylinder; 4 stroke cycle
- 3) Power transmission: Belt-driven (with shredder machine and power source mounted on a common steel base)
- 4) Fuel consumption (on average consumption): Max= 2.4L/hr
- 5) Average output power per AMTEC Test Report of Engine: Must conform with the performance requirement per PAES 116:2001
- 6) Weight: Max=75kg; Verification: AMTEC Test Report of Engine
- 7) With manual and standard engine tools

I. Other Parts/Provisions

- 1) Feeding plate and hopper/funnel: Thickness: Not less than 1.7mm
- 2) Belt:
 - a) With cover or guard provisions
 - b) With belt tightening or adjustment mechanism
- 3) Steel base and rubber wheels: Shredder and engine mounted on a heavy-duty common steel base with 4 heavy-duty rubber wheels of at least 6 inches in diameter for easy mobility, with lock
- 4) Maintenance tools: grease gun, rubber mallet, set of combination wrenches suited for nuts and bolts of the shredder, adjustable wrench, and plastic goggles; with tool box
Verification: Post-Qualification

J. Valid AMTEC Test Reports for:

- 1) Shredder and engine couple (couple being offered), Certified True Copy by AMTEC
- 2) Engine only- Submitted AMTEC Test Report for engine shall be Certified True Copy by AMTEC. Please note that a copy of the test report stamped with Certified True Copy by AMTEC is required. It does not have to be the original true copy from AMTEC. This requirement only assures that it is a copy of the report that was certified by AMTEC.

Both submitted during submission of bids as part of the technical proposal.

	<p>K. <u>Conformity to Standards:</u> 1) PNS/PAES 244:2010 (Agricultural machinery – Biomass shredder – Specifications): Manufacturing requirements; performance requirements; safety, workmanship, and finish; and markings; unless otherwise specified herein. 2) PAES 116:2001 (Agricultural machinery – Small Engine – Specifications): performance requirements; workmanship and finish; maintenance and operations tools requirements; including instruction manual, marking, and labeling and other requirements.</p>
	<p>L. <u>Bolts and nuts must be stainless</u></p>
	<p>II. Two (2) units Vermicompost Tea Brewer</p>
	<p>M. <u>Double-barreled compost agitator with minimum of 3 outside bubblers</u></p>
	<p>N. <u>30 liters brewing capacity per brewer</u></p>
	<p>O. <u>220 volts (with standard tools: screwdrivers and pliers)</u></p>
	<p>P. <u>With manual for operation</u></p>
	<p>III. Compost Worm (African Night Crawler) (15kgs/lot) Supplier shall provide proper documentation (videos and photos) of weighing 15kgs African Night Crawler without the substrate during delivery (Weight of delivered ANC)</p>
	<p>Q. <u>ANC shall be sourced out within the nearest possible location of the site of the beneficiary.</u></p>
	<p>R. <u>Other submissions</u> 1) Detailed Engineering Design of biomass shredder a) Indicating major parts and specifications, including measurements, scale, and other important details of the shredder contained herein b) Signed and sealed by a Registered Agricultural and Biosystems Engineer with valid copy of PRC License attached c) Submitted during submission of bids as part of technical proposal 2) Certificate of Availability of Stocks and its location: 10% assembled (biomass shredder and tea brewer) Submit during the submission of bid proposal as part of technical proposal Verification: Post-Qualification 3) Certificate of Warranty For parts: Minimum of two (2) years After sales service: Lifetime Submit during the submission of bid proposal as part of technical proposal Conformity to Minimum Standards of PNS/BAFS/PAES 192:2016: Guidelines on After-Sales Service: requirements of services and parts availability, training, maintenance, and operation 4) Certificate of Availability of Service Centers or Service Provider a) In case of service center: At least 1 per region; with list of addresses, contact persons, and contact details; or b) In case of service provider: Contract, proof of training of service provider personnel, list of personnel provided with training 5) Operations Manual With drawings/photos indicating major parts and functions a) With instructions on how to operate, troubleshoot, replace blades b) Written in understandable text with illustrations c) Submit during the submission of bid proposal as part of technical proposal d) With location and contact information of the suppliers nearest Service Center or Service Provider.</p>
	<p>6) Valid NAMDAC Certificate as manufacturer/ fabricator Verification: During Bid-Evaluation and Post-Qualification</p>

	Note: Biomass shredder shall be on the product line of Bidder during Post-Qualification
	<p>7) Valid BAFE Permit to Operate Certificate as manufacturer/ fabricator Verification: During Bid-Evaluation and Post-Qualification</p> <p>Note: Biomass shredder shall be on the product line of Bidder during Post-Qualification</p> <p>8) Work plan and Cost Estimates for Training to be conducted</p> <p>9) Video of How to Operate, troubleshoot, replace blades</p> <p>a) Included in an OTG for provision to recipient (upon delivery)</p> <p>b) Verification: During Post-Qualification</p>
	<p><u>S. Training Provision from Supplier:</u></p> <p>1) For the End-Users (Bureau of Soils and Water Management (BSWM) and National Organic Agriculture Program (NOAP)): Hands-on Training prior to delivery (Pax expected: 60, At least 1 day)</p> <ul style="list-style-type: none"> - With meals and accommodation for 2 DAYS AND 1 NIGHT <p>2) For the Beneficiaries</p> <p>a) Demonstration of overall operation (mechanism and proper use of auxiliary parts), and maintenance of the machine by a knowledgeable and capable staff during delivery and inspection of SSCF</p> <p>b) Capacity Enhancement of beneficiaries per batch on the operation and maintenance of SSCF (Pax expected: 30-55 per batch (See attached Annex for details); 15 batches (1 batch per region));</p> <p>Inclusive of the following:</p> <ul style="list-style-type: none"> Meals and accommodation for 3 DAYS AND 2 NIGHTS <ul style="list-style-type: none"> - Max. of 2 participants per beneficiary - Representatives from BSWM, NOAP-NPCO and DA-RFO (RED, Focal Person and APCO) Training Kits per participant Hands-on Training (on-site with SSCF) <ul style="list-style-type: none"> - Should be near to the venue - With vehicle provision Within two (2) months after delivery Resource speakers from supplier <p>3) Submission of all Curriculum Vitae (CV) of resource speakers as supporting document of Section VII. Resource Speakers shall be Qualified/ Knowledgeable to discuss/train about the following topics:</p> <p>a. Operation and Maintenance</p> <ul style="list-style-type: none"> - Technical Specifications <ul style="list-style-type: none"> Shredder Machine Vermicompost Tea Brewer - Detailed description of Major Parts and its Functions - Maintenance and troubleshooting - Operations Cost Estimate (Labor and Energy Resources) <p>b. Production Process</p> <ul style="list-style-type: none"> - Composting Materials - Vermicomposting and Vermicompost Tea Brewer Process <p>c. Hands on Training on SSCF Operation</p> <ul style="list-style-type: none"> - Maintenance and troubleshooting (actual)
	<u>T. Point of Delivery: On-site</u>
	<u>U. Compliance with Section VI. Schedule of Requirement</u>
	<u>V. Prices are inclusive of VAT and Freight services</u>

W. During implementation:

Upon transfer of technology packages to beneficiaries, the supplier shall coordinate with the beneficiary and provide appropriate actions required per Section IV. General Conditions of Contract and Section V. Special Condition of Contract (SCC) of the bidding document as part of the contract.

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