

TERMS OF REFERENCE

Composting and Agricultural Waste Management Study

Toward a Circular, Climate-Smart Agriculture Model for Smallholder Farmers

She Feeds the World — Egypt (Phase II)

Beni Suef and Minya Governorates, Arab Republic of Egypt

Programme	She Feeds the World Egypt II (SFtW II)
Implementing Organization	CARE Egypt Foundation (CEF)
Donor	PepsiCo Foundation
Assignment Type	Consultancy — Feasibility & Technical Study
Geographic Coverage	Beni Suef and Minya Governorates
Programmatic Anchor	Outcome Area 4 — Preventing Food Loss & Waste
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1. Project Background and Rationale

1.1 About She Feeds the World Egypt II

She Feeds the World Egypt II (SFtW II) is a three-year initiative (March 2025 – March 2028) implemented by CARE Egypt Foundation (CEF) with the generous support of the PepsiCo Foundation. Building on the achievements of Phase I (2019–2024), the programme applies a market systems development approach to strengthen the resilience and prosperity of small-scale producers in the Beni Suef and Minya governorates of Upper Egypt.

The programme aims to reach 180,000 people — 20,000 direct and 160,000 indirect participants — across five interlinked core aspects: (i) sustainable and regenerative agricultural livelihoods; (ii) youth and women's economic empowerment and leadership; (iii) access to new and diverse markets; (iv) access to inclusive financial services; and (v) addressing harmful social norms. SFtW II delivers its results through proven, gender-transformative methodologies, principally the Farmer Field and Business School (FFBS) curriculum, Village Savings and Loan Associations (VSLAs), Youth Savings and Loan Associations (YSLAs), and Producer Marketing Groups (PMGs).

1.2 Programmatic Anchor: Preventing Food Loss and Waste

This assignment is commissioned under Outcome Area 4 — Preventing Food Loss and Waste, and specifically under Output 4.1, “Promote efficient waste management through sustainable practices.” Composting is recognised within the programme design as a sustainable waste-management practice that converts accumulated organic residues into a usable, value-bearing product, reducing input costs for farmers while generating potential new income streams. The study will also directly inform Outcome Area 1 (Enhanced productivity through sustainable and regenerative agriculture), under which farm and household waste-management practices are applicable and sustainable.

1.3 The Problem and Development Rationale

Smallholder agriculture in Upper Egypt operates under intensifying pressure. Three converging dynamics define the rationale for this study:

- **Open burning of crop residues.** The disposal of post-harvest residues from potato, soy-bean and associated rotation crops by open burning degrades air quality, releases greenhouse gases, destroys soil organic matter, and forgoes a valuable agronomic resource.
- **Rising input costs and soil degradation.** High and volatile chemical fertilizer prices, compounded by progressive soil degradation and declining soil organic matter, are eroding the profitability and long-term viability of smallholder production.
- **Climate stress and water scarcity.** Climate change disproportionately affects the livelihoods of women, men and vulnerable groups, deepening existing inequality and heightening the urgency of climate-resilient, resource-efficient farming systems.

Against this backdrop, the conversion of agricultural residues into compost, vermicompost and biogas presents a compelling opportunity to close nutrient loops, lower production costs, restore soil health, reduce emissions, and create new, women- and youth-led income-generating enterprises.

Alignment with the SFtW Framework

The study is positioned squarely within the programme's strategic logic. It must connect explicitly to: (i) the Farmer Field and Business School (FFBS) as the delivery and adoption platform; (ii) Climate-Smart Agriculture (CSA) and regenerative agriculture as the technical paradigm; (iii) circular-economy principles that recover value from organic waste; and (iv) the imperative of building smallholder resilience while advancing the economic empowerment of women and youth.

2. Objective of the Assignment

2.1 Overall Objective

The overall objective of this assignment is to assess feasible, scalable and economically viable composting and agricultural-waste-management models for smallholder farmers in Beni Suef and Minya, operating within the potato and soya bean value chain and to translate the findings into practical, context-specific tools, business frameworks and an implementation pathway that can be embedded within the SFtW II activities and regenerative-agriculture programming.

2.2 Specific Objectives

The Consultant shall:

1. Assess feasible and scalable composting models appropriate to smallholder farmers in the target governorates.
2. Identify low-cost composting systems specifically suited to the agro-ecological, social and economic context of Beni Suef and Minya, and SFtW priority value chains, outlining FLW estimates at each stage of VC.
3. Identify lead firms, enterprises, social enterprises, and key suppliers whose engagement would advance the technology among SFtW targets. Explore the commercial viability of women/youth-led composting microenterprises preferable based on existing models or case studies, undertake a profitability analysis of the enterprise models including upfront costs, and demand for compost output (identify market outlets and segments willingness and interest to pay).
4. Assess the current technical and economic composting methods and explore potentials for integrating vermicompost and small-scale biogas systems within small scale farming (as zero waste alternative).
5. Evaluate the overall environmental and economic benefits of the proposed waste-management options.
6. Design technical briefs and step-by-step pictorial (illustrated) guides for waste management and composting, suitable for low-literacy adult learners with reference to the FFBS toolkit 2.0 and for integration into FFBS sessions.

3. Scope of Work

The assignment combines a field-based baseline assessment, a comparative technical and economic feasibility analysis, and the development of adoption-ready tools and business frameworks. The Consultant is expected to apply a participatory, mixed-methods methodology that engages PMGs (farmers), women's and youth

groups, livestock and livestock producers (ex. dairy), local extension actors and relevant value-chain stakeholders across both governorates.

3.1 Technical Scope

The Consultant shall evaluate the following four technical pathways, assessing the suitability, requirements, advantages and limitations of each within the target context:

3.1.1 Traditional Composting

Heap, pit and windrow methods using crop residues, animal manure and food waste. These are low-cost and improve soil health but require disciplined time, turning and moisture management. Assess current practice and suitability for general farmers, including areas to improve upon and its potential to be an additional source of on-farm income.

3.1.2 Vermicompost

Use of earthworms to achieve faster decomposition and higher nutrient content. Highly relevant for women/youth-led microenterprises, kitchen gardens and small-scale regenerative agriculture. Assess space, climate-control, input and management requirements.

3.1.3 Biogas Systems

Anaerobic digestion of animal manure and organic waste to produce methane for energy and nutrient-rich slurry for use as fertilizer. Particularly suited to livestock-heavy communities and dairy producer groups. Assess technical feasibility, sizing, safety and economics in the target villages. Map enterprises focused on supplying the inputs and potential for youth to be employed in the sector in constructing/establishing the digesters and providing technical support (fee for service) and alternatives for managing upfront costs.

3.1.4 Integrated Systems

A comparative analysis of conventional composting, vermicompost, biogas slurry and combined (integrated) approaches, identifying complementarities and the conditions under which each delivers the greatest agronomic, environmental and economic returns.

3.2 Cross-Cutting Themes

The following themes shall be mainstreamed throughout the analysis of every technical pathway:

3.2.1 Economic Analysis

- Setup and operating costs, return on investment (ROI), and payback periods for each model.
- Estimate reduction in dependency on, and expenditure for, chemical fertilizers.
- Market demand, pricing and potential buyers for compost, vermicompost and biogas slurry, and pricing dynamics.
- Business potential and suitability for each segment of SFtW target: Producer Marketing Groups (PMGs), Village Savings and Loan Associations (VSLAs), women, or youth.

3.2.2 Gender and Social Inclusion

- The role of women in waste management and composting, and realistic labour-burden considerations.
- Pathways for women/youth-led compost and vermicompost businesses.

- Meaningful inclusion of youth groups (including YSLA members) as operators, service providers and entrepreneurs.

3.2.3 Climate and Environmental Impact

- Potential reduction in open burning of crop residues.
- Improvements in soil organic matter, soil structure and water-retention capacity.
- Carbon-reduction and broader greenhouse-gas mitigation potential.
- Contribution to climate-smart and regenerative agriculture outcomes.

3.3 Strategic Combination to be Validated

The Consultant is requested to test, validate and refine the following proposed circular-agriculture model, indicating its feasibility, sequencing and the enabling conditions required for success:

1. Traditional composting for general FFBS farmers.
2. Vermicompost businesses for women-led enterprises and PMGs.
3. Small-scale biogas pilots in livestock-heavy communities.
4. Integration of all of the above into the regenerative-agriculture (FFBS) curriculum.

3.4 Geographic Coverage and Methodology

The study shall cover representative communities across both the Beni Suef and Minya governorates. The Consultant shall propose a robust mixed-methods approach combining desk review, key-informant interviews, focus group discussions, field observation and, where relevant, sampling and laboratory analysis of available residues. A detailed methodology and work plan shall be submitted and approved during the inception phase.

4. Key Research Questions

At a minimum, the study shall answer the following questions:

1. What agricultural residues are most available locally, and in what quantities and seasonality, and who generates these residues?
2. What are the current waste-management and residue-disposal practices among target farmers?
3. Which composting method (traditional, vermicompost, biogas, or integrated) is most technically and economically suitable for each target group and context?
4. What is the cost–benefit ratio of composting compared with the continued use of chemical fertilizers?
5. How can composting be transitioned into a viable income-generating activity, particularly for women and youth?
6. What technical training and accompaniment are required to drive sustained adoption? Who provides these trainings?
7. What are the primary barriers to adoption (technical, financial, social, gender-related, and institutional), and how can they be addressed?
8. Can small-scale biogas systems operate economically in the target villages, and under what conditions?

5. Expected Deliverables

The Consultant shall produce the following deliverables. All written deliverables shall be submitted in English (with Arabic versions of the training and field-facing materials as indicated), in editable electronic format. Indicative timing is expressed relative to contract signature and shall be finalised in the inception report.

#	Deliverable	Indicative Timing
D1	Inception Report — detailed methodology, sampling framework, tools, work plan and stakeholder map.	One week
D2	Baseline Assessment Report — residue availability, current waste-management practices, and contextual analysis across both governorates.	Week 2 after inception
D3	Composting Feasibility & Cost–Benefit Analysis — comparative technical and economic assessment of all four pathways, including ROI and fertilizer-substitution analysis.	Week 3 after inception
D4	Recommended Composting Models & Business Model Frameworks — including women-led microenterprise and business models that suits YSLA (Youth).	Week 3 after inception
D5	Technical Training Manual — adoption-ready curriculum (Arabic) for integration into FFBS sessions.	Week 4
D6	Technical Briefs & Step-by-Step Pictorial Guides — illustrated, low-literacy-friendly guides for waste management and composting (Arabic).	Week 5
D7	Pilot Implementation Plan — phased, costed roadmap including the proposed biogas pilots and integration into the regenerative-agriculture curriculum.	Week 6
D8	Final Comprehensive Report & Stakeholder Presentation — consolidated findings, validated strategic model, and presentation to SFtW II stakeholders.	Week 7

All deliverables are subject to review and written approval by the SFtW II Project Manager (or designated focal point) prior to acceptance. CARE Egypt Foundation shall retain all intellectual-property rights over the data, tools and reports produced under this assignment.

6. Timeline and Payment Schedule

6.1 Assignment Duration

The assignment is expected to be completed over a period of **[8 working weeks]**, commencing on or about **[July 2026]** and concluding no later than **[September 2026]**.

6.2 Payment Schedule

Payment shall be made in instalments linked to the satisfactory submission and written approval of key deliverables, as set out below. All amounts are inclusive of applicable taxes and all costs unless otherwise agreed in the contract.

Tranche	Milestone / Deliverable	% of Fee
1	Upon signature of contract and approval of the Inception Report (D1).	25%
2	Upon approval of the Baseline Assessment Report and Feasibility & Cost–Benefit Analysis (D2–D3).	
3	Upon approval of the recommended models, training manual and pictorial guides (D4–D6).	
4	Upon approval of the Pilot Implementation Plan and Final Comprehensive Report & Presentation (D7–D8).	75%
	Total Contract Value	100%

Note: the financial proposal submitted by the Consultant shall form the basis for the agreed amounts above. All payments are subject to satisfactory delivery and the standard withholding and tax provisions of the contract.

7. Required Consultant Qualifications

CARE Egypt Foundation invites applications from individual consultants or consultancy firms / consortia with demonstrated expertise in the following areas. Where a team is proposed, the combined profile of the team shall meet the requirements below.

7.1 Education and Technical Expertise

- Advanced university degree (Master’s or above) in Agricultural Sciences, Soil Science, Agronomy, Environmental Science, Agricultural Engineering, Agribusiness, or a closely related field.
- Demonstrated technical expertise in composting, vermicomposting, biogas / anaerobic digestion, soil health, and regenerative or climate-smart agriculture.
- Proven experience in agricultural waste management and circular-economy approaches for smallholder systems.

7.2 Professional Experience

- A minimum of 7–10 years of relevant professional experience in agricultural development, with a strong record of feasibility studies and applied research.
- Demonstrated experience conducting cost–benefit and business-model analysis for smallholder enterprises.

- Prior experience working with the Farmer Field and Business School (FFBS) approach, VSLAs, or comparable farmer-organisation models is a strong asset.
- Experience designing adult-learning materials, technical training manuals and illustrated / pictorial field guides for low-literacy audiences.

7.3 Contextual and Cross-Cutting Competencies

- Sound knowledge of the agricultural context of Upper Egypt, ideally including Beni Suef and Minya.
- Demonstrated competency in gender-responsive and socially inclusive programming, including the design of women- and youth-led enterprise models.
- Familiarity with donor-funded programming standards and reporting expectations.

7.4 Language and Other Requirements

- Full professional proficiency in Arabic and English (written and spoken); training and field materials must be deliverable in Arabic.
- Ability to conduct field work in both governorates within the agreed timeframe.

8. Reporting, Management and Ethical Standards

- The Consultant shall report to the SFtW II Project Manager (or designated focal point) at CARE Egypt Foundation, who will provide overall direction, facilitate access to project sites and groups, and approve all deliverables.
- The Consultant shall observe CARE's safeguarding, child-protection, data-protection and Do-No-Harm standards, and shall obtain informed consent from all study participants.
- All data, tools, drafts and final outputs produced under this assignment are the property of CARE Egypt Foundation and may not be used or published without prior written authorisation.
- The Consultant shall maintain the confidentiality of all programme and participant information accessed during the assignment.

9. Application Requirements and Evaluation

9.1 Submission Requirements

Interested consultants / firms shall submit:

- A technical proposal, including understanding of the assignment, proposed methodology, work plan and timeline.
- A financial proposal, with a detailed budget and daily / lump-sum rates.
- Curriculum vitae of the lead consultant and all proposed team members.
- At least two samples of comparable previous work and contactable references.

Applications shall be submitted to Nermin.Kadry@cef-eg.org no later than **July 11, 2026**, quoting for reference **Composting and Agricultural Waste Management Study**

9.2 Evaluation Criteria

Proposals will be assessed on a combined technical and financial basis, indicatively weighted as follows (to be confirmed in the procurement notice):

Criterion	Indicative Weight
Technical approach, methodology and understanding of the assignment	25 %
Qualifications and relevant experience of the consultant / team	15 %
Relevant past performance and quality of sample work	40 %
Financial proposal (value for money)	20 %

End of Terms of Reference

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