



TERMS OF REFERENCE

CONSULTANT FOR BIOCHAR FEASIBILITY STUDY

1. Background

Rikolto in Vietnam (previously VECO Vietnam) is a member of Rikolto, an international NGO with its International Office in Leuven, Belgium. Rikolto's mission is to enable and support smallholder farmers to take up their role in rural poverty alleviation and to contribute to feeding a growing world population in a sustainable way. Rikolto is currently implementing the 2017-2021 programme "Supporting Inclusive and Sustainable Agricultural Value Chain Development Benefitting Smallholder Farmers in Vietnam" with a focus on vegetable and rice value chains.

In April 2018, Rikolto started implementing the project "Reducing Greenhouse Gas Emissions from Rice Production in An Giang Province, Vietnam, through Alternate Wetting and Drying and Biochar Production". This project is a first step to making our target rice value chains more environmentally-friendly and climate-smart. The inadequate disposal of rice waste significantly contributes to greenhouse gas emissions related to rice production. In Vietnam, approximately 23% of aboveground straw biomass is burned annually in the triple rice cropping system. Burning rice straw leads to nutrient loss, depletion of soil organic matter and greenhouse gas emissions including methane, nitrous oxide, and emission of other gaseous pollutants such as SO₂, PM₁₀ and PM_{2.5}. Various alternatives exist to dispose of rice waste more sustainably such as using husk as fuel for driers or feeding straw to livestock. However, one practice has the potential to even more significantly reduce harmful emissions: turning husk and straw into biochar. Biochar can be used as an alternative to other soil amendments to increase soil fertility and productivity in degraded soils. It also has the potential to sequester carbon in soils for thousands of years and to reduce emissions of nitrous oxide from soils.

As part of this project, we are looking for a (team of) consultant(s) to assess the feasibility of transforming rice waste into biochar and market it.

2. Objectives

The objectives of this consultancy are:

- To assess the technical and economic feasibility for one of Rikolto's partner rice companies to process rice waste into biochar and to sell it as a low-cost climate-friendly soil amendment for its partner farmers. The name of the company will be disclosed to the selected candidate(s)
- To make recommendations on the best way forward for the recycling of rice waste into soil amendment.

3. Reporting and Accountability

During the execution of the project, the Service Provider will regularly inform Rikolto of its progress, either via email or in-person meetings as determined by the project team at Rikolto.

A financial report, all original invoices and time sheets will have to be submitted to Rikolto at the end of the consultancy.

All information collected and/or used to generate the outputs of the consultancy remains the property of Rikolto and must be handed over in its totality when the consultancy is closed.

4. Deliverables

The consultant will provide Rikolto with the following deliverables in English:

Before data collection:

- A detailed work plan outlining the research methodologies, timeline and division of responsibilities to carry out the feasibility study
- A draft table of content for the study

After preliminary data analysis:

- A draft report addressing the issues mentioned below:
- A presentation on the study's preliminary findings to Rikolto's team for feedback and discussion

Final deliverables:

- A final report on the feasibility study, inspired by the Business Model Canvas and addressing the following issues:
 1. Value proposition for biochar production and marketing
 2. Technical requirements for the production of biochar suitable as soil amendment in the Mekong Delta:
 - a. Characteristics of the raw material for successful biochar conversion
 - b. Characteristics of the final product and potential as soil amendment
 - c. Technological options for rice waste conversion into biochar
 - d. Quantification of biochar production per ton of waste
 - e. Suggestions for biochar use in combination with other environmentally-friendly substances to boost fertilization / carbon storage benefits
 3. Key activities including:
 - a. Access to raw materials i.e:
 - i. an analysis of local supply sources of straw and husk in terms of quantity, availability and competing uses
 - ii. labour requirements
 - iii. transportation and logistics
 - b. Biochar conversion process
 - c. Use of biochar for environmentally-friendly soil amendment
 4. Key resources including:
 - a. Straw/husk collection equipment
 - b. Biochar production equipment
 - c. Buildings

- d. Staff
 - e. Finances
5. Marketing
 - a. Clients / customer segments
 - b. Distribution channels
6. Partners
7. Assessment of costs and investments needed (i.e. straw, machinery, depreciation, staff, etc.)
8. Financial model and viability assessment including:
 - a. Identification of potential revenue streams from biochar and/or derivatives' sales
 - b. Suggested pricing
9. Greenhouse gas emissions reduction potential compared to a Business as Usual scenario
10. Potential for valorization through carbon credits
11. Risk assessment
12. Recommendations on the way forward

The report should include separate sections for the executive summary, the study methodology and a list of references.

- A financial and implementation plan with tentative timeline for the implementation of the recommended biochar option (after consultation with Rikolto and partners).
- Participation in a one-day workshop in Southern Vietnam to present the study findings to Rikolto's partners.

5. Period of consultancy engagement

The deadline for submission of the proposal is 10 August 2018 and the planned starting date of the engagement is the signing date of the contract, around 20 August 2018. The deadline to submit all deliverables to Rikolto is 15 December 2018.

A detailed workplan for the study (see deliverables section below) is to be sent to Rikolto within two weeks of the consultancy's starting date.

6. Payment

The Service Provider will be paid in the following way:

- 25% at the signing of the contract;
- 75% upon approval by Rikolto of all deliverables.

7. Selection criteria

- At least a master's degree in Environmental Sciences, Agriculture, Economics, Business, Engineering or a closely related field
- At least 7 years of practical professional experience in the sector



- Previous experience in leading and implementing feasibility studies for biochar or other biomass-based soil amendment production and marketing, preferably in a Vietnamese context
- Good knowledge of the Vietnamese rice sector
- Excellent project and financial management skills
- Strong analytical, synthesis and writing skills
- Excellent written and spoken English. If the team leader is not Vietnamese, at least one member of the team must be fluent in written and spoken Vietnamese
- Ability to work independently with little or no supervision
- Excellent time management skills,
- Flexibility and adaptability

8. Submission of proposal

Candidates shall submit the following documents in English:

- A. A technical and financial proposal that sets out the work plan for the consultancy, including a methodology and tentative timeline for the project,
- B. Up-to-date CV of the consultant, including relevant experience in relation to this consultancy. In case the applicant is an organization, an up-to-date portfolio of the organization should be included,
- C. Sample of previous work in relation to this consultancy.

Deadline for submission of applications: 10 August 2018, close of business. Rikolto in Vietnam will contact shortlisted candidates for personal interviews. Proposals must be addressed via email to Ms. Charlotte Flechet, Programme Development Advisor at charlotte.flechet@rikolto.org.