Call for Proposals

Assessment of the sustainability credentials of coconut shell-based activated carbon and charcoal briquettes, covering: (i) Life Cycle Assessment (GHG emissions) (ii) Potential for upcycling, farm level value creation and carbon removals

October 2025

Background and overall objective

The Sustainable Coconut Partnership (SCP) is an international, multistakeholder, voluntary membership organisation, with a mission to work towards a responsible and resilient coconut sector. Amongst the SCP's Members are companies which produce coconut shell-based products, including activated carbon and coconut charcoal briquettes - products with growing relevance in the circular and low-carbon economy. Individually, SCP Members have already conducted in-depth studies into the GHG emissions and other sustainability credentials for these products. This assignment aims to support SCP Members to develop a deeper collective understanding of the sustainability credentials of coconut shell-based activated carbon and charcoal briquettes, and to provide an evidence-based sustainability narrative to enable SCP to communicate these credentials to an external audience with a credible industry voice.

Specifically, this study aims to review available data, draw conclusions and develop an evidence-based sustainability narrative on the following topics:

- **GHG emissions** across the life cycle of coconut shell-based activated carbon and charcoal briquettes;
- Potential of technology-driven **improvements in production to further reduce emissions**;
- **Upcycling potential** of transforming coconut shells into activated carbon and coconut shell charcoal **briquettes**, by transforming agro-industrial waste into valuable products
- Potential for **farm-level value creation** through coconut shell valorization
- Potential for **carbon removals and storage** on coconut farms
- Support a **thought leadership narrative** through clear, evidence-based sustainability messages.

Tasks

1. Assess the GHG emissions ('carbon footprint') of coconut shell-based activated carbon and charcoal briquettes

The aim of this task is to collect and assess available data on the GHG emissions of coconut shell charcoal briquettes and activated carbon, then draw conclusions about product emissions across the different stages of their product life cycles, and develop an evidence-based sustainability narrative for external communications.

The key scope parameters are outlined below:

- Products:
  - Coconut shell-based activated carbon
  - Coconut shell-based charcoal briquettes
- Life Cycle Impacts considered: GHG emissions (Global Warming Potential (GWP)) only
- Charcoal production methods[1]:
  - Commonly used methods for coconut shell charcoal production in focus countries.
  - Newly introduced, more efficient coconut shell charcoal production methods
- Boundaries: Geographical and Life Cycle Stages
  - Cradle to gate (tCO2e per unit of product): accounting for coconut-driven land use change, farming, charcoal production, transport, processing and packaging. Focus countries are the Philippines, Indonesia, India and Sri Lanka, though applicable data from other major producing countries should be utilized where relevant to draw conclusions about the 4 focus countries
  - Cradle to grave (tCO2e per functional unit, such as per unit of water filtered by activated carbon). The functional units are to be defined during project inception. Focus countries are the Philippines, Indonesia, India and Sri Lanka.
- Compare GHG emissions of coconut-based charcoal and activated carbon with that produced from other major feedstocks (such as wood, coal). List of feedstocks to be agreed with SCP during inception phase, taking into account whether available data makes comparisons sufficiently robust

1.1 Collect available data and assess quality

- SCP will provide data on:
  - Land Use Change emissions related to coconut farming from a recently conducted study
  - LCA studies completed by SCP Members and non-members of coconut shell-based activated carbon and charcoal briquettes
  - Data collected during an SCP-commissioned review of available LCA studies for coconut farming in 2024

[1] Categorisation of technologies in these 2 categories will be defined during project inception

- In addition to this, the consulting team should identify other relevant sources of LCA data for coconut shell charcoal briquettes and activated carbon, as well as the selected products
- The consulting team will assess the quality of available data to determine which sources are sufficiently robust to use and to provide necessary guidance about limitations to using the selected data.

1.2 Compile and combine best available data for each stage in the life cycle, carrying out adjustments to align assumptions for key parameters

- For each stage in the product life cycle (farming, charcoal production, etc), identify the highest quality available data and compile this in a data table
- Carry out any recalculations required to align the assumptions used for key parameters in the LCA calculations, such as farm-level productivity/yield, input utilization (eg. fertilizer), product conversion factors, allocation (mass vs economic allocation), plantation lifecycle
- The table should include cradle to gate and cradle to grave GHG emissions data for coconut shell charcoal briquettes and activated carbon separately for:
    - Commonly used methods for coconut shell charcoal production in focus countries.
    - Newly introduced, more efficient coconut shell charcoal production methods
- The table should also include GHG emissions data for charcoal briquettes and activated carbon based on other feedstocks

1.3 Draw conclusions and develop evidence-based sustainability narrative

Based on the available data, draw conclusions about the total product emissions for coconut shell charcoal and activated carbon communicated in language which can be easily understood by key stakeholders. This should include conclusions and evidence-based sustainability narratives on:

- Total product GHG emissions for coconut shell charcoal and activated carbon: both the range of absolute values and narrative about the broad level this can be categorized as (eg. High/Medium/Low)
- Difference between GHG emissions for commonly used methods for coconut shell charcoal production vs new, more efficient production methods. Any other major areas where there is significant scope for emissions reduction that is supported by data
- Comparison of total product GHG emissions for coconut shell charcoal and activated carbon with other major feedstocks, together with assessment of the methodological robustness of this comparison, given the available data
- Identify areas where the data quality is not sufficient to support robust conclusions and further research would be recommended

SCP will be producing a brief report communicating the results publicly. The consulting team will also review the conclusions presented in this report to ensure accuracy of points communicated.

2. Assessment of additional sustainability credentials of utilizing coconut shell charcoal as a feedstock for activated carbon and charcoal briquettes

Several other potential sustainability credentials have been identified for the use of coconut shell charcoal as a feedstock for activated carbon and charcoal briquettes. This task aims to review available data, draw conclusions and develop an evidence-based sustainability narrative on the points listed below.

2.1 Assess the upcycling potential of transforming coconut shells into activated carbon and coconut shell charcoal briquettes

- Based on available secondary data[2], estimate the proportion of coconut shell which is currently converted into charcoal, charcoal briquettes and activated carbon, and the proportion which is unutilized as agro-industrial waste.
- Estimate value addition generated by transforming coconut shells into activated carbon and coconut shell-charcoal briquettes. This will involve gathering and comparing available secondary data[3] on the price of unprocessed coconut shells, coconut shell-charcoal, coconut shell-charcoal briquettes and activated carbon.
- Draw conclusions and develop an evidence-based sustainability narrative on the extent to which the production of coconut shell-based activated carbon and charcoal briquettes upcycles agro-industrial waste into higher value products.

2.2 Assess the carbon removals and storage potential of coconut farming, compared to the production of other feedstocks

- Review data on carbon removals and storage achieved by coconut farming, including the SCP's (2024) meta- analysis[4], and review available secondary data for the production of alternative feedstocks
- Draw conclusions and develop an evidence-based sustainability narrative about how carbon removals and storage achieved on coconut farms compares to that generated by the production of other feedstocks

2.3 Assess the potential for coconut farmers to generate additional income from the sale of unprocessed coconut shells or coconut shell charcoal

- Gather and review secondary data on coconut farmer incomes from sale of unprocessed coconut shells and the production of coconut shell charcoal
- Draw conclusions and develop an evidence-based sustainability narrative about the potential for coconut farmers to generate additional income from the sale of unprocessed coconut shells or coconut shell charcoal

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[2] SCP will assist in identifying data sources for this task, including facilitating the link to organizations with relevant statistics, such as the International Coconut Community

[3] Relevant sources include International Coconut Community, Philippines Coconut Authority, Sri Lanka Coconut Development Authority

[4] In 2024, SCP conducted a meta-analysis of over 200 studies on low carbon and regenerative coconut farming, which included a comprehensive review of available scientific studies of carbon removals in coconut farms

Deliverables

1. Data tables:
For Task 1:

- Table compiling all available GHG emissions data and the assessment of data quality
- Table compiling and combining best available GHG emissions data for each stage in the life cycle, with adjustments applied to align assumptions for key parameters

For Task 2

- Table compiling available data and calculations carried out to answer each point under task 2

2. Short Technical Report (<10 pages): summarising the research objectives, methodology, data and technical conclusions

3. Sustainability Communication Brief (2–3 pages): for each point under task 1 and 2, develop an evidence-based sustainability narrative for external use by SCP Members and SCP communication channels

4. Presentation: deliver a short presentation summarizing the methodology, data and conclusions to SCP Team and Member organizations.

Timeline

- Contracting and start work by 27 October 2025
- Delivery by 28 November 2025

Proposal submission guidelines

Deadline for proposals: 21 October 2025

To apply for this assignment, please send a short proposal (6 pages max, excluding CVs) to **jon@coconutpartnership.org**

Proposals should include:

- **Company Profile:** An overview of your firm and relevant examples of work
- **Team Expertise:** A list of key team members who will be involved in the project, along with a summary of how they meet the profile needed for this assignment. Please include CVs as an appendix (not counted towards the page limit).
- **Methodology:** A summary of your proposed approach and methods
- **Workplan:** A project timeline outlining key milestones and deliverables.
- **Budget:** A breakdown of your proposed budget, including all costs associated with the project. The maximum budget available for this work is 8,000 USD

Required profile of the consulting team

- Strong expertise conducting Life Cycle Analysis on GHG emissions for agricultural commodities to a high quality, in compliance with relevant standards (eg. ISO 14067 compliant). Prior experience conducting LCA for charcoal or activated carbon products would be beneficial
- Experience in assessing the methodological robustness, data quality, and compliance of LCA studies with relevant standards and guidelines
- Excellent written and spoken English language skills, including the capacity to communicate scientific findings in a simple way

We look forward to receiving your proposal. If you have any questions or require additional information, please contact Jonathan Bird – Supply Chain Transformation Manager, Sustainable Coconut Partnership at jon@coconutpartnership.org.