Request for Proposals

Feasibility Study — Engineering and Commercial Validation of Sargassum Interception Technologies

Project Sponsor: Seafields — Quintana Roo, Mexico

Version 22 October 2026

This document serves to provide an overview of the underlying project relevant to the Subnational Climate Fund (SCF), context on data availability and goals of the mandate, as well as an estimated scope of work requested from the consultant. Final details of the mandate should be covered by the subsequent proposal submitted by the consultant.

1. The Subnational Climate Fund

The SCF is a blended finance impact fund formed to pursue attractive risk-adjusted returns for private investors while generating measurable and certified environmental and social impacts. The Fund is focused exclusively on pursuing investments in mid-size climate infrastructure with nature-based solutions in various developing countries across Latin America and the Caribbean, Africa, the Mediterranean, and Asia. The Fund is managed by Pegasus Capital Advisors, a commercial Private Equity impact fund manager, and further benefits from a separate, grant-funded Technical Assistance facility managed by The International Union for the Conservation of Nature (IUCN) and implemented by Catalytic, IUCN, and Gold Standard.

2. Context of the Potential Study Agreement

Sargassum is a type of brown seaweed (macroalgae) that floats on the ocean's surface. In recent years, massive blooms of sargassum have become common in the tropical Atlantic. When large amounts wash ashore, especially in the Caribbean, Gulf of Mexico, and parts of West Africa, they:

- Decompose, producing hydrogen sulphide and methane, a potent greenhouse gas
- Impact tourism by covering beaches, accompanied by the rotten egg smell from H2S and decomposing Sargassum turning the ocean brown
- Harm marine life by blocking out sunlight and reduce oxygen levels in coastal waters through its decomposition process
- Create cleanup and disposal challenges for coastal communities
- Entangle in motors, posing a challenge to fishermen
- Impact local communities through prolonged exposure to H2S, which is toxic to humans and corrosive to electronics

It is believed these unusually large blooms are linked to a combination of factors, including changing ocean currents, natural upwelling, as well as nutrient recycling within the ecosystem created by Sargassum mats offshore.

Sargassum inundations across the Wider Caribbean create severe, compounding damage across multiple dimensions:

- Environmental: Decomposing sargassum smothers coral reefs and seagrass beds, releases arsenic and H2S into groundwater, and destroys nearshore habitats critical to marine biodiversity.
- Climate: Landfilled sargassum generates methane and CO2 as it decomposes. Open decomposition on beaches releases greenhouse gases that go unaccounted for in national inventories.
- Health: Rotting sargassum emits hydrogen sulfide, causing respiratory illness in coastal communities. Workers handling beach collection are exposed without adequate protection.
- Economic: Tourism losses reduce local GDP by 11.6% in affected areas. Cleanup costs are unsustainable. Because Sargassum's arrival is inconsistent, and its decomposition rate is fast, despite its many potential uses, emerging valorisation companies cannot secure consistent, sand-free feedstock, constraining a circular economy that could convert the problem into value.

The Subnational Climate Fund is supporting Seafields to refine a method for intercepting Sargassum before it reaches the shore. The system captures the sargassum nearshore, storing it in paddocks, where it is kept fresh so that it can be delivered to downstream users as high-quality, biobased feedstock.

3. Scope of Work

The consultant is expected to provide the following assessment:

Engineering and Commercial Validation Study

Objective

The objective of the study is to independently validate the technical, operational and commercial viability of Seafields' proprietary AlgaePonix Sargassum in-water containment paddocks and SeaShield Sargassum deflection barrier, and to establish the requirements and conditions for commercial-scale deployment.

The study should assess the technologies as part of an integrated Sargassum management system, from nearshore interception and containment through to collection, transport, shore-side handling and biomass offtake.

The study will comprise seven interrelated components:

3.1 Engineering validation

Undertake an independent engineering assessment of the AlgaePonix and SeaShield systems, drawing primarily on available and newly collected field performance data, measurement and testing, supplemented by engineering analysis and modelling where required.

The assessment should include structural design, hydrodynamic loading, anchoring and mooring arrangements, materials, connections and other critical components. Field measurements and testing, including relevant load measurement, should be used to characterise the actual system loads and responses under observed wave, current, wind and Sargassum loading conditions and to inform and calibrate the engineering analysis.

Engineering modelling should subsequently be used to assess conditions not adequately represented during the field validation period, including relevant extreme or storm conditions and commercial scale deployment configurations. The assessment should identify principal failure modes and engineering risks, assess the adequacy of current design assumptions and safety factors, and establish the engineering requirements, operating limits and design criteria for commercial-scale deployment.

3.2 Design and performance assessment

Assess the functional performance of the SeaShield and AlgaePonix systems using field observations, measurements and testing as the principal source of evidence, supplemented by modelling and engineering analysis.

Evaluate Sargassum deflection, capture, containment and collection performance under the environmental conditions and system configurations encountered during field validation, including the influence of geometry and other key design parameters. Use the resulting field data to calibrate and inform modelling of environmental conditions, systems configurations and deployment scales that cannot reasonably be observed during the field validation period.

Identify opportunities for design optimisation and establish the performance characteristics and configurations required for commercial-scale deployment.

3.3 Field performance validation

Undertake a structured programme of field performance validation during the initial phase of the assignment to generate the principal empirical evidence supporting the engineering and performance assessments.

Through in-water observations, measurements and targeted testing, assess real-world structural integrity, system loading and response, Sargassum deflection, capture and containment performance, operational limits, durability, degradation and maintenance requirements under representative coastal conditions. The field programme should include appropriate measurements and load testing sufficient to inform and calibrate the engineering analysis and modelling undertaken under Components 3.1 and 3.1.

Document the range of environmental and operating conditions covered by the field validation programme, identify conditions not encountered during the monitoring period, and establish where supplementary modelling, analysis or further testing is required to demonstrate readiness for commercial-scale deployment.

3.4 Logistical, financial and technical analysis of barrier components

Assess the technical, logistical and indicative commercial suitability of the key components used in the SeaShield barrier and AlgaePonix systems, including, as relevant, nets, chains, fiberglass rebar, vertical pipes and bouys.

For critical components, assess up to threecredible suppliers in México, where available, considering technical specifications and quality, indicative pricing and price-performance, lead times, supply capacity, responsiveness and other relevant logistical considerations. Where feasible, identify key supply-chain risks and dependencies that could affect commercial-scale deployment.

The assessment should identify recommended component specifications, principal sourcing considerations and any material gaps requiring further validation. Where considered necessary to validate critical performance parameters, the consultant should propose targeted material or assembled-component testing, clearly identifying the proposed testing methodology and associated costs.

More extensive laboratory testing of fully assembled barrier segments, including mechanical measurements and stress testing to produce a professional technical data sheet, may be proposed as an optional task and priced separately.

3.5 Operational and logistics assessment

Assess the practical operating model for commercial deployment, including installation, nearshore Sargassum collection, removal from the containment system, vessels and equipment, personnel, maintenance, biomass handling, transport to shore and shore-side logistics. Establish indicative collection capacity, resource

requirements, operating constraints and key cost drivers, and identify the infrastructure and operational arrangements required at different deployment scales.

3.6 Commercial validation

Engage relevant coastal property owners, municipalities and other potential customers to assess demand for Sargassum management services, including current management practices, costs, willingness to pay and potential contractual structures. Engage potential biomass offtakers to assess demand, technical specifications, required volumes, pricing, logistics and potential offtake arrangements. The assessment should distinguish between indicative market interest and credible commercial commitments.

3.7 Financial and investment modelling

Develop an integrated financial model incorporating the technical, operational and commercial findings to assess CAPEX, OPEX, revenues and financial performance under representative deployment scenarios. Undertake sensitivity and scenario analysis to identify the principal drivers of project economics and the conditions required for commercial viability and investment.

Expected Outcomes

The study should provide an evidence-based assessment of:

- the technical feasibility, performance and operating envelope of the two technologies;
- the operational requirements and costs associated with commercial deployment;
- the level of market demand and potential commercial structures;
- the availability and attractiveness of biomass offtake markets;
- the financial viability of representative deployment scenarios; and
- the key technical, operational, commercial and financial risks and remaining evidence gaps.

The study should conclude with clear recommendations on the modifications, further testing, commercial arrangements and other conditions required to progress towards commercial-scale deployment and investment.

4. Deliverables

The consultant will produce a single integrated Engineering and Commercial Validation Study, delivered in draft and final form and supported by the underlying financial model. The deliverables are:

- Draft Feasibility Study Report: a consolidated report presenting the consultant's findings against the Scope of Work and Expected Outcomes set out in Section 3, concluding with clear recommendations on the conditions required to progress towards commercial-scale deployment and investment.
- Integrated financial model: the editable spreadsheet model underpinning the financial analysis presented in the report.
- Final Feasibility Study Report: an updated report incorporating comments from Catalytic, the SCF and Seafields on the draft.

Format

Reports should consist of the following elements:

- Executive Summary

- A table of acronyms
- Bibliography
- Follow the SCF's standard template for Technical Assistance studies
- Word format for the reports; editable Excel format for the financial model

Stakeholder Engagement

The consultant should plan for engagement with the following stakeholders, to be detailed in the stakeholder engagement approach submitted with the Inception Report:

- Project Sponsor: Seafields' technical and commercial leadership, for detailed engineering, operational and commercial discussions.
- Coastal property owners and municipalities: potential customers for Sargassum management services along the Quintana Roo coastline, for demand, cost and willingness-to-pay assessment (Component 5).
- Biomass offtakers: prospective downstream users of the captured Sargassum, to assess specifications, required volumes, pricing and offtake arrangements (Component 5).

Site Visits

The consultant shall propose the field visits, in-water observations, testing and other field activities it considers necessary to deliver the scope of work described in Section 3, including for the engineering assessment and field performance validation of the AlgaePonix and SeaShield systems (Components 1 and 3), the operational and logistics assessment (Component 4), and stakeholder and offtaker engagement in Quintana Roo (Component 5). Proposed field visit logistics, timing and locations should be set out in the proposal and confirmed in the Inception Report.

5. Requirements

The consultant team should demonstrate multi-disciplinary expertise to deliver the project, including at a minimum, marine/coastal engineering, structural offshore engineering, material/mechanical engineering, hydrodynamic modelling, marine operations, logistics, commercial and financial analysis and modelling.

The consultant team should also include demonstrated experience in the design, analysis or validation of floating, moored or nearshore structures exposed to wave and current loading, and offshore infrastructure. Experience with marine environmental protection or comparable systems would be considered relevant.

The project is based on the Quintana Roo coastline in Mexico. Ability to travel to the area to conduct field research is vital, and local experience would be valued.

Experience specifically with Sargassum management is desirable but not essential, provided the team demonstrates the appropriate marine engineering and operational experience.

We also ask that the team nominate both a technical lead and a commercial lead for the study.

Evaluation Criteria

Evaluation Criteria	Weight
Technical Qualifications and Experience	40%

Workplan and Delivery Approach	25%
Management Plan and Key Staff	20%
Budget and Value-for-Money	15%
Total	**100%**

Technical Qualifications and Experience (40%): Assessed based on the qualifications and experience set out in Section 5, with particular emphasis on demonstrated expertise in marine/offshore structural engineering, hydrodynamic modelling, and marine operations, together with relevant experience in comparable nearshore or floating-structure and coastal-environmental projects.

Workplan and Delivery Approach (25%): Robustness of the proposed delivery approach and ability to meet the requirements listed. The highest score will be given to firms that provide a clear timeline of deliverables and dedicate sufficient staff time to deliver the work within the assignment period.

Management Plan and Key Staff (20%): Clarity of project governance and management structure. The highest score will be given to firms that provide a clear organogram and delegation of activities across the engineering, operational and commercial workstreams, including clearly nominated technical and commercial leads.

Budget and Value-for-Money (15%): Reasonable and competitive cost given the scope of work. The highest score will be given to proposals that are within budget, present a clear and justified cost breakdown, and offer strong alignment between cost, quality, and expected results.

6. Indicative Timeline

Work is expected to commence immediately after the consultant is appointed. The overall assignment duration is fixed at twelve (12) months from contract signature. The dates below are indicative; the total 12-month assignment duration should be treated as confirmed.

Part 1 — Procurement Schedule (indicative calendar dates)	Indicative Deadline
Launch of RFP	Tuesday, 6 October 2026
Deadline for Questions	Wednesday, 21 October 2026
Submission of Proposals	Friday, 30 October 2026
Evaluation and Contracting Finalized	RFP Launch + 5–6 weeks

7. Form of Proposal & Requirements

Please prepare a brief proposal for the performance of this work, including the scope of work, project team and qualifications, and estimated costs.

1) Scope of Work

The scope of work should include a description of the specific activities that will be performed in order to accomplish the required tasks identified in Section 3. This should include any proposed site visits/reconnaissance, documents to be reviewed, interviews, etc. If the Consultant feels that additional tasks or components within a required task are suggested or warranted, these should be stated and delineated as "Optional Tasks".

2) Project Team and Qualifications

This should include the name of the principal staff members and any sub-contractors, and a brief description of their role within the project team. Qualifications of staff should include relevant technical capabilities, full CVs, specific previous experience similar to this assignment, and specific in-country experience and knowledge.

3) Estimated Costs

Proposals are expected to fall within approximately USD 120,000, exclusive of eligible travel expenses for the Consultant's project team, which will be covered separately by the SCF as described below.

Bidders should propose the methodology, team composition and level of effort they consider appropriate to fully deliver the scope of work set out in Section 3 within this budget envelope.

Estimated costs must be broken down by task/component in tabular format, covering Direct Labour Costs (number of hours or days per staff member and their associated unit costs) and all input, material and operational costs associated with the assignment, including any field testing, measurement or observation costs and stakeholder engagement activities. The consultancy fee must be fully inclusive of these costs.

The sole exception is travel by the Consultant's own project team, including flights, in-country transport and accommodation for Consultant staff, which will be covered separately by the SCF where field visits are necessary and subject to Catalytic's applicable travel policy.

Please note that per diems are not an eligible expense under Catalytic's travel expense policy. Catalytic is exempt from VAT and financial proposals should therefore not include VAT.

4) Contract & Payments

The contract will be based on Catalytic's standard terms of engagement, fixing a total consultancy fee on a lump-sum basis in US Dollars. Catalytic will pay the Consultant in 3 instalments: one advance payment of 20% upon signature of the contract, one payment of 40% after delivery of the draft report, and a final payment of 40% after delivery of the final report.

5) Conflicts of Interest & KYC Documentation

As part of the proposal, the Consultant shall confirm that it does not have a conflict of interest and that it is in a position to provide an adequate, accurate and objective review. In addition, Catalytic will request an extract from the commercial registry and a passport copy for a KYC / due diligence check for shortlisted candidates.

8. Submission

Please submit your proposal before 17:00 CEST on **Friday, 30 October 2026** by sending it to project@catalyticfinance.org