Terms of Reference for Potential Study Agreement

Rooftop Solar PV Assessment and Design across IFRIA Sites

August 21, 2025

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 R20, IUCN, and Gold Standard.

2. Context of the Potential Study Agreement

Ifria seeks technical assistance to support the development and optimization of temperature-controlled logistics facilities in Morocco and Senegal. This engagement encompasses feasibility studies, environmental certifications, and system upgrades across three facilities in Morocco and Senegal. The scope includes EDGE certification assessments, rooftop photovoltaic system designs, refrigeration system audits, and environmental impact assessments.

Market Challenge

Temperature-controlled logistics (TCL) infrastructure in North and West Africa remains underdeveloped, resulting in significant post-harvest losses for farmers and small producers. Current food waste rates vary substantially by product type:

- Poultry and red meat: 10%
- Fruits and vegetables (including potatoes, onions): 40-50%
- Dairy products and fish: 15-25%

These losses translate to reduced income, increased food insecurity, lower quality produce, and poor resource efficiency. Additionally, the lack of adequate cold chain infrastructure prevents local producers from meeting international export standards, limiting market competitiveness.

Strategic Response

Ifria addresses the cold chain infrastructure gap in Africa by developing a network of highly efficient logistics hubs built to international standards. The platform applies a market systems approach to serve farmers and agribusinesses lacking access to cold chain solutions, helping preserve product freshness, extend shelf life, and reduce post-harvest losses.

A blended capital structure, anchored by concessional finance, supports the development, construction, acquisition, and expansion of a portfolio of temperature-controlled logistics warehouses in selected North and West African markets.

Project Overview

Ifria is a pan-African cold chain development platform with operations in North and West Africa. Its facilities are strategically located in major industrial and consumer hubs, as well as key agricultural production zones, to strengthen trade in perishable products, connect aggregation areas to export gateways, and provide value-added logistics services currently absent from these markets.

All facilities are designed to meet international green building standards and will integrate solar energy to enhance efficiency and sustainability. The platform is governed by IFC Environmental & Social (E&S) performance standards and international certifications (e.g. EDGE).

- **Facility 1 (existing logistics hub, North Africa):** An established operation offering storage, handling, and refrigerated transport services, with an ongoing expansion to double capacity. This includes replacing its refrigeration system with a modern, energy-efficient one. The facility operates within a logistics complex that already benefits from a grid-connected photovoltaic plant.
- **Facility 2 (greenfield logistics hub, West Africa):** A large-scale development in a state-managed industrial zone, designed to serve agri-food and pharmaceutical value chains. It will provide modern cold chain services while stimulating local economies through job creation and improved trade infrastructure.
- **Facility 3 (planned logistics hub, North Africa):** Located in an agricultural and fisheries production region, this facility will support domestic and export markets, strengthen regional trade corridors, and provide high-quality third-party cold storage and logistics services in an underserved local market.

Together, these facilities represent a coordinated investment under the **Ifria platform**, designed to boost competitiveness, enable export growth, and deliver long-term economic and environmental impact across Morocco, Senegal, and the wider region.

3. Scope of Work for Rooftop PV Assessment and Design

The project covers three IFRIA facilities. For confidentiality, detailed site names and specifications will be provided to shortlisted bidders under NDA. The objective is to design rooftop photovoltaic (PV) systems that reduce reliance on grid electricity and decrease greenhouse gas emissions.

- **Facility 1 (Morocco, existing logistics hub):** The consultant will (i) conduct a technical audit of the existing 1 MW PV plant, and (ii) design a rooftop PV system to supply the facility, its planned extension, and the expected demand from a further planned expansion.
- **Facility 2 (West Africa, greenfield logistics hub):** The consultant will carry out rooftop structural assessments and design a rooftop PV system.
- **Facility 3 (Morocco, planned logistics hub):** The consultant will carry out rooftop structural assessments and design a rooftop PV system.

Activity 1: Site Assessment and Structural Evaluation

Tasks:

- Conduct a technical audit of the 1 MW PV plant (Facility 1 only).
- Conduct structural integrity analysis of the roof systems. At Facility 1, this should include Phase 1 (~3,000 m²), Phase 2 (~6,000 m²), and the planned expansion. At Facilities 2 and 3, which are greenfield, the consultant should review the roof structures if already built, or otherwise assess the planned roof designs and specifications for suitability to host PV systems.
- Assess suitability of roofs to support PV installations.
- Identify any reinforcement requirements for PV system deployment.

Activity 2: Solar Resource and Potential Assessment

Tasks:

- Evaluate solar potential at all locations, considering:
  - Orientation and tilt of roof surfaces
  - Shading analysis
  - Available usable space
- Confirm favorable solar irradiation conditions and suitability for high-demand facilities

Activity 3: System Design and Layout

Tasks:

- Develop rooftop PV system layout for each facility.
- Define technical system specifications, including panel types, inverter options, mounting structures, and battery storage (if applicable).
- Estimate equipment costs and installation requirements.

Activity 4: System Integration and Compliance

Tasks:

- Design integration with the facility's existing electrical systems.
- Ensure compliance with relevant local electrical codes and safety standards.
- Identify technical integration risks, particularly at Facility 1 where a new rooftop system may interact with the existing 1 MW PV plant.

Activity 5: Performance Evaluation

Tasks:

- Conduct energy yield assessment based on the proposed PV system design
- Estimate expected reduction in grid electricity use and associated emissions
- Consultants should calculate avoided emissions using up-to-date grid emission factors

Deliverables:

- Structural integrity assessment reports.
- Solar potential analysis.
- PV system design layouts and technical specifications.
- Cost estimation for equipment and installation.
- Electrical integration plan.
- Compliance documentation.

- Energy yield and performance projections.
- Technical audit report of the 1 MW PV Plant (Facility 1 only).
- Technical risk register (covering design, structural, integration, and operational risks) and proposed mitigations.

4. Requirements

In their proposals, applicants should demonstrate that they meet the following requirements:

- Demonstrated experience in solar PV system design, particularly for commercial or industrial rooftops.
- Experience working in African markets, preferably in North and West Africa.
- Familiarity with national and local electrical codes, permitting processes, and installation standards.
- Capacity to deliver technically sound, cost-effective system designs suitable for future implementation.
- Ability to identify potential engineering, procurement, and construction (EPC) pathways.
- **Local participation is required:** firms must demonstrate local capability in Morocco for two of the facilities, and Senegal-based capability (or demonstrable prior experience in Senegal) for the third facility.
- Local solar EPC firms with demonstrated technical competence will be preferred.

5. 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, specific in-country experience and knowledge.

3) Estimated costs:
A total time and expenses cost estimate (not to be exceeded), in US Dollars, must be provided for the required scope of work. A breakdown of the estimated costs by task must also be presented in tabular format and should include Direct Labour Costs (number of hours or days per staff and their associated unit costs). If field visits are necessary, travel costs will be covered by the SCF separately from the consultancy fee under “Indirect Labour Costs”. Please note that “Per Diems” are not an eligible expense under our travel expense policy. Please also note that Catalytic is exempt from VAT. Your financial proposal 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 lump-sum basis in US Dollars. Catalytic will pay the consultant in 2-3 instalments: E.g. one advance payment of 20% upon signature of the contract, one payment of 40% after delivery of the draft report, final payment of 40% after delivery of the final report.

5) Conflicts of interest:

As part of the proposal, the Consultant shall also confirm that they do not have a conflict of interest and that they are in a position to provide an adequate, accurate and objective review.

6. Submission

Please submit your proposal by **September 5, 2025** to **project@catalyticfinance.org**