Terms of Reference for Potential Study Agreement

Technical Audit and Retrofit Feasibility Study for Ifria's facility in Morocco: Transitioning to Ammonia-Based Refrigeration

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 Refrigeration Audit and Retrofit Feasibility Study

The consultant is expected to conduct a technical audit and retrofit feasibility study of the refrigeration system at Facility 1.

Objective: Assess the performance of the existing refrigeration system and evaluate the feasibility of transitioning to an ammonia-based system that is safer, more efficient, and environmentally sustainable.

The following tasks should be carried out:

Activity 1: Technical Audit of Existing Refrigeration System

Tasks:

- Review available technical audits performed on the R-404A refrigeration system.

- Review the design of the ammonia refrigeration system planned for the facility's extension, to assess options for integration with or replacement of the existing R-404A system.
- Assess the current performance of the R-404A system, including reliability, cooling capacity, and maintenance needs.
- Evaluate compliance with relevant safety standards and regulations.
- Analyze energy consumption and identify efficiency gaps.
- Assess the environmental footprint of the current system, including refrigerant emissions.

Activity 2: Retrofit Feasibility Study – Transition to Ammonia-Based System
Tasks:

- Evaluate the technical feasibility of converting from R-404A to an ammonia-based system, considering both retrofit and phased replacement options.
- Assess capital and operational costs, installation requirements, and regulatory implications.
- Analyze expected improvements in energy efficiency, environmental performance, and long-term cost savings.
- Consider implications of the planned D4 expansion (a designated area within the facility expected to be converted into additional cold storage capacity) as part of the feasibility assessment.

Deliverables:

- Technical audit report of the existing refrigeration system
- Retrofit feasibility study evaluating transition to ammonia-based system
- Cost-benefit analysis covering efficiency, emissions, safety, and compliance
- Recommendations for system upgrade pathways, including integration with future cold storage expansion (D4).

Timeline: Audit and retrofit study for facility 1 should start as soon as possible.

4. Requirements

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

- Proven experience in refrigeration engineering and cold chain system design
- Familiarity with alternative refrigerants, including ammonia-based systems
- Strong understanding of environmental and energy efficiency considerations in industrial refrigeration
- Experience working in Morocco or similar North African contexts preferred
- Experience with large-scale food cold chain operations 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**