SUBNATIONAL CLIMATE FUND

Terms of Reference for Potential Study Agreement

*Please submit your proposal by **20 November 2023** to* project@catalyticfinance.org

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

Senegal has been struck hard by the global pandemic, as containment measures have included restrictions on ground, sea, and air-based transportation, resulting in sustained food and pharmaceutical supply chain disruptions as well as important perishable product losses. These disruptions underscore the value of food supply chain infrastructure and specifically the critical nature of the old chain for both public and private operators. Inadequate cold chain linkages and a lack of cold chain services along perishable value chains impede farmers' access to markets, leaving crops rotting in the fields instead. Resulting crop losses threaten livelihoods, further deepening the impact of the COVID-19 pandemic and significantly disrupting the Senegalese economy.

The SCF is considering a potential investment opportunity in a HoldCo company to develop cold storage facilities in Morocco and Senegal. The project developer is an integrated cold chain logistics development platform that develops and operates temperature-controlled logistics ("TCL") assets in North and West Africa where cold chain logistic operations are immature.

The cold storage company is currently developing a a new facility in Senegal. The facility will offer different temperature-controlled technologies and techniques to avoid food wastage, including energy efficiency technologies, warehouse management system (WMS), modern handling equipment, remote ordering and inventory tracking, stock management technology, remote monitoring of refrigeration systems.

The facility will be trade-oriented and is expected to capture import and export trade flows in a major port in Senegal, as well as support the other activities at the port notably the fishing industry. The port handles more than 50% of international trade of perishable products specifically F&V in Senegal. The imported volumes of fruits and vegetables going through the port represents 98% and 55% respectively from national volumes with more than 90% of potatoes. From exports side, nearly 50% of national F&V are being exported. The region is home of industrial fish production contributing by 85% from national production.

The cold storage facility will service the consumption zone for a major city in Senegal while also serving as a distribution platform for the exports and the consumption area for another city around 120 km away. The facility will be able to service a distribution radius between 120 to 160 kilometers targeting 7.6 million people which represents 45% of total the Senegalese population in 2020.

The facility will be a multi-service facility offering fresh and frozen storage capacity, value-added services, and a transshipping platform as well as a cross-docking platform to facilitate import and export trade flows.

The cold storage company has signed a partnership agreement with the port authority in the project location and plans to build a primary warehouse with a capacity of 5,000 pallets, expandable to 10,000 - 15,000 pallets, dedicated to perishable products requiring controlled temperatures.

3. Scope of Work for Feasibility Studies

	Work Package 1	**Work Package 2**	**Work Package 3**	**Work Package 4**
Scope	Topographical, Geotechnical, and Geophysical	Architectural design and Owner's requirement list / Detailed Engineering and Building Permitting	Life Fire and Safety compliance verification and program (L&FS study)	EDGE Certification (Phase 1)
Duration	**6 weeks**	**16 weeks**	**6 weeks**	**6 weeks**
Deliverable	1 Feasibility Report	1 Feasibility Report	1 Feasibility Report	1 Feasibility Report
Format	DWG, Word and pdf	DWG, Word and pdf	DWG, Word and pdf	Pdf and Word
Language	French	French and English	French	English

Please note that preference will be given to qualified firms who can implement either all or multiple work packages (either inhouse or using qualified subcontractors) to reduce the administrative workload.

Nevertheless, proposals for individual work packages may be considered. Please see the detailed scope & qualification requirements for each work package below.

3.1 Work Package 1: Geotechnical, geophysical, and topographical surveys

a. GEOTECHNICAL AND GEOPHYSICAL STUDIES

A geotechnical and geophysical site investigation is required in order to evaluate the suitability of the selected site at the Port. The contractor shall perform the following scope of work:

- Building – Perform boring holes in the building area in order to determine the bearing capacity of the soil in KN/square meters. Depth of the borings should be appropriate to determine if the soil will support shallow conventional foundations without assistance from pilings or other methods.
- Paving – Perform shallow boring holes in the truck paving area to determine the capacity of the soil to support highway trucks.
- Identify the type of soil on the site.
- Identify any organic material and indicate if it needs to be removed.
- Identity any contaminated or hazardous materials on the site.
- Determine the water table, which affects the ability to borrow fill dirt and the viability of using a septic tank.
- Potable water – Potable water is needed for the office and occasional washdowns in the dock. If a municipal or central water supply is not available, the crew needs to drill a well. Process water is required for washdowns in the forklift maintenance room and refrigeration equipment rooms and for evaporative cooling if required.
- Sanitary sewer – This is primarily for the offices only. The washdown water will be minimal. If a municipal or central sanitary sewer system is not available, a septic tank system will be required. A percolation test is required to determine the water absorption rate of the soil for suitability for a septic tank drain field. The diameter of the sewer line from the offices will either be 4” or 6” depending on the distance and slope of the sewer line from the facility. The design for the tank and length of the drain field will be based on the number of occupants using the office.
- Flood Zone – Indicate if the site is in a flood zone.
- Identify Seismic Zones.
- Identify underground obstacles such as power lines, water lines, utilities, etc.
- Identify any problems identified on the site that may present problems.

b. TOPOGRAPHICAL SURVEY

In addition to the geotechnical and geophysical surveys, a topographical survey is needed for the site. The contractor shall perform the following scope of work:

- Measure the elevations of the site to a suitable level of detail.
- Determine the nature of the different horizons located on the project right-of-way and their mechanical characteristics.
- Photograph of the physical characteristics of the site.
- Illustrate all obstacles and structures on or near the lot.
- Analyze the study site and the road areas created during the project.

3.2 Work Package 2: Architectural design and owner’s requirement list

The main objective of the study is to determine and develop the architectural design for all lots for procurement including but not limited to:

- Chilled and frozen chambers;
- Loading areas;
- Docks doors;
- Steel structure;
- Insulation;
- Lighting major and minor systems;
- Civil works;
- Fire suppression;
- Plumbing;
- Sanitation;
- Carpentry.

The study results shall reflect the cold storage company's operational needs, after which the contractor shall propose the layout of the facility. Expected needs include product flows, temperature requirements, space requirements, storage systems and racking systems, and value-added auxiliary services.

a. OWNER'S REQUIREMENT LIST

The contractor shall use the information available in the localized market assessment that was performed by the cold storage company in 2022 to define an Owners' requirements list (Cahier des Charges) for the engineering firm.

This shall include cold chain equipment elements and design criteria for the construction of a TCL facility to support both the perishable food and pharmaceuticals supply chains.

These design criteria include refrigerated chamber temperature segregation, number of chambers, capacity requirements and humidity levels required for specific local products, including special equipment such as post-harvest heat removal chambers or blast freezing and pharmaceuticals requirements. The owner's requirement list shall also contain the design elements required to provide value added services.

b. PRELIMINARY DESIGN: "AVANT-PROJET"

The contractor shall prepare a description of the project (known in the French vernacular as Avant-Projet) based on the Owner's requirement list. The preliminary design will define the physical characteristic of the facility; in addition, it presents a first description of the spatial requirements of the activities involved.

The "Avant Project" ensures that the understanding of the contractor is aligned with the cold storage company's intent, and the likely implication of their proposal is understood in terms of investment and production costs, labor requirements, scale operations, etc.

The contractor shall provide an initial design and layout of the facility to include the following elements:

- Spatial layout;
- Alignment on the property;
- Preliminary overhead and elevation views;
- Office layouts and steel structure;
- Size, heights of each facility and the respective chambers;

- Number of chambers;
- Number of docks;
- Preliminary assessment of the capital investments required;
- Preliminary assessment of the energy required;
- Preliminary architectural considerations.

c. CIVIL ENGINEERING, STEEL STRUCTURE, QUALITY CONTROL OFFICES

Procure and engage local firms for Civil Engineering, Steel Structure, Quality Control Offices to review the "Avant Projet" and Detailed Engineering.

d. DETAILED ENGINEERING AND BUILDING PERMITTING

i. ENGINEERING DESIGN AND TENDER PREPARATION

The geotechnical, geophysical, and topographical studies (see work package 1 above) shall be executed at the outset of this task and supervised by the contractor. This analysis will enable the contractor to calculate loads, civil works requirements, piling requirements and other needs and subsequently produce the appropriate procurement documentation for the Tender Documents or in French the "Dossier de Consultation des Enterprises." The tender documents will be prepared in both English and French languages and include the following elements:

- Civil Works; (calculation, specifications, e measurements, and drawings of foundations, walls, drainpipes, concrete slabs, masonry)
- Steel Structure, Roofing, Cladding;
- Refrigeration Installation;
- Insulation Panels;
- Insulated doors systems;
- Racking Systems;
- Truck loading and discharge quay equipment;
- Electrical Installation;
- Lighting;
- Air conditioning;
- Sanitary, Fire protection, and Plumbing;
- Entry and Exit Security;
- Painting;
- Carpentry;
- Office Equipment;
- Other miscellaneous equipment (if necessary);
- Pre-Cooling Units (if necessary);
- General estimated schedule for the work.

ii. ARCHITECTURE AND PERMITTING

Engagement with a local architect in Senegal is obligatory for review and approval of layout and design and compliance with local applicable laws. The contractor shall, together withthe cold storage company, procure the services of a local architect and other entities that may be required for local permitting.

The contractor shall lead the following activities:

- Reviewing and amending the architectural design together with the local architect to be in conformity with local codes and regulations and providing necessary authentication;
- Support the architect for the submission to the relevant local authorities;
- The follow-up of the works until their approval from required local authorities.

The architectural mission is to review and approve only. The administrative follow-up mission consists of assisting the architect with the various urban planning offices and technical services until the necessary authorizations are obtained. The different permits to be taken into consideration include:

- Construction permitting;
- Environmental permitting (if any);
- Fire and safety permitting; and
- Architectural permitting.

3.3 Work Package 3: Life Fire and Safety compliance verification and program (L&FS study)

The L&FS study will include preparation and submission of three components:

1. L&FS MASTER PLAN FOR THE FACILITY

The contractor shall develop a L&FS master plan (report) for each facility. The report will encompass all aspect of life and fire safety, relevant codes & standards, and design basis that will need to be applied to achieve an acceptable level of life safety in accordance with IFC guidelines and international guidelines.

The contractor shall conduct a comprehensive means of escape analysis to demonstrate the adequacy of the means of egress system and components. The report will be handed over for distribution amongst project team members and will be the working document used during the design and procurement phase. Aspects covered are:

- Structural fire resistance ratings.
- Barriers to prevent spread of fire, smoke, or both, as applicable.
- Fire stopping of vertical/ horizontal structural penetrations.
- Means of egress, escape routes, exit access and exits.
- Emergency power supply.
- Exterior assembly areas for occupants / crowd control provisions.
- Emergency voice communications.
- Fire pumps and fire water reservoir.
- Fire suppression systems.
- Access for fire apparatus and facilities for firefighting.
- Compartmentation of interior spaces and protected areas of refuge.
- Interior finish / exterior cladding, fire resistance and smoke development ratings.
- Exit lighting and emergency lighting systems.
- Smoke management / zoned smoke control systems.
- Smoke detection and fire alarm.
- Standpipe systems and hose reels.
- Fire water mains and external fire hydrants.
- Portable and fixed firefighting equipment and appliances.

In addition to the report, the consultant shall prepare fire compartmentation drawings for each facility. Finally, the contractor shall communicate with the project team and designers to ensure all code and project requirements are achieved as to ensure an acceptable level of safety is provided.

2. DESIGN REVIEW

The contractor shall review the design of fire safety systems (Active & passive) developed by the project design team for compliance with the Master Plan, and where there any deviations are noted, the contractor will prepare a list of corrective actions and issue to the Client / Design team for rectification.

3. FIRE AND SAFETY SYSTEM INSPECTION

The contractor will visit the facility at the project completion to review and highlight any construction items that are not compliant with the Master Plan and fire codes. Should the systems installation be in accordance with the designs, then, during the same visit, the contractor will witness the Life & Fire Safety Systems testing. On successful completion of the inspection and witness testing, The contractor shall issue a report confirming compliance requirements.

3.4 Work Package 4: EDGE Certification

The cold storage company aims to achieve the EDGE (Excellence in Design for Greater Efficiencies) certification as part of its commitment to minimizing the environmental impact of its buildings. The EDGE certification process encompasses three phases, each corresponding to the reduction of environmental impact in the areas of direct energy consumption, water consumption, and the energy footprint of construction materials.

To do so, the cold storage company would like to commission a professional EDGE consultant company to perform a feasibility study and help the company obtain this certification. The primary objective of the feasibility study (phases 1 and 2 detailed below) is to assess the readiness of the cold storage company to undertake the EDGE certification process. The study will identify potential challenges, evaluate technical equipment requirements, and determine the cold storage company's preparedness to progress through phase 3 (detailed below).

Under these terms of reference, the contractor will only be commissioned with phase 1, while phases 2 and 3 will be attributed later under a separate assignment.

PHASE 1: A PRELIMINARY EVALUATION OF THE TECHNICAL EQUIPMENT

In Phase I, the feasibility study will commence with a comprehensive evaluation of the technical equipment and systems to be utilized in reducing direct energy consumption, water consumption, and the energy footprint of construction materials within the cold storage facility. This includes:

- Review the existing technical infrastructure and equipment relevant to minimizing direct energy consumption, water consumption, and the energy footprint of construction materials.
- Identify technical gaps that could impede the implementation of strategies for environmental efficiency.
- Provide recommendations for necessary technical enhancements to align with the fiction in the three specified areas.

4. Deliverables

The final deliverable of each work package should be a written report in English. For the detailed format requirements, please check table on page 2. To the extent possible, they should include the following elements:

- Executive Summary
- A table of acronyms
- Bibliography
- Follow the SCF's template for TA studies (will be provided by Catalytic)
- Word Format

5. Indicative Timeline

Work is expected to commence immediately after the consultant is appointed. The delivery of services and reporting timeframes are anticipated to be as follows:

Work Package 1: Topographical, Geotechnical, and Geophysical	
Activity / Deliverable	**Indicative timeline**
Kick-off meeting Establish communication channels for initial information exchanges, confirm the project schedule, confirm the reference framework, and review document availability.	Week 1
Draft report 1 provided to Catalytic.	Week 4
Final report 1 provided to Catalytic.	Week 6

Work Package 2: Architectural design and owner requirement's list, detailed engineering, permitting	
Activity / Deliverable	**Indicative timeline**
Kick-off meeting Establish communication channels for initial information exchanges, confirm the project schedule, confirm the reference framework, and review document availability.	Week 1
Draft report 1 provided to Catalytic.	Week 12
Final report 1 provided to Catalytic.	Week 16

Work Package 3: Life fire and safety compliance study (L&FS study)	
Activity / Deliverable	**Indicative timeline**
Kick-off meeting Establish communication channels for initial information exchanges, confirm the project schedule, confirm the reference framework, and review document availability.	Week 1
Draft report 1 provided to Catalytic.	Week 4
Final report 1 provided to Catalytic.	Week 6

Work Package 4: EDGE Certification (Phase 1)	
Activity / Deliverable	**Indicative timeline**
Kick-off meeting Establish communication channels for initial information exchanges, confirm the project schedule, confirm the reference framework, and review document availability.	Week 1
Draft report 1 provided to Catalytic.	Week 4
Final report 1 provided to Catalytic.	Week 6

6. 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 for each work package. Please include a breakdown of the estimated

costs by task in tabular format including Direct Labour Costs (number of hours or days per staff and their associated unit costs) and Indirect Labour Costs (i.e. travel, per diem, sub-contractors, etc.). Please note that R20 is exempt from VAT. Your financial proposal should therefore not include VAT. If field visits are necessary, travel costs will be covered by the SCF separately from the consultancy fee.

4) **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.

7. Submission

Please submit your proposal by 20 November to **project@catalyticfinance.org**