

# Terms of reference (ToR) for the procurement of services below the EU threshold

CONFIDENTIAL

In-depth Study on Sustainable Fisheries through Utilization of Solar Cooling to Reduce Emission and Improve Fish Quality

**Project number/  
cost centre:**

20.2278.8-001.00

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## **0. List of abbreviations**

AG	Commissioning party
AN	Contractor
AVB	General Terms and Conditions of Contract for supplying services and work
FK	Expert
FKT	Expert days
KZFK	Short-term expert
ToRs	Terms of reference

## 1. Context

The GIZ-implemented Energy Programme Indonesia/ASEAN supports the Indonesian Government in a partner-based approach in achieving its targets for a sustainable energy transition. These include realizing 23% renewable energy in the power mix by 2025 and 34% by 2030, achieving Net Zero Emissions by 2060 and mainstreaming low-carbon technologies as part of an overall economic transformation.

As one of the measures under the Energy Programme, the “Solar Cold Chains for a Green Economy in Indonesia” (SOCOOL) Project shall create suitable technological and market framework conditions to enable a long-term reduction of CO<sub>2</sub> emissions in Indonesia's cooling sector. An industry-based, national approach in partnership with the Ministry of Energy and Natural Resources (ESDM) and Ministry for Marine and Fisheries (KKP), shall ensure contributions towards Indonesia's Nationally Determined Contributions and renewable energy targets while achieving socio-economic improvements in related sectors of the economy with high demands for cold chain expansion and preservation of goods.

The Project is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) with an overall duration of four years (01/2023-12/2026) and has the general objective: “Solar cold chains are rolled out in key sectors of the economy as a contribution to climate-friendly green transformation”. Its main Outputs are:

1. Government advice and national planning: Instruments for quantitative and qualitative monitoring support the use of solar technologies in cold chains for national planning processes.
2. Alliances and market development: Technology partnerships have developed adapted technical solutions for solar cold chains.
3. Demonstration: Pilot applications with state actors and the private sector have shown technologically and economically viable examples for the dissemination of solar cold chains.

With the Projects focus on solar cooling in Indonesia's fisheries sector, significant contributions shall be made to the country's sustainable economic and social development. Together with KKP, GIZ aims to standardize solar energy as part of the cold chain expansion, related national investment plans and roll out adapted technical solutions that increase socio-economic benefits for small-scale fisheries-based communities in coastal areas.

This study represents a major deliverable for the policy advice to KKP in combination with a macro-economic model combining fisheries and energy sectors in relation to the nation's social, environmental and economic development targets.

It further contributes to a strategic assessment of how the fisheries sector plays a role in building a low-carbon and climate-resilient future. It includes identifying opportunities for value chain modernisation, strengthening energy efficiency, and promoting the use of renewable energy, particularly in post-harvest and cold chain operations. The assessment will consider relevant fisheries contexts and supply chain dynamics in Indonesia, and inform national planning by identifying key development challenges, investment needs, and strategic pathways in policy and technology to support the sustainable transformation of the country's fisheries sector.

The output of this contract shall deliver on the following outcome targets:

- 1 strategic plan at national level with an emission saving potential of 40,000 tonnes of CO<sub>2</sub>, which prescribes the use of solar cooling in cooling infrastructure based on defined technical standards, has been adopted by a relevant ministry (e.g. Ministry for Energy and Mineral Resources, Ministry for Marine Affairs and Fisheries).
- Investment plan of state actors in key sectors of the economy with high demands for cooling (fisheries) have included investments in the amount of EUR 15,200,000 for solar cooling systems.

In this context, the SOCOOL Project provides new key technologies on solar cooling for fishery cold chains, in partnership with research institutes and industry, that shall be integrated into the study in terms of investment needs and other criteria.

## **2. Tasks to be performed by the contractor**

The contractor shall provide the following work/service:

The fisheries sector plays a crucial role in supporting Indonesia's national goals and global climate change ambitions. As a key economic driver, the sector contributes significantly to economic development by creating jobs, generating revenue through exports, and fostering entrepreneurship in coastal communities. Additionally, it enhances food security by providing a sustainable source of nutrition for millions of Indonesians and supporting global food supply chains. Improving livelihood quality is another critical contribution, as the fisheries sector offers income opportunities for coastal populations and small-scale fishers, promoting social inclusion and economic resilience. The Ministry of KKP emphasizes the need to distinguish between the quantity and quality of growth, ensuring long-term benefits without negative consequences. A holistic approach, focusing on values rather than just numbers, is essential to achieving sustainable and inclusive growth.

To achieve this, an initial study has been conducted to provide initial findings on challenges faced by the KKP to ensure sustainable fisheries using green technology. However, to support the KKP, an in-depth study with adequate findings and action plan to address the issues is needed to ensure the fisheries sector becomes a driving force for sustainable development and climate resilience. The study should focus the following objectives:

The contractor is responsible for providing the following services:

- Analysing the role of the fisheries sector in supporting global climate change mitigation and adaptation efforts, including its potential to contribute to carbon sequestration, enhance ecosystem resilience, and adapt to the impacts of climate change. The steps should include and not limited to: Conduct surveys and stakeholder interviews (fishers, fish processors, market operators); analyse local fishing and post-harvest handling practices; assess energy consumption and emission levels in conventional cooling methods. A robust quantitative analysis expected to be completed under this contract.
- Evaluating the fisheries sector's contribution to national goals, such as economic development, food security, and improving the quality of life for

fishery-dependent communities. This includes assessing its economic impact, employment generation potential, and role in ensuring nutritional security. Similarly to the previous task, a robust quantitative analysis with province level details is expected to be completed under this contract.

- Analysing existing regulations, incentives, and barriers related to renewable energy in fisheries to provide recommendations for policy integration.
- Develop a national-level pathway that contrasts a low-carbon, climate-resilient fisheries sector with the business-as-usual (BaU) model. This includes identifying structural shifts through coordinated planning, infrastructure improvements, regulatory adjustments, and investment priorities across the value chain.
- Design at least two site-level transition pathways for fisheries facilities (i.e., landing sites, cold storage, processing units, etc), outlining key operational changes to shift from BaU to low-carbon, climate-resilient configurations with clear performance benchmarks.
- Ensure alignment and integration of macro- and site-level strategies by synthesizing prior analyses on energy use, operational practices, and stakeholder input, with attention to coherence with national plans and global sustainability goals.
- Develop an investment plan to be handed over to KKP that estimates the indicative costs required to implement both the national and site-level low-carbon, climate-resilient pathways. This includes calculating capital and operational investment needs based on proposed interventions, and outlining potential financing mechanisms to support implementation and scalability.

The investment plan shall include the following elements – for orientation, prior to further consultation with KKP and GIZ:

Objectives: Expand cold chain infrastructure and integrate energy-efficient, low-carbon technologies (RE & EE) to reduce post-harvest losses and enhance socio-economic welfare.

Key Investment Components:

- Cold storage, ice plants, refrigerated transport at key points (landing sites, markets), with technology examples from industry or GIZ
- Solar-powered and energy-efficient systems for cooling and processing.
- Digital tools for temperature monitoring and logistics efficiency.
- Capacity building for operators, technicians, and institutions.

Expected Outcomes

- Reduced post-harvest losses → higher fish quality and market value.
- Improved domestic valorisation for nutrition
- Increased income and job creation, especially in rural and coastal areas.
- Lower emissions through clean energy integration (solar, efficient tech).
- Enhanced food security and climate resilience.

Financing & Implementation

- Investment needs (in absolute value and derived metrics, i.e. emission reduction per investment, etc)
- Expected socio-economic benefits, e.g. reduction in post-harvest losses monetary value), increased fish quality and market value, carbon reduction potential (tons CO<sub>2</sub>e avoided), others.

- Investment mobilisation scheme such as mix of public investment, private sector engagement, climate/green finance.
- Phased approach: pilot projects → national scale-up.
- Strong M&E framework for impact tracking (loss reduction, CO<sub>2</sub> savings, income gains).
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Milestones/partial works	Deadline/place/person responsible	Criteria for acceptance
<b>Milestone 1: Fisheries sector and climate change</b> Analyse the role of the fisheries sector in climate change mitigation and adaptation, including: <ul style="list-style-type: none"> <li>• Results of at least 15 stakeholder surveys and interviews (fishermen, fish processors, market operators across representative locations)</li> <li>• Analysis of local fishing and post-harvest handling practices focused on two key species</li> <li>• Assessment of energy use and GHG emissions from conventional cooling methods using two representative case studies</li> <li>• Evaluation of potential for GHG reduction, carbon sequestration and ecosystem resilience enhancement</li> <li>• Initial scoping of technology readiness and potential RE/EE integration opportunities.</li> <li>• Analysis of the sector's adaptive capacity to climate impacts</li> </ul>	31 September 2025	Analysis report on role of the fisheries sector in climate change mitigation and adaptation.  Estimated Expert Days: 26 man-days
<b>Milestone 2: Socioeconomic contribution</b> Evaluate the fisheries sector's role in supporting national development priorities, including:	15 October 2025	Evaluation report on fisheries sector's role in supporting national development priorities.  Estimated Expert Days: 26 man-days

<ul style="list-style-type: none"> <li>• Conduct economic impact analysis (e.g., GDP contribution, value chain analysis)</li> <li>• Employment generation and livelihoods assessment in fishery-dependent communities, particularly for three selected provinces</li> <li>• Analyse fisheries contribution to food security and nutrition, particularly in vulnerable population and provincial-level disparities related to production, consumption, and cold chain infrastructure</li> <li>• Assess of quality-of-life indicators in fishing communities</li> <li>• Identification of socioeconomic bottlenecks or vulnerabilities that may limit inclusive growth or transition to low-carbon practices</li> </ul>		
<p>Milestone 3: Policy and regulatory analysis brief</p> <p>Review and assess the regulatory framework for renewable energy in fisheries, including:</p> <ul style="list-style-type: none"> <li>• Overview of current policies, incentives, and institutional frameworks</li> <li>• Identification of regulatory gaps and barriers to renewable energy integration</li> <li>• Comparative analysis with relevant national and international best practices, including policies from other archipelagic or coastal economies</li> <li>• Actionable recommendations for policy alignment and improvements</li> </ul>	<p>15 October 2025</p>	<p>Analysis report</p> <p>Estimated Expert Days: 20 man-days</p>

<p>Milestone 4: Strategic framework for sustainable and climate resilient fisheries.</p> <p>Develop integrated strategies for aligning the fisheries sector with national and global communities, including:</p> <ul style="list-style-type: none"> <li>• A strategic roadmap to support sustainable resource management, low-emission development, and innovation in post-harvest and value chain practices.</li> <li>• A comparative assessment of business-as-usual and proposed interventions to identify potential for emission reductions and improved performance.</li> <li>• An investment mobilization package that outlines estimated needs and opportunities at both plant and national levels, informed by indicative site-level assessments, sectoral insights and expected emissions impact.</li> <li>• A preliminary framework for financing options and investment pathways, including mechanisms that enable scaling and alignment with climate and development priorities.</li> </ul>	<p>25 November 2025</p>	<p>Report on integrated strategies</p> <p>Estimated Expert Days: 32 man-days</p>
<p>Milestone 5: Final Report / Investment Plan</p> <p>Develop a comprehensive investment plan that builds on the preceding analysis and outlines a clear pathway for financing and scaling low-emission cold chain systems. The plan will:</p> <ul style="list-style-type: none"> <li>• Estimate investment needs at different</li> </ul>	<p>31 December 2025</p>	<p>Final report</p> <p>Estimated Expert Days: 25 man-days</p>



<p>levels to support informed decision-making.</p> <ul style="list-style-type: none"> <li>Summarize expected development and climate benefits to strengthen the investment case.</li> </ul>		
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Period of assignment: from 1 September 2025 until 28 February 2026.

The term of payment plan will be (subject to change to the updated regulation when the contract created):

- 1st Interim payment for Output 1,2, and 3
- 2nd interim payment for Output 4
- Final payment for Output 5,

### 3. Concept

In the tender, the tenderer is required to show *how* the objectives defined in Chapter 2 (Tasks to be performed) are to be achieved, if applicable under consideration of further method-related requirements (technical-methodological concept). In addition, the tenderer must describe the project management system for service provision.

Note: The numbers in parentheses correspond to the lines of the technical assessment grid.

#### Technical-methodological concept

**Strategy (1.1):** The tenderer is required to consider the tasks to be performed with reference to the objectives of the services put out to tender (see Chapter 1 Context) (1.1.1). Following this, the tenderer presents and justifies the explicit strategy with which it intends to provide the services for which it is responsible (see Chapter 2 Tasks to be performed) (1.1.2).

The tenderer is required to describe the key **processes** for the services for which it is responsible and create an **operational plan** or schedule (1.4.1) that describes how the services according to Chapter 2 (Tasks to be performed by the contractor) are to be provided. In particular, the tenderer is required to describe the necessary work steps and, if applicable, take account of the milestones and **contributions** of other actors (partner contributions) in accordance with Chapter 2 (Tasks to be performed) (1.4.2).

The tenderer is required to describe its contribution to knowledge management for the partner (1.5.1) and GIZ and to promote scaling-up effects (1.5.2) under **learning and innovation**.

#### Project management of the contractor (1.6)

The tenderer is required to explain its approach for coordination with the GIZ project. In particular, the project management requirements specified in Chapter 2 (Tasks to be performed by the contractor) must be explained in detail. (1.6.1)

The tenderer is required to draw up a **personnel assignment plan** with explanatory notes that lists all the experts proposed in the tender; the plan includes information on assignment

dates (duration and expert days) and locations of the individual members of the team complete with the allocation of work steps as set out in the schedule. (1.6.2).

#### **4. Personnel concept**

The tenderer is required to provide personnel who are suited to filling the positions described, on the basis of their CVs (see Chapter 7), the range of tasks involved and the required qualifications.

The below specified qualifications represent the requirements to reach the maximum number of points in the technical assessment.

##### **Team leader**

###### Tasks of the team leader

- Overall responsibility for the advisory packages of the contractor (quality and deadlines)
- Coordinating and ensuring communication with GIZ, partners and others involved in the project
- Personnel management, in particular identifying the need for short-term assignments within the available budget, as well as planning and steering assignments and supporting key experts
- Provide technical guidance on research design, analytical frameworks (e.g. mitigation/adaptation assessments), and integration of findings into policy-relevant outputs
- Ensure scientific rigor and evidence-based recommendations by drawing on international and Indonesia-specific research experience
- Regular reporting in accordance with deadlines
- Apply Climate Risk and Vulnerability Assessment (CRVA) methods to identify resilience needs and inform adaptation strategies,
- Conduct technical assessments of GHG emissions, energy consumption, and mitigation opportunities in fisheries-related value chains,
- Support analysis of socio-economic conditions related to energy access, food security, and value chain bottlenecks,
- Provide inputs to the final synthesis report, including interpretation of adaptation and mitigation co-benefit,
- Support review of relevant regulatory and institutional frameworks to strengthen climate adaptation planning

###### Qualifications of the team leader

- Education/training (2.1.1): PhD in geography and environmental sciences, energy systems, climate policy, or a related field relevant to the project objectives
- Language (2.1.2): Fluent in English
- General professional experience (2.1.3): 15 years of professional experience in climate change, energy transition, and sustainable development
- Specific professional experience (2.1.4): 10 years of experience managing interdisciplinary projects involving renewable energy systems, low-emission development, or sustainability transitions and resource-based sectors.

- Leadership/management experience (2.1.5): 8 years of leadership experience as project team leader in a company
- Regional experience (2.1.6): 10 years of experience in projects in Experience working on Southeast Asian
- Development cooperation (DC) experience (2.1.7): 10 years of experience in DC projects
- Other (2.1.8): 5 years' experience leading policy-relevant research and system-level strategy development on energy access, climate mitigation, and value chain transformation in developing and emerging economies

## **Key expert 1 - Climate and energy system**

### Tasks of key expert 1

- Conduct assessments of renewable energy systems, energy consumption, and emissions in post-harvest and supply chain operations,
- Contribute to scenario analysis and technical modelling of low-emission alternatives across different value chain segments,
- Support identification of infrastructure constraints, RE integration points, and investment pathways for cold chain decarbonization,
- Apply Life Cycle Assessment (LCA)-informed methods in analysing emissions, energy use, and technology pathways in fisheries and cold chain systems,
- Contribute to policy alignment and technical recommendations related to renewable energy adoption in fisheries value chains

### Qualifications of key expert 1

- Education/training (2.2.1): Master's degree in energy, climate, sustainable development, international relations, public policy, politics, or any area that is related to the project objectives,
- Language (2.2.2): Fluent in English and Indonesia languages,
- General professional experience (2.2.3): 3 years' experience in working on climate-related projects, with a focus on energy transition and sustainable systems,
- Specific professional experience (2.2.4): 3 years' experience in the renewable energy integration, and low-emission transition strategies in the fisheries sector.
- Leadership/management experience (2.2.5): NA
- Regional experience (2.2.6): 2 years' work experience in Indonesia, including collaboration with national ministries and local governments,
- Development Cooperation (DC) experience (2.2.7): 2 years' Experience supporting and implementing donor-funded programs related to climate, energy, and sustainable development,
- Other (2.2.8): 1 year experience in coordinating energy transition initiatives in value chain systems, particularly in the fisheries sector, including technology assessment.

## **Key expert 2 - Supply and value chain analyst**

### Tasks of key expert 2

- Conduct economic analysis of fisheries value chains, including market trends, production-consumption gaps, and investment needs.
- Support analysis of financing strategies, public-private partnerships, and institutional readiness for renewable energy and cold chain investment,
- Contribute to cost-benefit analysis and business case development for renewable energy technologies and low-carbon transition in fisheries,
- Provide financial and policy input to strategy documents, including alignment with national and subnational planning and budgeting processes,
- Assist in stakeholder consultations related to economic and institutional frameworks, particularly in coordination with financial institutions and government bodies.

#### Qualifications of key expert 2

- Education/training (2.3.1): Master's degree in development finance, economics, public policy, or other field relevant to economic analysis and institutional development,
- Language (2.3.2): Fluent in English and Indonesia Languages,
- General professional experience (2.3.3): 2 years' experience in working on climate-related projects,
- Specific professional experience (2.3.4): 3 years working on financial planning, cost-benefit analysis, or business case development for development initiatives,
- Leadership/management experience (2.3.5): NA
- Regional experience (2.3.6): 2 years' experience in Indonesia working with national ministries and local governments on financial and institutional issues,
- Development Cooperation (DC) experience (2.3.7): 2 years' experience working in or supporting projects funded by development finance institutions or national government programs,
- Other (2.3.8): 1 year experience working in or supporting projects funded by development finance institutions or national government programs.

#### Soft skills of team members

In addition to their specialist qualifications, the following qualifications are required of team members:

- Team skills
- Initiative
- Communication skills
- Socio-cultural skills
- Efficient, partner- and client-focused working methods
- Interdisciplinary thinking

### **5. Costing requirements**

The following basic calculations for the contract for works are a reference value based on the acceptance criteria for each partial work/milestone specified in Chapter 2 (Tasks to be performed by the contractor).

Since the contract to be concluded is a contract for works, we would ask you to offer your services at a lump sum price.

In addition, the assessment of the financial bid is also based on the underlying daily rate. Please also provide the underlying daily rate. A breakdown of days is not required.

Milestones/partial works	Estimated expert days for orientation	Deadline/place/person responsible
<b>Milestone 1: Fisheries sector and climate change</b>	26 days	31st September 2025/Jakarta/GIZ
<b>Milestone 2: Socioeconomic contribution</b>	26 days	15 October 2025/Jakarta/GIZ
<b>Milestone 3: Policy and regulatory analysis brief Review and assess the regulatory framework for renewable energy in fisheries</b>	20 days	15 October 2025/Jakarta/GIZ
<b>Milestone 4: Strategic framework for sustainable and climate resilient fisheries</b>	32 days	30 November 2025/Jakarta/GIZ
<b>Milestone 5: Final Report / Investment Plan.</b>	25 days	31 December 2025/Jakarta/GIZ

#### Estimate specification of input

Fee days	Number of experts	Number of days per expert	Total	Comments
<b>Team Leader</b>	1	69	69	serve as an orientation for the tenderer.
<b>Key expert 1</b>	1	30	30	serve as an orientation for the tenderer.
<b>Key expert 2</b>	1	30	30	serve as an orientation for the tenderer.

## 6. Requirements on the format of the tender

The structure of the tender must correspond to the structure of the ToR. In particular, the detailed structure of the concept (Chapter 3) should be organised in accordance with the positively weighted criteria in the assessment grid (not with zero). The tender must be legible (font size 11 or larger) and clearly formulated. It must be drawn up in English (language).

The complete tender must not exceed 10 pages (excluding CVs). If one of the maximum page lengths is exceeded, the content appearing after the cut-off point will not be included in the assessment. External content (e.g. links to websites) will also not be considered.

The CVs of the personnel proposed in accordance with Chapter 4 of the ToRs must be submitted using the format specified in the terms and conditions for application. The CVs shall not exceed 4 pages each. They must clearly show the position and job the proposed person held in the reference project and for how long.

Please calculate your financial tender based exactly on the parameters specified in Chapter 5 Quantitative requirements. The contractor is not contractually entitled to use up the days, trips, workshops or budgets in full. The number of days, trips and workshops and the budgets will be contractually agreed as maximum limits. The specifications for pricing are defined in the price schedule.

As the contract to be concluded is a contract for works, please offer a fixed lump sum price that covers all relevant costs (fees, travel expenses etc.). The price bid will be evaluated on the basis of the specified lump sum price. In addition, please also provide the underlying daily rate. A breakdown of days is not required.