

## Terms of Reference

### Selecting Energy Efficient Cook Stoves and Solar Food Driers

#### [RE-ADVERTISEMENT]

**Location:** Al Mokha district (Taiz governorate) and Al Khawkhah and At Tuhayta districts (Al Hodayda governorate) of Yemen

**Duration:** up to 31 days

**Project title:**

Increasing Resilience through Innovative and Sustainable Improvement of Food Security and Livelihoods for Returnees, IDPs, Migrants and Host Communities in the Western Coastal areas of Yemen

**Project goal:**

Existing livelihood strategies are enhanced and more sustainable through the successful introduction of locally adapted innovative products and processes, increasing community resilience and food security

**Outputs specific to this ToR:**

- 10 different types of fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves and heat retention bags), communal dryers and food dryers selected
- Local partner supported to procure and distribute to 290 households for participation in pilot phase (including 100 household to receive and test fuel-efficient cooking solutions and 120 women in 6 groups to receive and test communal dryers and 70 households to receive and test food dryers)

**Sources of energy (conservation) for cooking and processing food in the coastal areas of Yemen**

The DKH Project, introducing fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves and heat retention bags), communal dryers and food dryers on the Red Sea Coast of Yemen that will be implemented by Nahda Makers Organization (NMO) aims to:

- ✓ Create additional employment and income earning opportunities for vulnerable coastal women and men through introduction of locally adaptable, innovative and affordable products and processes, increasing community resilience and food security
- ✓ Expanding the depth and breadth of benefits generated from the use and production of fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves and heat retention bags) communal dryers and HH food dryers that reduce the costs for fuel and time spend on collecting wood
- ✓ Reduced risk and vulnerability of women to protection and health risks such as gender-based violence and risks from inhaling toxic smoke and burns from open fire

## **Background**

Wood and twigs are widely used as fuel by almost all social categories in all locations, even in urban areas of Yemen for several reasons, among others, lack of access to clean and affordable energy. As a result, most of the rural communities more specifically those living in the red sea coastal areas depend on biomass sources nevertheless, the availability, cost and quality of wood varies with geographical location. Since firewood has sometimes to be collected at significant distances from villages, in most cases women and girls are the one who carry the wood on their heads.

DKH and partners feasibility study revealed that it is primarily women who are tasked with collecting firewood, spending on average four hours per day and exposing them to particular protection risks such as gender-based violence and unexploded ordinances including landmines. Women are also seen as the main responsible for cooking, exposing women more than men to health risks from inhaling toxic smoke and burns from open fire. A rapid gender assessment from 2015 also confirmed the role of women and girls in collecting firewood and cooking and further states that: on top of the heavy domestic workload, women provide 60% of the labour in crop cultivation. Women play an integral and often unacknowledged role in the agriculture sector, undertaking a variety of roles related to food production, processing and marketing. It is important to note that female headed households are amongst the most vulnerable and are at higher risk of food insecurity due to the lack of work opportunities for women.

The BMZ-NMO project seeks to specifically address part of these challenges by introducing fuel-efficient cooking solutions (solar stoves and heat retention bags) communal dryers and food dryers which reduce the work and risks associated with collecting fire-wood and open-fire cooking. Importantly, the practice of collecting firewood is also negatively impacting on the environment as it contributes to ongoing desertification. The reduced reliance of household on this coping strategy will mitigate some of the negative effects on the environment. With the introduction of enhanced food processing (drying) at household and communal level, which is an already accepted activity for women and an existing livelihood strategy, the project will seek to improve female income-generating opportunities.

## **Objectives**

The objective of this terms of reference (TOR) is to identify and select a consultant who can conduct and come up with commendable alternatives solutions covering the following areas:

### **Stage 1 – Preparation (remote and on-site)**

- ✓ Assess the existing and preferred fuel-efficient cooking solutions (solar stoves and heat retention bags), communal dryers and food dryers their potential demand and supply
- ✓ Come up with a long list of locally and regionally available and adaptable fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves and heat retention bags), communal dryers and food dryers locally suitable models, which can be produced with locally available materials as part of an introduction and testing phase
- ✓ Select at least ten types of most suitable, locally acceptable and adaptable fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves and heat retention bags), communal driers and food driers that can be procured and distributed for piloting. As such, the technologies need to be easily

- accessible and adaptable by the local community
- ✓ Develop detailed specifications, including (support for) BoQ for the selected fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers.
- ✓ Support the project team in the procurement of all fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers, food driers and technical equipment including but not limited to review of BoQ, tender documents, bid analysis

### **Stage 2 – Establishment (remote and on-site)**

- ✓ Assess the technical and material requirements for setting up a small fuel-efficient cooking solution (solar stoves, fuel-efficient stoves and heat retention bags), communal driers and food driers workshop and enterprise for a group or cooperative composed of targeted women and men from the targeted community in Yemen Red Sea coastal area
- ✓ Come up with a simple workshop design or systems/techniques appropriate for small-scale entrepreneurs that can produce and supply fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves and heat retention bags), communal driers and food driers at an affordable price for the targeted community.
- ✓ Provide a detailed list of all required items and tools to establish the workshop/enterprise, with its respective detailed technical specification.
- ✓ Produce the list and support the establishment of the workshop or enterprise through remote support to the project team and site-visits for verification and instruction.
- ✓ Prepare a manual for the design, operation, regular maintenance and general management of the Workshop and production tools and material

### **Stage 3 - Operationalization**

- ✓ Provide on-site training on the proper use of fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers for the selected beneficiaries who receive the items
- ✓ Support the assessment and feedback loops of beneficiary experiences and usages of the tools, to inform local adaptations
- ✓ Develop a business plan for the enterprise (group or cooperatives) which will help them to run relatively an organized, profitable and sustainable workshop producing those list of items
- ✓ Locally suitable models are developed, which can be produced with locally available materials as part of an introduction and testing phase

### **Methodology**

In order to answer the questions raised above, the consultant need to apply different research tools and methodologies including key informant interview (KII) and desk research to get the most important information and data:

- ✓ Conduct desk reserach on successfully introduced fuel-efficient cooking solutions around the world;
- ✓ In collaboration with DKH and its local partner NMO, the consultant, will conduct KII with all the key

stakeholders and actors (who are directly involved in the core function (i.e., demand and supply), the support service providers and those involved in the formulation and follow up on formal and informal rule and regulation for fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves and heat retention bags), communal driers and food driers. This include those relevant & key stakeholder groups that may have been overlooked during the secondary research. For this the consultant need to develop and verify list of key actors and stakeholders

- ✓ Based on the information gathered from secondary and primary sources, and in conjunction with the consultant's experiences the consultant is expected to come up with a clear and practical recommendation and list of fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves and heat retention bags), communal driers and food driers design; develop a business plan for setting up and running the workshop and enterprise for fuel-efficient cooking solutions, communal driers and food driers production

The targeted geographic areas for this project are Al Mukha and Al Khawkhah districts in Taiz and Hudiyda governorates of Yemen in Red Sea coastal area. The consultant will be provided with the copies of important documents and meet with DKH and NMO to discuss on their expectation and details on the assignment from the beginning.

The following table outlines the major deliverable or activities/steps of the assignment. The distribution of the assessment for each activities or steps is 'indicative' and remains flexible for negotiation, if needed.

Activities/Steps	Description of activities and Deliverables	# days
<p>Inception report</p> <p>Conduct desk research on successfully introduced fuel-efficient cooking solutions and the potential and constraints on workshop establishment and production of fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers</p> <p>Conduct desk research on the current context and find out if any planned similar activities in Yemen and the targeted areas by the private and public sector and</p>	<ul style="list-style-type: none"> <li>• Including but not limited to the data collection tools, methodologies, templates for business plan</li> <li>• Review and understand the current situation around fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers. potential markets as well as related activities planned by other actors and stakeholders including government.</li> <li>• Make an assessment for the potential opportunities and constraints for the fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves and heat retention bags), communal driers and food driers production and marketing</li> <li>• Develop a market map (value chain map) that describes the following, but not be limited to:</li> </ul>	<p>5 days</p>

<p>development agencies.</p>	<ul style="list-style-type: none"> <li>○ The detailed list of existing key actors and stakeholders and their key function and roles in fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers ecosystem</li> <li>○ The commercial demand and supply for fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers types of users, their number and demand</li> </ul>	
<p>Come up with the list of the best available and affordable fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers</p> <p>Come up with complete design and set-up for the most adaptable, feasible and durable prototype including multiple designs and approaches suitable to Yemen context</p>	<ul style="list-style-type: none"> <li>• Develop a long list of the variants of the fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers</li> <li>• Select the most affordable and adaptable fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers</li> <li>• Conduct technical study to develop manual with detailed technical specifications on existing food drying methodologies at HH and communal level, including multiple designs and approaches suitable to Yemen context (including availability of construction materials locally)</li> <li>• Desk research on experiences in similar context. Challenges and lessons learned, relevant to Yemen context. Include draft technical design for the production</li> </ul>	<p>4 days</p>
<p>As an initial stage the consultant is expected to develop list of the actors and stakeholders with whom he needs to interact in one or another way (FGD or KII)</p> <p>Conduct the actual field research (FGD and KII) with selected key actors, service providers and those involved in establishing the rules and regulation in targeted areas</p> <p><i>DKH and NMO will support and facilitate the FGD and KIIs to be conducted by the consultant. As it is a learning process DKH and NMO</i></p>	<ul style="list-style-type: none"> <li>• Develop a long and short list of potential actors and stakeholders, in the three main functions (core function, support service providers and rule and regulation), to reach out and interact for detailed data and information gathering</li> <li>• Review potential scenarios around fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers production methods and required technique and technologies</li> </ul>	<p>5 days</p>

<i>project staffs will accompany the consultant on field visits during the research.</i>		
Support the set up and establishment of fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves, and heat retention bags), communal driers and food driers production units	<ul style="list-style-type: none"> <li>• Remote support to the project team and site-visits for verification and instruction on the set up and material arrangement.</li> <li>• Procurement of major equipment and tools including construction materials required for the set up</li> <li>✓ Support the project team in the procurement of all technical equipment (development and review of BoQ, tender documents, bid analysis)</li> </ul>	4 days
Support the monitoring and evaluation of pilot group usage, and inform local adaption of fuel-efficient cooking solutions	<ul style="list-style-type: none"> <li>• Support the project team on the approach to observe, collect feedback and measure the usage of the different models within the target group</li> <li>• Draw key conclusions for the findings and inform the local adaptation of the solutions</li> <li>• Come up with the best or more suitable solutions for the Yemeni context in the target area, which will be taken forward in the next stage (local production)</li> </ul>	7 days
Develop documents <ul style="list-style-type: none"> <li>✓ Manual on existing food drying methodologies at HH and communal level</li> <li>✓ Design and develop a business plan for a fish feed facility</li> <li>✓ Design and develop a manual for establishment of hatchery group or cooperative, group management and bylaws</li> </ul>	<ul style="list-style-type: none"> <li>• develop manual with detailed technical specifications on existing food drying methodologies at HH and communal level, including multiple designs and approaches suitable to Yemen context (including availability of construction materials locally).</li> <li>• Detailed business plan, considering the initial cost of investment for setting up the right workshop or facility with the right machine and right outputs.             <ul style="list-style-type: none"> <li>○ A complete set of design and set-up including the specification and related costs</li> </ul> </li> <li>• Develop a step-by-step manual to establish a group or cooperative(s) that can run a sustainable and profitable business in the targeted community</li> </ul>	3 adys
Consolidate findings from primary and desk research and perform analysis on collected data.  <i>Validation workshop, a consultative process with the clients, DKH, NMO and invited</i>	<ul style="list-style-type: none"> <li>• Produce a comprehensive draft report with very clear and detailed finding and recommendation</li> <li>✓ The best business model or intervention for establishing producers or self-help groups that can run the production and marketing business in the targeted geographic area(s)</li> <li>✓ The market map and details of the actors in the</li> </ul>	3days

<p><i>technical experts is important to agree and decide on findings and recommendations that need to go into the final report</i></p>	<p>three categories of hatchery value chain function (related but not limited to core actors, support service providers, the rule and regulation). The volume of demand and supply, the type and number of actors and stakeholders, their role and responsibilities of each actor and stakeholder need to be described in detail.</p> <p><b>Annex:</b></p> <ul style="list-style-type: none"> <li>✓ The most feasible and simplified, i.e., business plan (BP) to be run and implemented by targeted groups (self-help) groups or cooperative,</li> </ul>	
--	---	--

**Procurement of major production equipment and inputs;**

- ✓ Develop essential criteria for producing fuel-efficient cooking solutions (solar stoves, fuel-efficient stoves, and heat retention bags), communal driers and food driers attractive for the whole range of potential users;
- ✓ Design a complete financial and business plan for the venture covering optimum output of fuel-efficient cooking solutions (solar stoves and heat retention bags), communal driers and food driers, cost benefit and break-even analysis as well as outlook on growth; and
- ✓ Come up with a complete fuel-efficient cooking solution (solar stoves and heat retention bags), communal driers and food driers design and set-up. Such design should include the number of each pieces of tools and equipment required for production of a given amount of each products, (including description, justification and cost for each piece of equipment), human resources requirements, capacity and roles and responsibilities for the production, quality assurance and storage, infrastructure and any other logistical requirements

**Institutional and logistics Arrangements**

The Consultant will work under the direct supervision of BMZ Program Coordinator, Samuel Mamo Zewdu, with close assistance from DKH project officers at the districts in coordination with NMO project manager, particularly with regard to vehicle and other logistics arrangement and technical areas of data collection, key stakeholders and partners engagement, i.e. facilitating consultative meetings, FGD and KII.

**Delivery and Payment Schedule**

Deliverables will be the basis for the payment schedule. All reports will be submitted in draft (for comments) and then final. Deliverables shall be submitted in electronic format (MS Word, and Pdf versions) to the program coordinator.

1. 35% after signing the Contract
2. 25% after submitting the draft reports indicated under deliverables including the comprehensive draft report, the business plan, the manual, the list of selected complete fuel-efficient cooking

- solution (solar stoves and heat retention bags), communal driers and food driers with detailed specifications, BoQ and required tools and equipment
3. 40% after submitting the final report and documents

**Qualifications/Work Experience:**

The consultant or consulting firm should have:

1. Appropriate technical expertise in fuel-efficient cooking solution and development specifically domestic energy issues, market mechanism
2. Experience in developing conducting feasibility assessment and developing market-based development interventions
3. Proven experience in the design and operation of fuel-efficient cooking solution (solar stoves and heat retention bags), communal driers and food drier. Small-scale Fuel-efficient solutions such as energy saving cooking stoves design and operation an advantage.
4. A strong understanding on national and international renewable energy issues and technologies
5. Demonstrated ability to analyze potential job creation opportunities and promote long-term interventions through market-based interventions.
6. Experience in organizing and supporting self-help groups setting up a business and sustainably running business
7. Practical experience of Small fuel-efficient cooking solution (solar stoves and heat retention bags), communal driers and food drier technology transfer to coastal fish farmers and small-scale entrepreneurs, preferably in Yemen and the region.
8. Good knowledge of English. Proficiency in Arabic language desirable.

DKH invites international and national independent consultants as well as consulting firms to submit their qualified technical and financial offer. DKH welcomes collaborations between national and international consultants. DKH keeps the right to forge a collaboration between national and international applicants or split the deliverables.

All interested parties that seek to submit an offer for this TOR must write to [tender.yem@diakoniekatastrophenhilfe.org](mailto:tender.yem@diakoniekatastrophenhilfe.org) and submit:

1. Technical proposal, including:
  - o CVs of consultant and their roles
  - o Number of days of field work and office work per team member
2. Financial proposal, with detailed breakdown including:
  - o Daily fees per staff member and number of days each (in USD)
  - o Per Diems for food and drinks
  - o Accommodation
  - o Transportation costs
  - o Additional Cost

**Manner of Submission:** Proposals shall be submitted in electronic format (MS Word, and Pdf versions)

**Deadline for Submission:** Monday 14 May 2021 @ 17:00 pm Yemen time



As this call for consultancy is a readvertisement the selection process may start earlier than the closing date. If you have any question on the application process or need clarification you can reach out to [samuel.zewdu@diakonie-katastrophenhilfe.org](mailto:samuel.zewdu@diakonie-katastrophenhilfe.org)