



Project Implementation Report

(1 July 2023 – 30 June 2024)

Project Title:	Promotion of Ethanol as Alternative Clean Fuel for Cooking in the United Republic of Tanzania.
GEF ID:	9281
UNIDO ID:	150208
GEF Replenishment Cycle:	GEF-6
Country(ies):	Tanzania
Region:	AFR - Africa
GEF Focal Area:	Climate Change Mitigation (CCM)
Integrated Approach Pilot (IAP) Programs¹:	N/A
Stand-alone / Child Project:	N/A
Implementing Department/Division:	ENE / CTI
Co-Implementing Agency:	N/A
Executing Agency(ies):	1. Vice President's Office – Division of Environment (VPO-DoE) 2. TIB Development Bank (TIB) 3. Sokoine University of Agriculture (SUA)
Project Type:	Full-Sized Project (FSP)
Project Duration:	60 months
Extension(s):	N/A
GEF Project Financing:	US\$ 2,457,078
Agency Fee:	US\$ 233,422
Co-financing Amount:	US\$ 10,450,500
Date of CEO Endorsement/Approval:	9/18/2017
UNIDO Approval Date:	10/3/2017
Actual Implementation Start:	10/20/2017
Cumulative disbursement as of 30 June 2024:	US\$ 2,334,479.21

¹Only for GEF-6 projects, if applicable

Mid-term Review(MTR) Date:	04/02/2021
Original Project Completion Date:	10/20/2022
Project Completion Date as reported in FY23:	10/20/2024
Current SAP Completion Date:	3/30/2027
Expected Project Completion Date:	3/30/2027
Expected Terminal Evaluation (TE) Date:	01/15/2027
Expected Financial Closure Date:	9/30/2027
UNIDO Project Manager²:	JOSSY THOMAS

I. Brief description of project and status overview

Project Objective		
<p>To promote ethanol as a cleaner cooking fuel in Tanzania. The major goal is to increase investment in energy-efficient ethanol cooking equipment and ethanol production. The proposed intervention will address the major challenges to transitioning to ethanol-based clean cooking practices and facilitate the provision of ethanol clean cooking fuel and technology to 500,000 families in Dar es Salaam.</p>		
<i>Project Core Indicators</i>		<i>Expected at Endorsement/Approval stage</i>
1	Number of Households switched to ethanol cook stoves.	Retail at least 500,000 ethanol cookstoves to households. Availability of supply of 90 million litres per year.
2	Tonnes of CO ₂ emissions reduced	Achieve 8,839,891 tCO ₂ of emissions directly (through 500,000 stoves)
3	USD investment in development of supply market, ethanol production and cookstove production/assembly.	Approximately 14.5 million investment in ethanol production and cookstove market.

Baseline
<p>Charcoal and firewood are widely utilized in household cooking in Dar es Salaam. This causes deforestation and the emission of 9.6 million tonnes of CO₂ equivalent. Even in the current operations in Dar es Salaam, there is a market failure due to a lack of expertise, a lack of fuel-grade ethanol, and a limited amount of ethanol produced.</p> <p>Market development is inadequate, which is required for private sector participation, technological knowledge dissemination, and the provision of high-quality items at competitive prices.</p> <p>In March 2016, the Vice President's Office released research titled "Effective Environmental Management and Climate Change". As one of its five priority sectors, the research proposes strategies for "promoting alternative energy sources to reduce charcoal consumption."</p> <p>If we want to reduce deforestation rates in Tanzania, we must provide alternative cooking fuels that are not resource-based, non-polluting, emit fewer GHGs, and are affordable to the Tanzanian people. This GEF initiative has an immediate impact on this baseline since it quickly introduces ethanol-based cooking to middle-class houses in Dar es Salaam.</p>

² Person responsible for report content

Please, refer to the explanatory note at the end of the document and select corresponding ratings for the current reporting period, i.e. FY24. Please also provide a short justification for the selected ratings for FY23.

In view of the GEF Secretariat's intent to start following the ability of projects to adopt the concept of adaptive management³, Agencies are expected to closely monitor changes that occur from year to year and demonstrate that they are not simply implementing plans but modifying them in response to developments and circumstances or understanding. In order to facilitate with this assessment, please introduce the ratings as reported in the previous reporting cycle, i.e. FY23, in the last column.

Overall Ratings ⁴	FY24	FY23
Global Environmental Objectives (GEOs) / Development Objectives (DOs) Rating	<i>Moderately Satisfactory (MS)</i>	<i>Satisfactory (S)</i>
<i>The project is aligned with the government's ambitious target of switching 80% of the country's population to clean cooking solution by 2033. This would drastically reduce the deforestation rate in the country estimated at 400,000 hectares per annum.</i>		
Implementation Progress (IP) Rating	<i>Moderately Satisfactory (MS)</i>	<i>Moderately Satisfactory (MS)</i>
<i>The project has switched over 16,000 households to ethanol cookstoves, which is about 10% of the project's target. An estimated 50,000 households are expected to transition to ethanol cookstoves over the next 12 months.</i>		
Overall Risk Rating	<i>Moderate Risk (M)</i>	<i>Moderate Risk (M)</i>
<i>The project has chosen a moderate risk rating due to a number of key developments, including: (1) the fact that households have become more familiar with ethanol cookstove technology. (2) The Government has recently launched a National Clean Cooking Strategy, which aims at switching 80 percent of the population towards modern cooking solutions, which also includes ethanol (3). Currently, there are few modern cooking energy solutions that have been able to impact the market. LPG is the only modern fuel that has made some impact on the market, but households are still finding the initial cost to be on the high side. Ethanol can help to fill the gap because initial costs are reduced and cost for re-fuelling is also reduced, due to small fuel purchases.</i>		

II. Targeted results and progress to-date

Please describe the progress made in achieving the outputs against key performance indicator's targets in the project's **M&E Plan/Log-Frame at the time of CEO Endorsement/Approval**. Please expand the table as needed.

Project Strategy	KPIs/Indicators	Baseline	Target level	Progress in FY24
Component 1 – Capacity development				
Outcome 1: Improved capacity for market development on fuel grade ethanol production and usage				
Output 1.1: Capacity developed on implementation of large scale roll out program	1. Creation and operation of the centre 2. Number of trainings organized	Lack of awareness and knowledge among stakeholders in	1. Creation and operation of the centre within 6 months of the GEF project start.	1. this activity has been completed. The operating centre at Sokoine University of Agriculture (SUA) has been established and complete in response of proposed framework.

³Adaptive management in the context of an intentional approach to decision-making and adjustments in response to new available information, evidence gathered from monitoring, evaluation or research, and experience acquired from implementation, to ensure that the goals of the activity are being reached efficiently

⁴ Please refer to the explanatory note at the end of the document and assure that the indicated ratings correspond to the narrative of the report

		implementing large scale roll out program	<p>2. Educate and train at least 100 personnel cumulatively from key policy makers, regional officials and other target groups.</p> <p>3. At least 10 women policy makers to be trained</p>	<p>2. this activity has been completed where by 3 training workshops were conducted at least 200 people were trained and educated about the bioethanol project.. Also, UNIDO has participated in world environment day exhibitions in June 2024 and International Women's Day in March, 2024. Awareness and knowledge were spread to roughly 650 people, including 393 women and 257 men that stopped by the booths were made aware of bioethanol fuel and stove as a clean cooking source which is affordable and available.</p> <p>3. 60 women from various organisations, including the business sector, NGOs, the sugar and ethanol industries, and academic and research institutes, took part in the three workshops mentioned above. 15 of these women work for organisations that influence policy.</p>
Output 1.2: Technical capacity established on local ethanol stove manufacturing	<p>1.Number of trainings organized</p> <p>2.Number of persons trained</p>	No existing practice of local ethanol cook stove manufacture	<p>1.Conduct at least 5 trainings. At least one qualified woman trainer will be engaged.</p> <p>2.Prepare training materials, guidelines, manuals, study materials, etc</p>	<p>1. In addition to the above workshops, the following training courses were conducted for the distributors sales team:</p> <p>i. Three-days in-house training course on stove handling and operation, equipment and fuel safety features for the new distributor, sales and marketing personnel (Male 7, 4 women)</p> <p>ii. A 3-day in-house training course on stove assembly line procedures, assembly line sequencing, tool operation and maintenance for sales team from August 2023</p> <p>2.The stove manufacturer have prepared stove assembling manuals for the sales people.</p>
Output1.1:3 Technology transfer achieved for ethanol production through micro	<p>1. Number of workshops conducted and engineering service companies/entrepreneurs trained</p> <p>2. Available guide books, and manual for micro-distilleries adapted to Tanzania conditions</p>	No existing practice of ethanol production from micro-distilleries	<p>1. Conduct at least 5 workshops. At least one qualified woman trainer will be engaged.</p> <p>2.Train at least 10 engineering service companies/entrepreneur</p> <p>3.Prepare guidelines for feasibility study and business plan to develop micro distilleries</p>	<p>To date, three micro-distillery training workshops have been held. Also a biofuel centre established in SUA is working on additional development of ethanol production through other feedstock available in Tanzania.</p> <p>2. Awareness has been created for engineering service/entrepreneur representatives who have the potential for development of micro-distilleries in 2023/24.</p> <p>3. A complete excel tool has been built for both Ethanol Distributors and Fuel Producers to specifically assist potential investors in micro distilleries through investment and financial calculations for project financial and</p>

				technical feasibility. The spreadsheet includes usage instructions. The spreadsheet has been integrated with UNIDO's COMFAR tool for producing business plans in 2023 and beyond.
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Component 2 – Policy framework development for promoting ethanol-based cooking

Outcome 2:0: Conducive policy and regulatory environment in place

Output 2:2: National safety & quality standards formulated for fuel grade ethanol and ethanol cook stoves	Standards developed by TBS for fuel grade ethanol and ethanol cook stoves	No existing standards for fuel ethanol and ethanol cook stoves.	1.National standards manual for fuel grade ethanol 2. National standards manual for ethanol cook stoves developed or established	1. This activity has been achieved and completed in 2022 by TBS. 2. This activity has been accomplished by TBS in 2022 whereby the bioethanol fuel and stoves standards manuals have been established and published for the users.
Output 2.1.2: Compliance testing facilities strengthened	Quality test certifications provided to ethanol stove models and fuel grade ethanol	No guideline or facility to certify the quality of ethanol stove models and fuel grade ethanol	1. Guidelines prepared on set up and operation of compliance testing facilities. 2.At least 2 compliance testing facilities established in TBS and SUA	1. This activity is being conducted in collaboration with TBS. TBS is responsible for the setup and operation of appliance/fuel testing facility. 2. SUA is exploring possibility of receiving assistance and guidance on procedures and setting up of testing facilities.
Output 2.1.3 Ethanol supply scheduling system developed	Guidelines prepared to monitor fuel grade ethanol supply chain	No existing authority or scheme to monitor fuel-grade ethanol supply.	Work plan prepared to ensure fuel grade ethanol supply to be in line with project targets	The work plan is divided into two phases. As part of contractual requirements, newly appointed distributors are required to hold strategic stocks covering six months' supply. Ongoing consultations with the Ministry of Energy to incorporate cooking ethanol in their fuel scheduling systems, including guidelines.
Output 2.1.4 Maximum retail price regulation designed for fuel grade ethanol.	Market price of fuel grade ethanol within the regulations	Absence of regulatory mechanism for fuel grade ethanol price control	Maximum retail price regulation for fuel grade ethanol formulated	This is a work in progress as earlier indicated, initial discussions already held with Ministry of Energy and Electricity and Water Utilities Regulatory Authority (EWURA); Technical work on a proposed retail price formula in process.

Component 3 – Roll out of ethanol based clean cook stove program

Outcome 3:1: Design of market intervention and strategy for implementation in Dar es Salaam

Output 3.1: 1 Incentive scheme designed for ethanol cook stove retailing	Incentive scheme and its funding sources	No mechanism to incentivize cook stove manufacturers	Incentive scheme designed to cover 500,000 cook stoves	An incentive program was developed to provide consumers with a \$16.50 subsidy on the final price of the stove and \$8 for marketing. Sales of stoves and fuel are continuing through the first distributor that was launched. An additional distributor has been introduced, however, they are still preparing to enter the stove distribution market. TIB Development Bank is continuing to serve as custodian and manager of the subsidy funds. Effectiveness of the incentive systems continues to be monitored and some changes in stove pricing have already been implemented. Currently, 13,420 stoves have been distributed to homes in DSM.
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<p>Output 3.1: 2 Technical specifications, bidding documents, etc. Prepared and participating distributors and stove suppliers Selected</p>	<p>Identification of participating distributors and cook stove suppliers</p>	<p>No cook stove suppliers or supply chain distributors available</p>	<p>1. Preparation of tender document and publishing of tenders. 2. Contractors selected (2 or 3) for stove supply. 3. Contractors selected (3 or 4) for supply chain distribution</p>	<p>1. Necessary tender documents completed and tenders published for stove supply and distribution. 2. Cookstove supplier was already identified during first phase. Stove supplier identified was Clean Cook. Project also looking at possibility of identifying additional suppliers, in line with the selection criteria. Two distributors (Consumer Choice Ltd. and Multiplex Systems) have been currently contracted and introduced into the ethanol cookstove market. Consumer Choice has made advances in the stove distribution market, while Multiplex is at the very initial stages. 3. Both distributors (contractors) have been engaged via TIB Development Bank. Both have received extensive support, through weekly/monthly progress meetings, assistance with technical development of fuel blending and bottling, colorants, quality, stove tenders, technical adjunction for stoves, marketing advice, etc</p>
<p>Outcome 3.2: Large scale rollout of 500,000 ethanol cook stoves and market for 90 million litres/year of ethanol fuel supply created</p>	<p>1. Number of ethanol cook stoves retailed 2. Local production of fuel ethanol and local manufacturing of ethanol cook stoves started</p>	<p>1. No practice of fuel ethanol for cooking in households. 2. No existing marketing networks available for ethanol fuel and ethanol cook stoves</p>	<p>1. Ethanol cook stoves manufactured and retailed (around 500,000 nos.) 2. Annual supply of 90 million litres of fuel ethanol made available. 3. Market network available to cover 500,000 households</p>	<p>After acquiring of additional support from EU Delegation, UNIDO has been able to upgrade actual cookstove distribution target to reach around 160,000 households. UNIDO has been able to engage two distributors in coordination with UNCDF and the CookFund program</p>
<p>Output 3.2:1 Establishment of ethanol fuel/cook stove supply chain network facilitated contractually to cover 500,000 households</p>	<p>Availability of ethanol fuel and cook stoves for easy purchase by end users</p>	<p>No existing ethanol fuel or cook stove marketing network</p>	<p>1. Development of market network by each contractor for around 150,000 households as per agreement 2. 4.5 million USD incentive provided for cook stove retailing 3. Participation of minimum 10 co-operatives, SACCOS, NGOs, etc., in market network 4. At least 3 women self-help groups</p>	<p>1. The second Distributor selling stoves in multiple wards of Dar es Salaam. A network of extra 165 new retail outlets have been established. 2b. Support from the EU delegation for co-financing of EUR 3. Mill. to support the rollout of additional 160,000 stoves. The funds have been disbursed to UNIDO and the two additional distributors have been engaged for the second phase roll out. 3. Distributor has engaged with 7 community/youth groups in the second phase 4. Women groups are mostly engaged in marketing and cookstove distribution</p>

			involved in market network	activities at the community level. Women involved through SACCOS groups to help in purchasing of stoves.
Output 3.2:2 Supply of 500,000 ethanol cook stoves established contractually	Availability ethanol cook stoves for purchase by supply chain distributors	No existing ethanol cook stove supply sources	1. Investment made by cook stove suppliers to provide 500,000 cook stoves, through either local production or import. 2. At least 4 million USD investments made in local ethanol cook stove units	1. New distributor-stove supplier agreements signed for with orders for the supply of 60,000 stoves during the second phase 2. Investments completed by the Cook stove supplier and distributors. Distributors have invested around \$1,200,000 for operations, bottling plant, staff, fuel stocks, vehicles etc. Same facilities utilised by initial distributor and new investments made by new distributor.
Output 3.2:3 Local investments stimulated in ethanol distilleries (micro/medium/large scale) through market demand of 90 million litres per year	Investments made in establishing local ethanol distilleries (micro/medium/large scale)	No market demand for fuel ethanol for cooking purpose	1. At least 6 million USD investments made in local ethanol production. 2. Around 75,000 lpd of ethanol production units established	1. This is a work in progress as local sugar industry has begun responding with plans for investment in increased output for ethanol including producers in the region. 2. Work in progress: additional capacity being planned by sugar industry (including Kilombero sugar-Ilovo, TPC sugar and Zanzibar sugar).

III. Project Risk Management

1. Please indicate the overall project-level risks and the related risk management measures: (i) as identified in the CEO Endorsement document, and (ii) progress to-date. Please expand the table as needed.

	(i) Risks at CEO stage	(i) Risk level FY 23	(i) Risk level FY 24	(i) Mitigation measures	(ii) Progress to-date	New defined risk ⁵
1	Technical risk <ul style="list-style-type: none"> Implementation of large-scale roll out projects in cooking sector was not carried out in Tanzania before. 	Moderate	Moderate	<ul style="list-style-type: none"> A centre has been established at SUA to provide training on implementation of large-scale roll out projects. All interested stakeholders will receive training on the design, planning, implementation, and monitoring of such goals. UNIDO will offer technical support as needed through its network of international experts. Tanzania already has a market for improved cook stoves, thanks to a number of initiatives and activities run by international organisations and civil society groups. An expansion of these initiatives is the release of ethanol cook stoves. 	<p>The establishment of biofuel center.in SUA has been completed.</p> <p>More than ten workshops have been organised for various stakeholder groups, including government representatives, academic researchers and developers, the commercial sector, distributors, and the sugar industry, since the project's inception. UNIDO technical professionals have provided technical advice and support to stakeholders in a variety of ways. The initiative has continued to benefit from the knowledge of various specialists from Ethiopia, South Africa, and the United States.</p>	<input type="checkbox"/>
	<ul style="list-style-type: none"> Ethanol cook stove is a new technology and may not yield the desired results. 	Low	Low	<ul style="list-style-type: none"> To ensure that only ethanol cook stove models with tested and confirmed quality are retailed under this initiative, ethanol fuel standards and compliance testing facilities have been developed. 	<p>For ethanol cook stoves and fuel grade ethanol, TBS has produced standards specifications</p>	
	<ul style="list-style-type: none"> Ethanol production in sugar mills and cashew processing industries is not common in Tanzania. 	Low	Low	<ul style="list-style-type: none"> The production of ethanol using sugar refineries and cashew processing companies is a technique that has been effectively used all over the world, especially in countries like Brazil, India, South Africa, etc. The production of fuel-grade ethanol is merely a continuation of ethanol production as it is currently done, it can only be used for cooking. 	<p>Initially, the private sector in Tanzania has been made aware of the potential economic opportunity for the manufacturing and sale of fuel-grade ethanol for the cookstove market through their representative organizations and in particular through the local sugar industry. Currently, sugar industries including TPC, Kilombero sugar, Bagamoyo sugar and Zanzibar sugar are considering either expansion projects or initiating project for ethanol production.</p>	

⁵New risk added in reporting period. Check only if applicable.

	(i) Risks at CEO stage	(i) Risk level FY 23	(i) Risk level FY 24	(i) Mitigation measures	(ii) Progress to-date	New defined risk ⁵
				<ul style="list-style-type: none"> SUA will arrange trainings to increase local ethanol manufacturing capability. 	SUA has been properly briefed on the institution's potential role in assisting ethanol production and is preparing to embark on research on locally available feedstock for production of ethanol.	
2	Financial risks Non-availability of funds to support large scale roll out strategy	Low	Low	Co- financing commitment from the EU has been obtained	In addition to co-financing, a Bioenergy Incentive Facility (BIF) has been established in collaboration with TIB Development Bank to serve the needs of potential investors in the market. Currently, three sugar factories have been targeted for support by the BIF.	<input type="checkbox"/>
3	Socio-economic risk <ul style="list-style-type: none"> Currently, households are beginning to understand ethanol as a clean cooking solution and are now more concerned about availability and cost. Supply of target cook stoves not achieved. Supply requirement of fuel grade ethanol not achieved. High price fluctuations of fuel grade ethanol. Ethanol is sold in poor grade in the market. 	Moderate	High	<ul style="list-style-type: none"> In order to boost household confidence in ethanol cook stoves, supply chain distributors will conduct awareness campaigns and run media commercials as part of their contract. The project's lower price offer on ethanol cook stoves will benefit households. 	In order to raise awareness and familiarise the community with the product, street-by-street campaigns and demonstrations are conducted prior to the rollout of ethanol stoves in the selected wards. Stove prices are currently subjected to a price subsidy in order to make them more affordable to households.	<input type="checkbox"/>
		Moderate	Moderate	<ul style="list-style-type: none"> On their respective supply targets, contract agreements will be executed with cook stove providers. Their performance and achievement of goals will be close monitored. 	Signed suppliers contract includes targets for sales of stoves within given time frames.	
		Low	Low	<ul style="list-style-type: none"> Contract agreement is signed with supply chain distributors to ensure fuel supply to their consumers. Their performance and achievement of targets and goals will be constantly monitored 	Supplier contracts also specify requirement for ensuring reserve stock of ethanol fuel.	
		Moderate	Moderate	<ul style="list-style-type: none"> Maximum retail price of fuel grade ethanol will be kept under constant monitoring by EWURA. 	Work in progress.	
		Low	Low	<ul style="list-style-type: none"> Quality standards have been established, and only tested cook stove models and fuel grade ethanol will be permitted to be delivered under this programme. Such restrictions have been clearly stated in contract agreements with supply chain wholesalers and cook stove suppliers. 	The specifications standards for ethanol fuel and stoves have been created and published for implementation.	

	(i) Risks at CEO stage	(i) Risk level FY 23	(i) Risk level FY 24	(i) Mitigation measures	(ii) Progress to-date	New defined risk ⁵
4	Sustainability risk Ethanol based cooking market may collapse after supporting measures are withdrawn at the end of project period.	Moderate	Moderate	➤ Through the retail sale of 500,000 cook stoves, a strong alliance between supply chain industries such as suppliers, dealers, cook stove manufacturers, ethanol distilleries, and so on will be built. This will ensure the project's long-term viability.	Distributor has an incentive to preserve market and growth by selling ethanol in a sustainable manner to both existing and potential fuel sector customers/households. Presence of additional distributors in the market will help to ensure competitiveness and availability of ethanol fuel and cookstoves.	<input type="checkbox"/>
				➤ During extreme shortage of feedstock in the country for ethanol production, supply of ethanol will be ensured through imports. The ethanol supply companies will be made responsible for this	Distributor of fuel grade ethanol has network of suppliers from within Tanzania, East Africa and SADC region	
5	Climate change risk Scarcity of feedstock due to flood or droughts	Moderate	Moderate	Fuel distribution is the responsibility of supply chain distributors in this effort. When there is a local feedstock scarcity, supply chain wholesalers must import ethanol to meet demand. The effort will also consider all potential sources of ethanol from agricultural waste, such as molasses, sisal waste, coffee pulp, cashew apple, and other seasonal fruit wastes. As a result, the project's ethanol output will be unaffected by a lack of a certain feedstock.	The effort with SUA will also consider all potential sources of ethanol from agricultural waste, such as molasses, sisal waste, coffee pulp, and other seasonal fruit wastes. As a result, the project's ethanol output will be unaffected by a lack of a certain feedstock.	<input type="checkbox"/>

2. If the project received a **sub-optimal risk rating (H, S)** in the previous reporting period, please state the **actions taken** since then to mitigate the relevant risks and improve the related risk rating. Please also elaborate on reasons that may have impeded any of the sub-optimal risk ratings from improving in the current reporting cycle; please indicate actions planned for the next reporting cycle to remediate this.

N/A

3. Please clarify if the project is facing delays and is expected to request an **extension**.

To finish delivering stoves under the subsidy programme, the project will need an additional two years of time. The PSC approved the extension of the project by two years to align with the EU CookFund, which has been extended to October 2026. The request was approved at the last PSC meeting held in February 2024. The following are the primary causes of the project's delays:

1. Time to market - In order for UNIDO to act as a commercial market facilitator by contracting for the delivery of ethanol stove/fuel supplies, a process of careful design is required, followed by acceptance through advertisements and UNIDO procurement process.
2. The envisaged two-month set-up time has turned out to be unrealistic for private sector entities who are entering into a new market such as this one for ethanol cookstove distribution. On average, distributors require more than 9 months just to realistically prepare for the distribution market. The first distributor required more than 11 months to prepare to sell the first cooker and, the second distributor has already spent more than 6 months in preparation. Significant

organisational problems (lack of funding and access to financing concerns), exist amongst the private sector. However, we feel that it will take an entity at least 6-8 months to build up everything necessary (branding, bottles, a filling machine, stove contracts, sales teams, support organisation, etc.).

3. The two largest issues are a lack of capital to buy the stoves and finance the operation, as well as a shortage of staff members with the necessary abilities. However, UNIDO has been obligated by contract to use their services.
4. The length of time it took for Phase Two to materialise - It was always intended to launch Phase Two 6 to 9 months after the first Distributor had the chance to demonstrate the concept, but it took almost 3 years to do so. This was the factor that prevented us from entering the market with more distributors.
5. The Government has also only recently given priority to the aspect of providing access to clean cooking to most of the population. A national Clean Cooking Strategy was recently launched by the Government, and we expect projects like this one will be given national priority.

5. Please provide the **main findings and recommendations of completed MTR**, and elaborate on any actions taken towards the recommendations included in the report.

Midterm review -2021

Key Findings

Design. The project design is rated as SATISFACTORY. The rating is attributed to strong local stakeholder participation from project origination to implementation planning and implementation. The Logical Framework and target indicators are well articulated, adequately developed, and were used in the project development. Indicators provided are Specific, Measurable, Achievable, Relevant and Time-bound (SMART) targets allowing for proper adaptive management and monitoring of project results. Minor shortcomings requiring adjustments are identified. Relevance. Based on the assessment of project relevance to local and national energy priorities, policies, targets and compatibility with government strategies of Tanzania; to GEF's strategic priorities and objectives; to the GEF focal area (GEF 6) of climate change mitigation 1, Promote Innovation, Technology Transfer and Supportive Policies and Strategies; and to UNIDO's mandate, an overall project relevance is considered and rated HIGHLY SATISFACTORY.

The MTR assessment demonstrates high project ownership by the government, effective participation of private sector with investment in excess of USD 5 Million, developed local assembly facility for ethanol cook stoves and fuel ethanol storage, blending and bottling facilities in Dar es salaam.

Substantial efforts were undertaken to ensure cost effectiveness of the project results both by UNIDO as IA, PMU and by the private sector stakeholders, bottling and storage facilities; ethanol cook stoves assembly facilities are in place and operational in Dar es salaam. About 16,310 cooking units have been procured, assembled and more than 7000 stoves already sold in Dar es salaam at a consistent price. About 353 retailers are reported in Dar, of which more than 156 are female owned retail outlets.

The overall sustainability rating for this Project at MTR is rated MODERATELY LIKELY (ML), which means that there are moderate risks that affect the dimension of project sustainability. Except for socio political, institutional framework and governance, and environmental (ecological) risks which are likely not to significantly impact adversely on the project performance, there exist moderate financial risks due to uncertainties in project financing to the desired level, COVID - 19 adverse impacts to the project performance. There are significant delays in the formation and implementation of the strategic innovative financial tool (CCGF) and activities that contribute to other outputs and results.

Proper Monitoring, Evaluation, and Learning procedures were adequately observed and followed by the Project Manager and PMU personnel in the project such as preparation of Annual Project Implementation Reviews. The PM and PMU prepared all necessary reports that provide adequate aspects for reporting periodical achievements of the project pertinent to the outcomes elaborated in the logical framework. PMU performed oversight of the main activities and proper Monitoring and performance tracking evaluation and regular update and communication of the work plan by PMU have minimized the project delay of some of the project activities through timely follow-ups.

On the basis on the MTR evaluation, the evaluator has rated the Project with an overall rating of Satisfactory (S).

Recommendations;

To the Project Management Unit (PMU):

- i. PMU should deliberately include gender mainstreaming in the project implementation, such as deliberate facilitation for disabled women groups as outlets for fuel ethanol and ethanol cooking stoves distribution. PMU outputs/outcomes reporting should be as desegregated as possible to allow for engendered informed decisions.
 - **Action taken;**
- i. PMU may consider relaxing geographical limitations for selling both fuel ethanol and ethanol cook stoves and concentrate on information dissemination regarding where to get such products (outlets) and user benefits, since Dar es Salaam borders/boundaries are almost artificial.
 - **Action taken;** discussions on progress on the rollout strategy with the distributor, on reducing the geographical limitation for selling of ethanol stoves and fuel.

- i. PMU may recommend to PSC to relax some of the physical and lengthy documentation requirement during selling of ethanol cook stoves and fuels and assume digital practices making it efficient selling process with all the necessary desired verification features included.
 - **Actions taken; paperwork** has been reduced for the customer by the distributor.
- j. PMU should fasten the conclusion of the CCGF formation and start operations to attract more PS investments for ethanol cookstoves and fuel ethanol production capacities through micro-distilleries and distribution channel development.
 - **Action taken;** work on progress on the establishment of a bio-energy financial facility to promote development of micro-distillery.
- k. PMU should add 3-4 more ethanol cook stoves and fuel ethanol distributors/ contractors, if the project has to attain the targeted results in the designed project timeframe
 - **Action taken:** The project will bring onboard 2 or 3 more distributors in its second phase roll out programme. The second phase is onboard, expression of interest for the new distributors is on progress.
- l. Existing short term consumer financing mechanisms should be employed by the project, say allowing stove payments in 3-4 instalments, thereby increasing affordability and uptake.
 - **Action taken** work on progress as the distributor is working towards establishing partnership with a micro credit.
- m. UNIDO/ PMU should actively follow up with SUA on their willingness to develop the ethanol capacity development centre, set deadlines and make firm decisions on alternative routes.
 - **Action taken:** Work on progress, SUA has submitted their proposal framework for biofuel centre.
- n. UNIDO/PMU should follow up on the formation of Technical Advisory Committee to allow for more active partners' participation in project activities through progress reports review meetings, field visits to project sites and witness developments on the ground, thereby stimulating their interest and activeness in the project. TAC could meet 2-3 times a year.
 - **Action taken:** a technical committee has been established, which is composed of members from Vice Presidents' office, Min of Industry and Trade, the Ministry of Energy, and PO-RALG. Whereby the first meeting was held in June at the Dodoma-VPOs office to endorse the TORs.ORs.
- o. UNIDO / PMU should continue fundraising for the project activities to allow for project activities continuance even in a case the envisaged EU support is only partial.

Action taken; EU has provided support of 3,000,000 Euros through cook-fund programme as co-financing to support the second phase of promoting bioethanol as a clean alternative for cooking in Dar es Salaam

IV. Environmental and Social Safeguards (ESS)

1.As part of the requirements for **projects from GEF-6 onwards**, and based on the screening as per the UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP), which category is the project?

Category A project

Category B project

Category C project

(By selecting Category C, I confirm that the E&S risks of the project have not escalated to Category A or B).

Please expand the table as needed.

	E&S risk	Mitigation measures undertaken during the reporting period	Monitoring methods and procedures used in the reporting period
(i) Risks identified in ESMP at time of CEO Endorsement	Social unrest due to lack of fuel supply. Poisoning from drinking bioethanol. Social unrest due	Customer training for distributors must be implemented at the time of stove delivery. Education and training cover proper fuel handling, safe stove use, and basic usage requirements.	20% of all receivers are asked to engage in validation interviews and TIB records any customer feedback and concerns. Contains confirmations that the instruction session was finished and that the safety guide paper was delivered.

	<p>escalating bioethanol prices</p> <p>Household member burns or injuries.</p> <p>Complaints from stove failures</p> <p>Build-up of carbon monoxide in cooking areas.</p> <p>Social unrest due to costing of cooking higher than charcoal.</p> <p>Loss of livelihoods of people who currently depend on charcoal production</p>	<p>The distributor may sell only denatured ethanol, as specified in the contract and approved by checks.</p> <p>Low stove sales have meant very little social unrest risk currently.</p>	<p>Every two weeks, the UNIDO project management team (PMU) inspects the distributor sales operation on the ground (biweekly field inspections) to ensure, among other things, that consumer information is accurate and that fuel is denatured.</p> <p>Members of the project team generally observe the Wards where sales take place.</p> <p>Government has embarked on National Clean Cooking Strategy, and has plans to promote alternative livelihoods for communities that are dependent on charcoal production.</p>
<p>(ii) New risks identified during project implementation (if not applicable, please insert 'NA' in each box)</p>	<p>none</p>		

V. Stakeholder Engagement

1. Using the previous reporting period as a basis, please provide information on progress, challenges and outcomes regarding engagement of stakeholders in the project (based on the Stakeholder Engagement Plan or equivalent document submitted at CEO Endorsement/Approval).

Throughout the project, different stakeholders have been involved. On policy and regulatory issues, the project works with the Vice President's Office Division of Environment and the Ministry of Energy, both of whom are members of the Project Steering Committee. Several meetings have been scheduled to inform and update major government stakeholders on the project's goals. Additionally, the initiative worked effectively with TBS to establish standards for ethanol cookstoves and fuel. It also worked with SUA to build a biofuels center, which proved effective. The initiative has collaborated with a number of key partners, including the TIB Development Bank and approved company distributors. Two more distributors have joined the project's second phase.

The European Union was also involved in the effort, providing additional support for the phase two distribution rollout through the CookFund Program effort, which is managed by UNCDF.

The TIB Development Bank, distributors, and project management unit meet monthly to analyze essential tasks, such as the deployment of ethanol cookstoves, and make recommendations on the best course of action.

2. Please provide any feedback submitted by national counterparts, GEF OFP, co-financiers, and other partners/stakeholders of the project (e.g. private sector, CSOs, NGOs, etc.).

GEF OFP comments point to bioethanol being among the alternative sources of fuel for cooking which has been recognised by the government as a new available technology amongst others, in the national clean

cooking strategy which has been launched by the government

Especially in rural areas, where people mainly rely on trees and charcoal, the government wants to see alternative technology spread across the country.

They, however, are optimistic for the project's potential to support national initiatives to reduce charcoal consumption. The private sector's level of interest keeps increasing and growing.

3. Please provide any relevant stakeholder consultation documents.

9281_2024_BTOMR WED_UNIDO_Tanzania

9281_2024_BTOMR IWD_UNIDO_Tanzania

9281_2024_PSC Meeting Minutes_UNIDO_Tanzania

VI. Gender Mainstreaming

1. Using the previous reporting period as a basis, please report on the progress achieved on implementing gender-responsive measures and using gender-sensitive indicators, as documented at CEO Endorsement/Approval (in the project results framework, gender action plan or equivalent),.

The project initiative will significantly impact women: Almost 1 million people are exposed to carbon monoxide by conventional charcoal burners, and about 3.8 million households mostly made up of women cook over open fires in enclosed spaces. Women makes the majority responders and data from the cookstove rollout suggests that they are aware of the advantages of clean cooking, including time-saving benefits, user friendly and cost efficient. Women have contributed to the cookstove distribution chain by handling marketing and sales campaigns, selling ethanol fuel in stores, and assembling cookstoves.

The data below shows a disaggregated data of the participants of some of the events held during this reporting period.

During the world environment day exhibitions in June 2024 and International Women's Day in March 2024, awareness and knowledge were spread to roughly 650 people, including 393 women and 257 men that stopped by the booths were made aware of bioethanol fuel and stove as a clean cooking source, which is affordable and available.

60 women from various organisations, including the business sector, NGOs, the sugar and ethanol industries, and academic and research institutes, took part in the three workshops mentioned above. 15 of these women work for organisations that influence policy.

VII. Knowledge Management

1. Using the previous reporting period as a basis, please elaborate on any knowledge management activities / products, as documented at CEO Endorsement / Approval.

The Vice President's Office - Division of Environment, which coordinated the project, used the World Environment Day (WED) 2024 commemorations as a platform to increase public awareness of the bio-ethanol project. As previously mentioned, over 250 people visited our exhibition booth, and about 95 of them signed up to become distributors agents in Dodoma. This raised awareness of the bio-ethanol stove and fuel. Additionally, project pamphlets were given to each visitor as part of awareness raising. In addition, the distributor conducted 12 road shows in Dar es Salaam to raise public awareness on the usage of ethanol as a fuel for cooking.

2. Please list any relevant knowledge management mechanisms / tools that the project has generated.

9281_Bioethanol Project brochure: a large-scale delivery model for clean cooking experiences from dar es salaam

VIII. Implementation progress

1. Using the previous reporting period as a basis, please provide information on **progress, challenges and outcomes achieved/observed** with regards to project implementation.

Key project progress

1. Ethanol is now recognised as one of the alternative clean cooking fuels, in the National Clean Cooking Strategy, together with LPG and efficient electric cooking.
2. EU co-financed portion of the project for the subsidy on ethanol stoves has been contracted and is now underway with the appointment of two distributors. Additional distributors are being identified, with the additional funding from the EU/CookFund Program.
3. Significant work was completed to ensure parity between the EU/CookFund and GEF subsidies; project operational rules and alignment of project timelines.
4. Project extension motivated to allow time to complete the delivery of stoves and use of the allocated subsidy funds.
5. The overall subsidy fund management approached, based on the payment for validated progress has continued to be effectively implemented under the auspices of TIB.
6. During 2024, Tanzanian government has stepped up their support for clean cook options including ethanol-based cooking especially after the project provide inputs into the National Clean Cooking Strategy. Since the launch of the national Clean Cooking Strategy, the project has participated in two national Clean Cooking Symposiums. The message has been loud and clear from the President herself through to the Ministries of Energy and Environment.
7. The designated distributor is continuing the rollout of stoves within Dar es Salaam.

Challenges

1. Low sales have continued to plague the project. The cost to the end users coupled with the low awareness of new technology as has created a significant obstacle.
2. Distributors of the new technology are small companies who experience ongoing working capital and investment constraints. The project has battled to breakthrough with major companies to take up the opportunity. The project has tried to solicit the participation of larger business actors in order to overcome some of the hurdles faced during start-up of the business.

Outcomes

1. An increase in the subsidy level that has been driven by the EU co funding to \$16.50/stove and \$8.80 marking fee will make an impact on the rate of roll out going forward.
2. Additional procurement (RFP's) activities on going which will help to add additional distributors with targets totalling 130,000 stoves. Following extensive efforts, coupled with the launch of the National Clean Cooking Strategy, it is hoped that major industrial players in Tanzania will now be enticed to deliver ethanol-based cooking solutions.
3. Ethanol firmly entrenched within the household cooking mix in Tanzania.

2. Please briefly elaborate on any **minor amendments**⁶ to the approved project that may have been introduced during the implementation period or indicate as not applicable (NA).

Please tick each category for which a change has occurred and provide a description of the change in the related textbox. You may attach supporting documentation, as appropriate.

<input type="checkbox"/>	Results Framework	
<input type="checkbox"/>	Components and Cost	

⁶As described in Annex 9 of the *GEF Project and Program Cycle Policy Guidelines*, **minor amendments** are changes to the project design or implementation that do not have significant impact on the project objectives or scope, or an increase of the GEF project financing up to 5%.

<input type="checkbox"/>	Institutional and Implementation Arrangements	
<input type="checkbox"/>	Financial Management	
<input checked="" type="checkbox"/>	Implementation Schedule	In accordance with the extension of the CookFund program, which has been extended until March 2027 and is the main co-financier of the Bioethanol project, the project is requesting extension until March 2027.
<input type="checkbox"/>	Executing Entity	
<input type="checkbox"/>	Executing Entity Category	
<input type="checkbox"/>	Minor Project Objective Change	
<input type="checkbox"/>	Safeguards	
<input type="checkbox"/>	Risk Analysis	
<input type="checkbox"/>	Increase of GEF Project Financing Up to 5%	
<input checked="" type="checkbox"/>	Co-Financing	Allocated with 3 million euros from the EU-cook fund program initiative to co-finance the project for scaling up purposes.
<input type="checkbox"/>	Location of Project Activities	
<input type="checkbox"/>	Others	

3. Please, provide progress related to the **financial implementation** of the project.

Please refer to the attached Grant Delivery Report.

IX. Work Plan and Budget

1. Please, provide an **updated project work plan and budget** for the remaining duration of the project, as per last approved project extension. Please expand/modify the table as needed.

Please refer to the attached workplan file.

X. Synergies

1. **Synergies** achieved:

1. Synergies with the CookFund programme whereby is the key component of the Integrated Approach to Sustainable Cooking Solutions Initiative funded by European Union Delegation (EUD) in Tanzania under the Ministry of energy. The United Nations Industrial Development Organisation (UNIDO) is delivering the programme objectives with a sister agency UNCDF. The CookFund programme aims at contributing to Tanzania's climate change commitment by increasing the share of the population with access to sustainable cooking solutions. The programme is a performance-based programme that provides financial and technical assistance to eligible enterprises and companies to accelerate market rollout of clean cooking solutions, leading to improved environment, jobs, and business opportunities along the different value chains. The programme also supports legal, regulatory and enforceability of biomass energy, transitioning of public institutions from the use of charcoal and firewood to cleaner fuel and efficient appliances and support to national level awareness raising and sensitization on benefits and opportunities of clean cooking solutions.



Show casing different clean cooking Technologies.

- UNIDO co-hosted with UNCDF a symposium on Clean Cooking Solutions from 19th -21st June 2024 aiming at bringing together key partners and stakeholders in the field of clean cooking solutions. Which included national and local governments, policy makers, relevant research institutions, revenue and compliance authorities, manufacturers, importers, innovators, and distributors of different clean cooking technologies (such as E-Cooking, Bioethanol, LPG, Natural Gas, Biogas, Briquettes), women/gender focused groups and organizations, research organizations and academia, media houses, etc. The symposium served as a platform for knowledge exchange, collaboration, and innovation on critical areas of clean cooking solutions, especially in efforts to support the government in the implementing the National Clean Cooking Strategy 2034. The symposium on Clean Cooking Solutions had the following Objectives
 - To inspire and mobilize action towards widespread adoption of clean cooking solutions for a sustainable future, especially related to implementing the National Clean Cooking Strategy.
 - To highlight, discuss and award innovative and sustainable clean cooking technologies and practices. To discuss and share strategies for effective engagement of the value chain actors as part of government of Tanzania goal to transit into 80% clean cooking by 2034.
 - To foster collaboration among policymakers, development partners, researchers, institutions, the private sector, and NGOs in the clean cooking sector. UNIDO showcased a bioethanol project.



3. **Stories to be shared** (Optional)

The Vice President commends UNIDO's support through its interventions in promoting the use of clean cooking stoves, such as the use of bioethanol stoves and fuel, supporting TBS in the development of ethanol fuel and ethanol stove standards which never existed before, supporting local assembly of stoves and distribution, awareness campaign on clean cooking with support from EU, UNCDF, TIB Development Bank and the sugar sector to produce ethanol. This happened during the Women's Clean Cooking Conference, which was part of the celebration of International Women's Day 2024 (IWD).



(The vice president of Tanzania handing over an ethanol stove to an entrepreneur)

During the conference, UNIDO, UNCDF showcased these technologies by participating in the exhibition, raising awareness among the people who visited the booth, including the Vice President, Deputy Prime

Minister and Minister of Energy, Permanent Secretaries, etc, and by selling stoves and fuel to over three hundred people who visited the exhibition booth.



The vice president Hon. Dr. Philip Mpango at the UNIDO/UNCDF booth during live demonstration of the bioethanol stove.

STORY B.

Participated in the world environment day 2024 commemorations whereby the platform provided a room to show case UNIDO's activities under the Thematic Pillar of Safeguarding the Environment and, particularly in relation to the National theme of **"Land restoration, stopping desertification and building drought resilience."** Among others, promoting the use of clean cooking is among the measures of conserving the environment and restoring the land by stopping cutting down trees for fuel energy such as charcoal.



By 2034, we should ensure that 80% of Tanzanians use clean cooking energy. In order to achieve this goal, the President has made a number of decisions, including

- Creating a National Committee to oversee the implementation of the agenda.
- Establishing a clean cooking energy fund to create subsidies that will allow low-income citizens to afford gas prices.
- Encouraging government institutions that feed more than 100 people a day to use clean cooking energy.



Achievement;

UNIDO showcased and demonstrated clean bioethanol cook stove technology. The exhibition Booth received about 250 visitors who stopped by to look at the technology demonstrations. Minister of State responsible, environment in the Vice President’s office, Hon.Selemani Jafo visited the Joint UN during the exhibition week and expressed his sincere gratitude to the UN agencies for participating, while acknowledging the overall contribution of the UN to the Environment sector in Tanzania. The UN Booth was visited by various dignitaries including the Deputy Minister-Vice President’s Office, Permanent Secretary-Vice President’s Office, Director General of national environment management council (NEMC), deputy director of Environment, officers from the Ministry of energy, and officers from the vices president’s office.

XI. GEO LOCATION INFORMATION

The Location Name, Latitude and Longitude are required fields insofar as an Agency chooses to enter a project location under the set format. The Geo Name ID is required in instances where the location is not exact, such as in the case of a city, as opposed to the exact site of a physical infrastructure. The Location & Activity Description fields are optional. Project longitude and latitude must follow the Decimal Degrees WGS84 format and Agencies are encouraged to use at least four decimal points for greater accuracy. Users may add as many locations as appropriate.

Web mapping applications such as [OpenStreetMap](https://openstreetmap.org) or [GeoNames](https://www.geonames.org) use this format. Consider using a conversion tool as needed, such as: <https://coordinates-converter.com>

Please see the Geocoding User Guide by clicking [here](#)

Location Name	Latitude	Longitude	Geo Name ID	Location and Activity Description
Dar es Salaam, Tanzania	-6.776012	39.178326		Twenty districts benefitting from the subsidy scheme for promoting bio-ethanol clean cookstove

EXPLANATORY NOTE

1. **Timing & duration:** Each report covers a twelve-month period, i.e. 1 July 2021 – 30 June 2022.
2. **Responsibility:** The responsibility for preparing the report lies with the project manager in consultation with the Division Chief and Director.
3. **Evaluation:** For the report to be used effectively as a tool for annual self-evaluation, project counterparts need to be fully involved. The (main) counterpart can provide any additional information considered essential, including a simple rating of project progress.
4. **Results-based management:** The annual project/programme progress reports are required by the RBM programme component focal points to obtain information on outcomes observed.

Global Environmental Objectives (GEOs) / Development Objectives (DOs) ratings	
Highly Satisfactory (HS)	Project is expected to achieve or exceed <u>all</u> its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as “good practice”.
Satisfactory (S)	Project is expected to <u>achieve most</u> of its major global environmental objectives, and yields satisfactory global environmental benefits, with only minor shortcomings.
Moderately Satisfactory (MS)	Project is expected to <u>achieve most</u> of its major <u>relevant</u> objectives but with either significant shortcomings or modes overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environmental benefits.
Moderately Unsatisfactory (MU)	Project is expected to achieve <u>some</u> of its major global environmental objectives with major shortcomings or is expected to <u>achieve only some</u> of its major global environmental objectives.
Unsatisfactory (U)	Project is expected <u>not</u> to achieve <u>most</u> of its major global environmental objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (HU)	The project has failed to achieve, and is not expected to achieve, <u>any</u> of its major global environmental objectives with no worthwhile benefits.

Implementation Progress (IP)	
Highly Satisfactory (HS)	Implementation of <u>all</u> components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as “good practice”.
Satisfactory (S)	Implementation of <u>most</u> components is in substantial compliance with the original/formally revised plan except for only few that are subject to remedial action.
Moderately Satisfactory (MS)	Implementation of <u>some</u> components is in substantial compliance with the original/formally revised plan with some components requiring remedial action.
Moderately Unsatisfactory (MU)	Implementation of <u>some</u> components is <u>not</u> in substantial compliance with the original/formally revised plan with most components requiring remedial action.
Unsatisfactory (U)	Implementation of <u>most</u> components in <u>not</u> in substantial compliance with the original/formally revised plan.
Highly Unsatisfactory (HU)	Implementation of <u>none</u> of the components is in substantial compliance with the original/formally revised plan.

Risk ratings	
Risk ratings will assess the overall risk of factors internal or external to the project which may affect implementation or prospects for achieving project objectives. Risk of projects should be rated on the following scale:	
High Risk (H)	There is a probability of greater than 75% that assumptions may fail to hold or materialize, and/or the project may face high risks.
Substantial Risk (S)	There is a probability of between 51% and 75% that assumptions may fail to hold or materialize, and/or the project may face substantial risks.
Moderate Risk (M)	There is a probability of between 26% and 50% that assumptions may fail to hold or materialize, and/or the project may face only moderate risk.
Low Risk (L)	There is a probability of up to 25% that assumptions may fail to hold or materialize, and/or the project may face only low risks.