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**Expert Group Meeting**

***Clean Cooking: Potential for bioethanol Industries in High impact Countries***

Date: 23rd to 25th June 2021

Location: Virtual

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1. **Introduction**

2.8 billion people worldwide are still reliable on traditional and dirty fuels such as charcoal, firewood, animal dung or kerosene for their daily cooking needs. Therefore, they are severely exposed to household air pollution resulting in serious health issues and premature death. The majority of them live in 20 High Impact Countries (HICs)[[1]](#footnote-1) in Africa and Asia. There is an urgent need to support these countries in developing cleaner fuel options to tackle this problem. In this context, within the framework of the G20 declarations and recommendations for *Forward-looking Options for Enabling Pathways for Universal Access to Energy[[2]](#footnote-2)*, UNIDO’s Inclusive and Sustainable Industrial Development (ISID) mandate, and together with Clean Cooking Alliance and other partners such as Africa Union, UN-Economic and Social Commission for Asia and Pacific, the Global Bioenergy Partnership as well as the multilateral donor community intend to support the 20 HICs in their efforts in transitioning to renewable biofuel-based transportation and cooking solutions, relying on their agriculture and industrial strength. Such an effort is expected to contribute to their SDGs and NIDC commitments.

Developing local bioenergy industries has not only a direct impact on an overall access to affordable, reliable, sustainable, and modern energy across the globe (SDG 7), but positively contributes to economic, social, and environmental challenges and thus supports these countries in achieving their NDCs and SDG. Economic development and job creation (SDG 8) in the clean energy sector can sustainably improve the standard of living and thus contribute to poverty alleviation (SDG 1) and improved health conditions (SDG 3) especially for women and children who are over proportionally affected by household air pollution (SDG 5). Production, promotion, and consumption of biofuels, furthermore, positively affect the environment by reducing emissions of greenhouse gases and widespread deforestation, and thus climate change (SDG 11, 12 & 13).

Deploying local bioenergy industries in HICs needs to be complemented with a careful consideration of occurring barriers and risks that need to be mitigated to avoid adverse effects. Creating global partnerships (SDG 17) to exchange experiences and lessons learned are highly beneficial to do so.

* 1. **The Potential of Bioenergy**

In many developing (DC), least developed (LDC) and small island development state countries (SIDS) the population is projected to double by 2050. As a result, the demand for food and fuel is raising as well. To meet those needs these countries can use their substantial resource potential to produce bioenergy sustainably. For every ton of crop grown, residues are available on the field of which a fraction can be collected after harvest. Enough residue (three quarter to a half) will be left behind to regenerate the soil and to be processed into feed for meat and dairy production. The collected agricultural residues as well as the waste from agro-processing industries can augment energy demand (electricity, heat and biofuels).

Driven by the desire to reduce energy import bills and carbon emissions by displacing fossil fuels, bioenergy use has increased over the last three decades. However, its expansion has been slowed down by a perceived conflict between food and fuel production, which has often made it difficult for governments and development agencies to support investments in biofuels. However, taking advantage of robust agriculture and industry sectors and through adopting best practices in improving yields and improved land management, it is possible to shift a food vs. fuel to food and fuel approach.

Bioenergy has a promising future in creating a sustainable bioeconomy in DCs, LDCs and SIDSs as only a small fraction of its potential has been exploited so far. That potential can easily be achieved without tapping into the food crops and experiencing competition with food production. Indeed, there are still huge quantities of bio-residues globally that are not used and that can be converted into bioenergy. To facilitate the successful development of local bioenergy industries, HICs need to establish a market enabling environment to overcome barriers and eliminate risks by adopting and improving coherent policy frameworks and regulations, standardize data for planning and monitoring different parts of the value chain as well as providing financing solutions to lastly ease the market entry for SMEs.

* 1. **Linking Agriculture and Industry to Energy and Economy**

Agriculture is the main stay of DCs and LDCs as the sector contributes considerably to their GDP. Business opportunities are to be found along the entire value chain of agro-industries. Agro-processing is an important instrument to add value to agricultural products. Since agro-industries generate huge amounts of biodegradable wastes and residues in one place, the potential to apply circular economy principles and generate biproducts including energy is enormous. This can also reduce post-harvest losses, thereby increasing the productivity and profitability of industries and related value chain.

There is immense potential for DCs and LDCs as well as SIDSs to produce biofuels from local resources and reduce the import of fossil fuels which can help them to become self-reliant in energy and energy security and furthermore saving enormous amount of foreign exchange which can be diverted to other economic activities. In summary, the bioenergy industries and economies are promoting an increasing focus on the nexus of climate adaptation, job creation, social well-being as well as the value chain potential representing a multi-sector social, economic and environmental impact.

* 1. **Liquid Biofuels**

Liquid fuels, produced from organic matter, are the most portable of fuels; they are an efficient and affordable way to transport energy to distant areas. The most developed of liquid biofuels are ethanol, methanol, and biodiesel. Traded globally they have been historically used in transportation, lighting, heating, cooking and electricity generation. Nevertheless, they lost currency with the rise of petroleum fuels and were displaced by kerosene, gasoline and diesel fuel. However, they have regained popularity for fuel blending and flex-fuel engines. For example, in Brazil and the United States (US), the production and use of bioethanol was supported by forward-looking policies[[3]](#footnote-3).

Ethanol and methanol, the two simplest alcohols, emerged under the dominance of oil due to environmental, socioeconomic and health benefits. They have the potential to be renewable and to recycle waste, they burn cleanly, are biodegradable and lastly are low-carbon fuels. Well-established pathways facilitate a rather cheap production on a large or small scale. Ethanol is produced easily from sugar and starch feedstocks, which are often by-products or wastes of other agro-industrial processes, such as sugar, food and beverage production. It can be produced in almost every country, including DCs and LDCs as well as SIDS and thus can be used for widespread applications in meeting the local energy demand.

* 1. **Biofuels Market**

Transport fuels and household fuels are the two major potential markets for biofuels especially ethanol and biodiesel. Transport fuel markets are primarily policy-driven aiming to reduce imports of fossil fuels, avoid GHG emissions and improve rural development. Ethanol is an emerging cooking fuel option in DCs, LDCs and SIDSs today with existing ethanol cooking initiatives.

Below is a list of countries in Africa, Asia and Latin America having a biofuel mandate. However, most of these countries have not met their targets over the years due to myriad of reasons. By linking agriculture, industry, energy, and transport sectors, developing countries can create markets within and possibly expand to regional markets.

|  |  |  |
| --- | --- | --- |
| **Africa** | **Asia** | **Latin America** |
| Angola Ethiopia Ivory Coast Kenya  Malawi  Mauritius  Mozambique  Nigeria  South Africa  Sudan  Zambia  Zimbabwe | China  Fiji  India  Indonesia  Malaysia  Philippines  South Korea  Thailand  Vietnam | Argentina  Brazil  Venezuela  Columbia  Costa Rica  Ecuador  Jamaica  Mexico  Panama  Paraguay  Peru  Uruguay  Bolivia |

Table 1: List of countries with biofuel mandate, policy and law.

According to SEfALL[[4]](#footnote-4), clean fuel solutions such as ethanol stoves have become increasingly commercially viable and may be ready for scale up. Although, finance for ethanol cooking has stagnated, attracting USD 8 million in 2018, a slight increase from the USD 6 million annual average recorded in the 2014–17 period, this picture is posed to change. On the one hand, there is a growing trend in overall household awareness for clean cooking solutions, in particular in urban and semi urban areas. This is a result of the growing availability and acceptance of clean technologies derived from bioenergy, LPG, and electricity household fuel sources. On the other hand, the price of wood and charcoal in these settings, and in many rural areas as well, is becoming more expensive and no longer a ‘free’ or ‘cheap’ fuel choice. There is growing empirical evidence of the general positive acceptance of households for ethanol-based cooking solutions vis-à-vis LPG and electricity, as demonstrated in the various ethanol-based cooking programs in Africa, in particular UNIDO Zanzibar pilot project and UNIDO Tanzania Bioethanol Clean Cooking Project.

1. **Expert Group Meeting**

It is in the above context that UNIDO and CCA, in partnership with UN-ESCAP, AU and GBEP intend to organize an Expert Group Meeting of key policy and decision makers from the HICs and all other relevant stakeholders in the clean cooking space to deliberate and identify strategies to achieve universal access to clean energy for cooking and create an impact by 2030.

* 1. **Objectives of the EGM**

The main objective of the EGM is to provide a platform for policy and decision makers from HICs to deliberate and come up with strategies for developing a local bioethanol industry thereby achieving self-reliance and security in energy as well as achieving SDGs and NDC commitments. In this context, the deliberations at the EGM, manifested in the EGM Declaration and Report, will also inform international processes such as the G20 Energy Group, High-Level Dialogue on Energy, and COP26.

## **Expected Outputs**

* Consensus and declaration on establishing a round table of HICs on clean cooking;
* Validation of biofuels (ethanol) as viable clean fuels for DCs, LDCs and SIDSs to tackle the household cooking energy problem;
* Report of EGM and related publications.

## **Date and Venue**

The EGM will take place virtually from 23rd to 25th June 2021 (3 half day sessions). The meeting will be set up through ZOOM or other virtual meeting platforms. Link to be provided in due course.

## **Participants**

* Policy makers from 20 HICs and selected other member states;
* Organization/ entities in the area of clean cooking
* Development partners/ DFIs

## **Language**

The meeting will be conducted in English.

## **Administrative Arrangements**

All administrative and logistical arrangements will be organized by the EGM secretariat based in UNIDO.

## **Inquiries and Correspondence**

All communications regarding the meeting, including confirmation of participation should be addressed to:

|  |  |
| --- | --- |
| **Mr. Jossy THOMAS**  Industrial Development Officer  Department of Energy I Energy Technologies and Industrial Applications Division  UNIDO HQ, Vienna, Austria  Email: [J.Thomas@unido.org](mailto:J.Thomas@unido.org) | With copy to:  **Ms. Janina Herzog-Hawelka**  Project Intern  Department of Energy I Energy Technologies and Industrial Applications Division  UNIDO HQ, Vienna, Austria  Email: [J.Herzog-Hawelka@unido.org](mailto:J.Herzog-Hawelka@unido.org)  Registration and Logistics:  **Ms. Grazia Aghaizu**  Project Assistant  Department of Energy I Energy Technologies and Industrial Applications Division  UNIDO HQ, Vienna, Austria  Email: G.Aghaizu@unido.org |

# **Annex****: Tentative Agenda**

**23rd June 2021**

**09:30 -10:00 Opening Session**

Welcome Remarks – DG, UNIDO

Opening statement: Commissioner, AU

Opening message – CEO, CCA

**10:00 to 12:00 AM (CET)**

**Session 1: The Opportunity, Challenge and Approach 120 mins incl. Q&A**

1. The Context: Clean Cooking Challenge in HICs, **( Ms. Olivia Coldrey, Head of Energy Finance and Clean Cooking**, **SEfALL)**
2. Bioethanol: An Opportunity for self-reliance and energy security, **(UNIDO Position Paper)**
3. Supporting investments for biofuels based clean cooking – EU perspective, **(Mr. Cedric Merel, Head of Cooperation, EU)**
4. Clean cooking sectoral strategy, **(CCA)**
5. Potential and challenges of ethanol-based cooking and blending in Africa, **(AU/UNECA)**
6. Potential and challenges of ethanol-based cooking and blending in Asia**, (Mr. Michael Williamson, Chief, Energy Section, ESCAP)**
7. Q & A discussion

**24th June 2021 (10:00 to 12:00 AM -CET)**

**Session 2: Linking Agriculture, Industry, Energy and Markets 120 mins incl. Q&A**

1. Policy and regulatory regime for biofuels, **(Mr. Isaac Kiva, Ministry of Energy, Kenya)**
2. South-South learning – policy lessons from sustainability assessments**, (Ms. Maria Michela Morese, Executive Secretary, GBEP)**
3. Potential of sugar Industry in meeting SDGs and NDC in developing countries, **( Ms. Seungwoo Kang, RENA)**
4. Global Impact Programme for Clean cooking, **(UNIDO)**
5. Result Based Financing for Clean cooking: Tanzania experience **(Mr. Joseph Chilambo, TIB Investment Bank)**
6. SPARK Fund for clean cooking, **(CCA/AfDB)**
7. Clean Cooking fund, **(WB)**
8. Q & A & discussion

**25th June 2021 (10:00 to 12:30 -CET)**

**Session 3: Round Table of HICs on Clean Cooking 150 mins**

1. Presentation of TOR for Round Table on Clean Cooking (Chair from Participants)
2. Deliberations by HIC Delegates (TOR and Draft report/communique)
3. Adoption of the report/communique
4. Closing of EGM

1. **Asia:**  India, China, Bangladesh, Indonesia, Pakistan, Philippines, Myanmar, Vietnam, Afghanistan  
    **Africa:** Nigeria, Ethiopia, DRC, Tanzania, Kenya, Uganda, Sudan, Mozambique, Madagascar, Ghana, Ivory Coast [↑](#footnote-ref-1)
2. <https://www.seforall.org/news/seforall-helps-put-sustainable-energy-access-on-g20-agenda> [↑](#footnote-ref-2)
3. Brazil 1975 – National Alcohol Programme (ProAlcool), US 2005 – Renewable Fuel Standard (RFS) [↑](#footnote-ref-3)
4. Energizing Finance: Understanding the Landscape 2020; <https://www.seforall.org/system/files/2020-11/EF-2020-UL-SEforALL_0.pdf> [↑](#footnote-ref-4)