FOOD FORWARD NDCs

Creating access to clean energy sources and technologies for cooking

Overview

Around 4 billion people – or approximately half of the world's population – still lacks access to modern energy cooking services. Instead, many households cook on open fires and simple charcoal stoves. These practices cause significant health problems that can lead to respiratory illnesses and premature deaths while contributing to both forest degradation for fuelwood and greenhouse gas (GHG) emissions. Consequently, several countries are developing policies for improving access to clean cooking technologies (e.g., electric and solar) and working towards achieving the Sustainable Development Goals (SDGs).

Concrete measures to implement

- Set clear, comprehensive targets for clean cooking access (e.g., percentage of the population with access to clean cookstoves) and/or higher performing efficient stoves, implementing enabling policies as well as a regulatory environment that is conducive to the development of a self-sustaining market.
- In scaling up clean cooking fuels and technologies, refer to the WHO Guidelines that provide guidance on ensuring maximum benefits from the energy transition while protecting human health. Where clean cooking fuels and technologies are reliably available, government policies and investments should be in place to enable scaling up. These solutions

should be gender-sensitive and meet local needs while aiming to achieve universal access to clean energy, incorporating behavioural insights to ensure successful adoption and uptake.

- Increase finance towards accelerating the adoption of clean cooking solutions and overcoming barriers such as liquidity constraints, limited access to clean alternatives and poor availability and reliability of clean fuel delivery. Adequate financial and technological resources are needed to spur innovation and identify a suite of affordable and scalable clean cooking solutions. For example, high-performing biomass stoves can serve as an important improvement or transitional solution until infrastructure for the cleanest options (e.g., electricity, liquefied petroleum gas, ethanol, biogas, solar) is built.
- Provide stable, long-term incentives to deploy clean cooking solutions and higher performing stoves:
    - Provide incentives to build and scale clean cooking technologies. This is important to create a business environment that attracts private sector actors. Allocating predictable, long-term funding for these measures can help build confidence for market entry, fostering a network of original equipment manufacturers and distributors for modern and clean cooking solutions in rural and urban areas.
    - Provide financial incentives to private investors to develop a clean cooking industry and market. Some of these policy tools could include capital funds, grants, subsidies and tax exemptions, to foster innovation, grow capabilities, provide flexible financial solutions to end-consumers and achieve economies of scale.

Enabling governance measures

- Establish a governmental agency to lead this policy by regulating, collecting information, providing support and accelerating equitable clean cooking solutions deployment, including a UNFCCC Article 6 focal point for clean cooking solutions. (UNFCCC is the body through which governments can engage in carbon markets).
- Encourage multi-sectoral coordination and action between Health, Climate and Energy ministries. A multi-sectoral approach is critical to engage diverse public and private stakeholders from across the development and climate spectrum, including but not limited to

policymakers for energy, health, environment and education. Mainstreaming clean cooking solutions and highly efficient biomass stoves will help ensure they have a high impact in these areas, as well as on women's empowerment and livelihoods.

- Create an enabling regulatory environment that fosters private sector clean cooking growth. This can be done, for example, by upskilling local workforces, establishing local production facilities and product research and development, and establishing reliable electric infrastructure.
- The implementation of equitable clean cooking policies requires close collaboration with local communities, non-governmental organisations, community leaders, women's groups and household members responsible for cooking. As such, governments, private sector actors and local organisations that build substantial social and cultural capital in local communities, using a participatory and inclusive approach, may be more successful in scaling clean cooking. Behavioural insights and analysis should be incorporated into programming and policy.
- Develop and strengthen baseline measurements at the household and institutional levels, including national data on energy use, cooking fuel types, amounts and technologies. Better baseline data is essential to accurately measure progress on improving clean cooking access.
- Improve the monitoring of household energy use, including primary and supplementary cooking fuels and technologies, and those used for heating and lighting. Improved monitoring is essential to accurately track progress towards universal clean cooking access. Assessing the impacts on human health, the environment, climate, gender and livelihoods is crucial to understanding the full burden of polluting fuels and technology combinations.

A newly installed fuel efficient stove. Dzombo village. Kwale, Kenya.

Tools and MRV systems to monitor progress

Clean Cooking Alliance

Monitoring and Evaluation Framework for clean cooking initiatives, helping countries to develop their own MRV system and thus assess projects.

Link: https://cleancooking.org/wp-content/uploads/2021/07/599-1.pdf

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Mitigation benefits

Fuelwood burning releases around **1.0 to 1.2 Giga tonnes** ($GtCO_2e$) per year. Switching to clean cooking technologies and fuels, as well as high performing, efficient biomass stoves, can help to mitigate this by reducing deforestation and forest degradation. In areas where fossil fuels are used for cooking and heating, switching to cleaner alternatives will also reduce GHG emissions.

Other environmental benefits

- Reduced GHG emissions from wood and charcoal burning, as well as more carbon sequestration from reduced deforestation for firewood.
- Improved air quality from reduced smoke with positive health outcomes, including reduced respiratory disease and premature deaths rates from air pollution.

Adaptation benefits

- As a result of improved cooking technologies, a household's time for leisure, family and economic-oriented activities may increase, which can translate into a better quality of life.
- Improving food security and rural livelihoods by increasing the amount of time and resources for other economic activities.
- Organic fertiliser as a byproduct of the biogas production process is used on farms to increase crop production.
- Due to climate change, biomass will become less available over time, so more efficient biomass use saves on an increasingly scarce resource while supporting the adaptation capacity of forests.

Other sustainable development benefits

Transitioning to clean cooking technologies and fuel has a **positive impact on several SDGs**, such as:

- SDG 1 (No poverty)
- SDG 3 (Improving health)
- SDG 5 (Gender equality)
- SDG 7 (Affordable and clean energy)
- SDG 12 (Responsible production and consumption)
- SDG 15 (Life on land)

Potential implementation challenges, externalities, and trade-offs

Main implementation challenges include:

- **High initial costs, little access to credit and** ongoing costs for maintenance are key barriers to the acquisition and sustained use of cleaner cookstoves.
- **Lack of adequate awareness or previous knowledge** about available cookstoves, as well as the health and environmental consequences of cooking with traditional and inefficient stoves, inhibits the transition to cleaner cookstoves.
- **Variability in specifics of cooking behaviour** by culture, geography, season, fuel type, local practices and cooking needs is a challenge for implementing large-scale clean cooking programmes.

Measures to address potential externalities and trade-offs

- Address **affordability constraints** (e.g., through community lending schemes, concessional loans, price incentives or free cookstove repairs).
- **Raise awareness** of clean cookstove technologies and programmes, such as through public cooking demonstrations, training sessions and campaigns to communicate the advantages of cleaner cookstoves to communities.
- Ensure cookstove programmes provide suitable stoves that meet household cooking demands, employing an inclusive and participatory approach to design programs with the community.

Implementation costs

Achieving universal access to clean cooking would require an investment of **USD 8 billion annually** in stoves and infrastructure between now and 2030. Clean cooking technologies and fuels are costly compared to traditional stoves and fuels. In practice, governments and private actors face high up-front costs and low-income households must face the upfront cost of purchasing the clean

stove (e.g. in sub-Saharan Africa clean cooking appliances range **between USD 30 and USD 100**), and pay for maintenance and any recurring costs. However, some studies suggest that, in the long term, clean cooking energies have the potential to be **competitive**, and their benefits could increase when the positive environmental and health impacts are taken into account.

Intervention in practice

- India implemented the Pradhan Mantri Ujjwala Yojana (PMUY) Scheme which provides subsidies to reduce the cost of liquified petroleum gas connections and cylinder refills.
- The Energy Sector Management Assistance Programme led by the World Bank has launched its **USD 500 million fund** to scale up investments in the clean cooking sector globally. The fund aims to scale up public and private investments in clean cooking by co-financing, with Multi-lateral Development Bank's lending operations, catalyzing business and technological innovation and linking incentives with verified results. The fund is expected to leverage USD 2 billion in investments to support businesses delivering clean cooking solutions, with a view to transforming the market.

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