



POLICY BRIEF

No time to waste: Pathways to deliver clean cooking for all

A UNDP approach and policy guide

February 2025

Acknowledgements

This policy brief represents UNDP's commitment to elevate its response to inequities in clean cooking access that globally take a toll on lives and livelihoods, among women and girls most of all. The document benefited from inputs across a wide cross-section of UNDP staff, consultants, and partners at various public and private institutions. UNDP experts from country offices, regional bureaus and offices participated in numerous webinars and consultations, providing critical feedback.

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About UNDP

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Table of contents

1.	Introduction: the urgent need to advance clean cooking access	6
1.1.	The current context and UNDP's contribution	
1.2.	Challenges and emerging trends in clean cooking access	
2.	UNDP's approach and policy recommendations for advancing clean cooking access	12
2.1.	Considerations on energy sources in the transition toward clean cooking	
2.2.	Policy recommendations	
2.2.1.	Developing robust national strategies for clean cooking integration	
2.2.2.	Scaling finance and enhancing country readiness through the development of bankable and locally owned pipelines of clean cooking projects	
2.2.3.	Integrating clean cooking into data-driven electrification planning	
2.2.4.	Understanding consumer behaviors, needs and realities	
2.2.5.	Connecting clean cooking with broader systems and multi-level partnerships	
3.	Future outlook: strengthening partnerships to champion clean cooking solutions	28

References

Preface:

A call to action for
clean cooking and
sustainable development





Right now, a woman is risking her health through the simple act of preparing a meal.

The energy transition is happening. The renewable revolution is accelerating. Yet, access to clean cooking is barely progressing. This is an energy issue, a climate issue, and a gender and human rights issue.

UNDP works on energy and climate action not in isolation but as central to sustainable development. Without universal access to clean cooking, the promise of sustainable development will remain out of reach. Over two billion lives and our shared environment are at stake.

Unlocking the full potential of Sustainable Development Goal (SDG) 7 – ensuring access to affordable, reliable, sustainable and modern energy for all – hinges on addressing every dimension of energy access, including clean cooking. This means tackling electrification and clean cooking access in households and institutions – within schools, hospitals, prisons, displacement settings and market centers – while supporting productive energy uses for sustainable livelihoods and economic development.

UNDP stands uniquely positioned to address this challenge, leveraging its role as a global integrator of development issues. With leading expertise on climate action, sustainable energy and finance, coupled with an expansive global presence and deep-rooted relationships with communities and policymakers alike, UNDP is driving the clean cooking agenda forward.

Ultimately, clean cooking signifies more than just technological change. It is a powerful catalyst for a domino effect of outcomes – improved health, environmental protection, enhanced women's security and economic empowerment.

Our ambition is not just to move the needle—but to achieve the energy moonshot of UNDP's strategic plan: to provide energy access to 500 million people by 2025 and beyond, in alignment with SDG 7's call to ensure affordable, reliable, sustainable and modern energy for all.

The stakes are too high to settle for incremental progress. The future of over two billion lives and our planet depends on the boldness of our actions today.



1. Introduction: the urgent need to advance clean cooking access

This policy brief underscores UNDP's dedication to advancing clean cooking as a cornerstone of a just and inclusive energy transition. The increasing global momentum to close the clean cooking gap highlights its vital role in achieving sustainable development. As a leading integrator of the Sustainable Development Goals (SDGs), UNDP is uniquely positioned to tackle this challenge.

Aimed at policymakers, development practitioners and the private sector, this policy brief aims to:

1. Offer policy recommendations on pathways to scaling up clean cooking solutions and technologies in developing countries.
2. Present actionable policy and programming areas to advance clean cooking alongside climate and development goals, to ensure equity, social justice, health, and the well-being of people and the planet.
3. Break down development silos and identify opportunities to enhance partnerships and boost financing for clean cooking in the context of climate, energy and other development sectors, by leveraging resources and expertise across multiple thematic and nexus areas.
4. Inform current and future UNDP programming on clean cooking.

1.1. The current context and UNDP's contribution

In recent years, clean cooking has garnered significant attention for its critical role in the energy transition. For example, the [2023 UN Global Roadmap on Just and Inclusive Clean Cooking Transition](#) lays out the policy and technological advancements needed to achieve universal clean cooking access by 2030 and decarbonize the sector to reach net-zero emissions by 2050. Meanwhile, the launch of the [Global Electric Cooking Coalition](#) (GeCCo) at the 28th Conference of Parties (COP28) emphasized the need to integrate clean cooking into electrification programs and plans. Currently, GeCCO aims to support the transition to electric cooking in Africa, Asia and Latin America and the Caribbean, in at least 10 countries where electricity is the cooking fuel of choice for a significant proportion (greater than 10 percent) of households and institutions.¹ Reports from the International Energy Agency (IEA) and International Renewable Energy Agency (IRENA) have reinforced actionable pathways for achieving universal clean cooking access, with the [IEA's Clean Cooking Summit](#) mobilizing US\$2.2 billion in pledges for the sector. Influential groups such as the G7 and G20 have committed to supporting clean cooking initiatives in developing countries. Most recently, under Brazil's Presidency of the G20, a global clean cooking roadmap was developed² that articulates clear milestones for clean cooking transitions that align with countries' national climate pledges, or Nationally Determined Contributions (NDCs). At regional levels, action is also stepping up, as evidenced by the African Union and its Energy Commission (AFREC) who released a [strategic report](#) outlining a coordinated, region-wide effort to address the continent's significant deficits in clean cooking access.

[UNDP's global portfolio of projects offers a strong basis to contribute to this global momentum and strengthen partnerships with the broad set of actors who are advancing clean cooking transitions on the ground. Across UNDP's global portfolio of climate and energy projects, 86 projects are currently contributing to the development and deployment of clean cooking solutions.](#) Building on this work, as of December 2024, all 128 NDCs submitted by Climate Promise-supported countries include energy-related targets spanning renewable energy, energy efficiency, and energy access, with 45 percent also addressing clean cooking solutions through various fuels and technologies.

[With a strong emphasis on placing people at the centre of clean cooking initiatives, UNDP's support contributes to dismantling gender discrimination and significantly improve outcomes for women and girls, who are disproportionately affected by poor access to clean cooking options \(see Spotlight 1\).](#) At the same time, UNDP is harnessing local knowledge and innovation—drawing on data and digital solutions, market development, and the engagement of entrepreneurs and companies— during the implementation of these projects, building a solid foundation for greater partnerships and the scaling of efforts.

1.2. Challenges and emerging trends in clean cooking access

Global data reveals the notable discrepancy in electricity and clean cooking access. While there have been significant strides in expanding electricity access, progress on clean cooking has been substantially slower. From 2010 to 2022, the number of people without electricity reduced from 1.1 billion to 685 million,³ however, 2.1 billion people globally currently still lack access to clean cooking fuels and technologies,⁴ a figure three times higher than the current electrification deficit. Without urgent action, 1.8 billion people will remain dependent on traditional stoves and fuels for cooking by 2030, with sub-Saharan Africa bearing the greatest burden. Worryingly, current trends in clean cooking show only 79 percent of the global population gaining access by 2030, with minimal further progress anticipated by mid-century.⁵

To reach universal clean cooking access by 2030, annual investments between now and 2030 will need to drastically shift from an estimated US\$2.5 billion (currently) to US\$8 billion, with Africa making up about 50 percent of these investment needs.⁶ The financial demand is significantly greater as countries transition to modern cooking solutions, aiming to deliver the full spectrum of benefits at a higher level or “tier” of access — including benefits for health, time savings, convenience, safety and efficiency — which would require an additional annual investment of \$13 billion between 2030 and 2040.⁷ The estimated cost of inaction on clean cooking is \$2.4 trillion due to the associated negative impacts on health, gender inequality and climate. To avoid this, persistent political commitment, coupled with actionable implementation plans, are needed to enable the allocation of public and private sector funding required to bridge the investment gap in clean cooking.

Beyond the need for accelerated finance, various environmental and socio-political factors are hampering progress on the ground. For example, changing government priorities and supply chain disruptions have weakened progress in recent years. During the COVID-19 period, some rural and peri-urban households and low- and middle-income countries returned to highly polluting traditional cooking methods during these times of heightened crises.^{8,9,10,11}

Furthermore, fuel stacking—where households use a mix of stoves and fuels to meet their cooking needs—is a common practice and illustrates the non-linear nature of the transition to clean cooking, especially in countries where traditional fuel use remains widespread. Fuel stacking can slow the transition to cleaner and more energy-efficient solutions, often perpetuated by a range of technological and societal factors. For instance, load shedding—scheduled power outages used to manage electricity demand—disrupts access in many countries, resulting in households turning to traditional sources as back-up. While, cultural preferences to cook specific meals using different appliances may also play a role. These challenges highlight the complex institutional, technological and societal dimensions of clean cooking transitions, emphasizing the need for interventions that address all these factors comprehensively.



Finally, from a climate and health standpoint, the inefficient combustion of dirty fuels is a leading cause of household air pollution, resulting in an estimated 3.2 million deaths in 2020, of which 237,000 were among children under age 5.¹² Relatedly, traditional use of biomass is also a major source of black carbon, which is a short-lived aerosol with a very high global warming potential, that could be avoided by delivering universal clean cooking access.¹³ Evidence shows that replacing wood- and charcoal-burning stoves with cleaner alternatives could prevent at least 463,000 deaths and \$66 billion in healthcare costs yearly in sub-Saharan Africa.¹⁴ The links between clean cooking and health, are also demonstrated through UNDP’s policy work on household and ambient air pollution. For instance, UNDP’s investment case to stop air pollution in Mongolia highlights four interventions that would save \$671 million by 2055. They include replacing coal-based cookstoves with electric or gas, modernizing traditional power plants, reducing open fires, and diminishing road transport pollution. In Mongolia, replacing coal-based cookstoves alone would save 21 lives and \$1.7 million each year.¹⁵ Similarly, in Nigeria, solid fuel use in traditional cookstoves may generate 120 million tonnes of carbon dioxide, incurring environmental, health and social burdens at a cost of some \$6.5 billion.¹⁶

Responding to these challenges, UNDP acts on the multiple socio-economic, institutional and cultural barriers that limit national, regional, and global progress in clean cooking access. UNDP brings its on-the-ground presence, expertise and integrated development solutions to tackling clean cooking challenges.^a

This approach aligns with UNDP’s priorities linked to gender equality, crisis response, social protection and health.¹⁷ Through integrated strategies, UNDP aims to dismantle multiple barriers and find sustainable solutions for clean cooking interventions while also advancing progress on multiple SDGs.

a Including, but not limited to, health, gender, climate, nature, governance, and inclusive growth.

Unpacking key terms

The Multi-Tier Framework for cooking categorizes access to cooking solutions across six attributes: 1) cooking exposure to harmful pollutants; 2) cookstove energy efficiency; 3) the convenience of acquiring and preparing fuel and using the stove; 4) safety; 5) affordability as a percentage of household income; and 6) availability. Scores range from Tier 0 (no access) to Tier 5 (full access).

Cooking poverty Using open fires and traditional inefficient stoves that burn wood, charcoal, coal, crop waste, dung, or kerosene for primary cooking needs (Tiers 0 to 2).

Transitional cooking Cooking primarily with improved cooking solutions such as energy-efficient biomass stoves (Tiers 2 and 3).

Clean cooking Cooking primarily with electricity, liquified petroleum gas (LPG), natural gas, biogas, alcohol, fuels, solar and low-emission biomass stoves that rank at Tier 3 or higher across all six attributes of the Multi-Tier Framework.

Modern cooking, or “Modern Energy Cooking Services” (MECS) Cooking primarily with fuels and technologies that fall at Tier 4 or higher across all six attributes of the Multi-Tier Framework.

Net-zero emissions cooking Cooking primarily with electricity from renewable sources, biogas, sustainably harvested alcohol fuels and bio-LPG at Tier 3 or higher across all six attributes of the Multi-Tier Framework.

Source: Adapted from UN-Energy. 2023. *A Global Roadmap for Just and Inclusive Clean Cooking Transition*.





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SPOTLIGHT 1
Gender and social inclusion

Women and girls pay a steep price due to lack of clean cooking

Social norms task women and girls with cooking and collecting firewood as part of unpaid care responsibilities. The risks are many. Firewood collection leaves women vulnerable to attacks and gender-based violence, for example. Time lost on fuel collection and cooking-related tasks is another concern. In sub-Saharan Africa, women and girls invest five hours a day on average in these activities.¹⁸ Globally, this time commitment adds up to an estimated \$800 billion in forfeited education or livelihood opportunities, mostly among women.¹⁹

Women and girls also lose chances for socializing, networking and engaging in leadership roles. Investments in clean cooking could improve women's health and economic empowerment. For example, in the informal food sector (e.g., "street food"), women with modern cooking solutions could increase the speed and safety of meal preparation, resulting in higher earnings. Clean cooking can also become an opportunity for women to join the clean energy value chain, earning incomes and shaping a sector that deeply affects them.



2. UNDP's approach and policy recommendations for advancing clean cooking access

2.1. Considerations on energy sources in the transition toward clean cooking

The energy transition exhibits significant variation across scales, geographies and socio-economic contexts, necessitating strategies that align with each country's unique landscape. Evidence already shows that a full transition to modern cooking solutions offers the highest levels of climate, health and development benefits. Modern fuels and technologies—including LPG, ethanol, biogas and electricity—classified by the **World Health Organization (WHO)** as clean cooking options, should be adopted, particularly in contexts that are conducive to scaled-up financing and community uptake.

Among the 128 updated NDCs submitted up until December 2024 by countries supported under the Climate-Promise, 100 percent include specific energy-related targets across renewable energy, energy efficiency and energy access. At the sub-sector level, 45 percent include specific clean cooking targets across different fuels and technologies, notably LPG (18 percent) and biogas (18 percent) and electric

cooking (10 percent)^b. To some extent, these trends indicate the current policy orientation towards non-electric fuels and technologies such as LPG and biogas among developing countries, and particularly for contexts where reliable electricity access is unavailable.

However, among the different fuel and technology options, promoting LPG should come with a clear recognition of its finite and non-renewable nature. Even though the use of LPG in the transition to cleaner cooking solutions remains appropriate for many developing countries, these efforts could be supported and complemented with policies and investments that also enable a shift towards renewable sources such as renewable-based electric cooking, bioethanol and biogas.

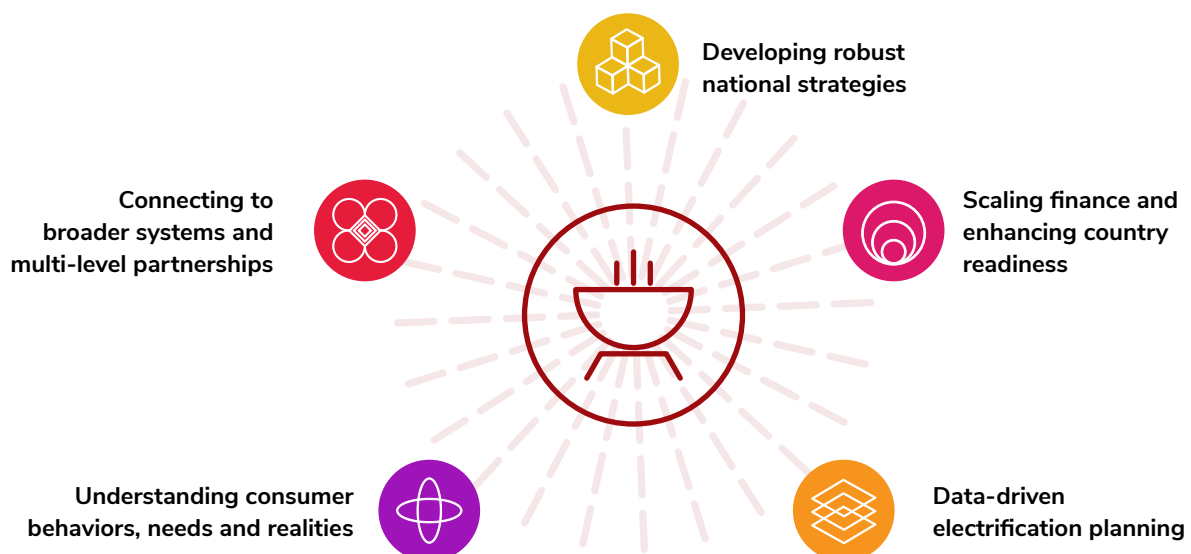
In contrast, certain improved biomass stoves may not meet the Tier 3 threshold requirement of the Multi-Tier Framework of cooking options (see “Unpacking key terms” on Page 10). Yet they remain important transitional technologies, including in situations of fragility and crisis, offering alternatives to open charcoal or wood-fuel burning, particularly in rural and remote communities.

Finally, acknowledging the complex interplay between clean cooking solutions and fossil fuel subsidies is critical. Subsidies could distort markets and hinder the introduction of alternative, renewable-based options for cooking. UNDP’s 2021 report, **Fossil Fuel Subsidy Reforms**, assesses the underlying causes of subsidies as a first step towards designing more equitable energy services for all communities, especially the poorest and most vulnerable.

2.2. Policy recommendations

Based on UNDP’s experience and support to clean cooking initiatives, five priority policy recommendations (Figure 1) to scale up access and use of clean cooking options are discussed below.

Figure 1. Policy recommendations for clean cooking integration



^b Does not sum to 45 percent due to some countries reporting multiple clean cooking targets. Targets for other modern fuels such as bioethanol were not included as part of the analysis.



2.2.1. Developing robust national strategies for clean cooking integration

Achieving a just and inclusive global transition to universal clean cooking access requires strong political commitment and leadership at the highest levels. National governments must incorporate cooking into their energy planning, climate action targets and economic development strategies, translating these into actionable near-term targets and implementation plans.

A critical step in this journey is the need to establish a **comprehensive national strategy for clean cooking** that includes strengthening policies that foster an enabling environment for clean cooking markets. For example, the UNDP-supported **Accelerated Clean Cooking Action** project in Kenya is addressing the systemic barriers to clean cooking through governance and policy support that fosters green recovery and creates new livelihood opportunities for women and youth. The project also supported three subnational governments to establish integrated energy plans that provide pathways to enhance sustainable clean cooking solutions and investment.

UNDP also links multiple stakeholders, e.g., across energy, climate, health and finance, to enable integrated energy, climate and development planning. These efforts support the **recognition of clean cooking as a strategic imperative aligned with NDCs and other national priorities and policies**. Projects are also emphasizing gender-responsive policies, strategies and investments to drive clean cooking access. For example, in Kazakhstan, in collaboration with the Ministry of National Economy, UNDP is supporting gender-responsive approaches to clean cooking. Activities include support to energy entrepreneurship for women in rural areas, and partnerships with financial actors to establish straw-based biomass briquette production for improved biomass cooking. The project is also assessing the export potential of the briquettes to neighbouring countries. Similarly, in Uganda, UNDP partnered with the Electricity Regulatory Authority (ERA) to electrify the Mulago National Referral Hospital kitchen and move the institution from cooking with biomass towards utilizing electricity. To incentivise the move, ERA approved a subsidized electricity tariff for the kitchen. The pilot's success has informed policy changes in Uganda, including reduced electricity tariffs to promote electric cooking and transition from charcoal-based cooking practices

To ensure sustained progress and long-term success, governments should appoint dedicated champions to advocate for clean cooking, institutionalize clear roles and responsibilities for achieving results, and secure adequate funding to support implementation efforts. Having a champion for clean cooking can be

effective approach, and this is already happening in several countries. In Kenya, where a Clean Cooking Delivery Unit is being established through the Clean Cooking Alliance, a team of experts embedded within the Office of the President, has been established to accelerate clean cooking access. While in South Africa, the separation of the electricity sub-portfolio from the Ministry of Mineral Resources and the establishment of a standalone Ministry of Electricity, has seen the country managing its longstanding power outages.





2.2.2. **Scaling finance and enhancing country readiness through the development of bankable and locally owned pipelines of clean cooking projects**

It is fundamental to bridge the affordability and investment gaps for clean cooking. Bridging this gap will require collaboration between governments, NGOs, the private sector and communities themselves. While clean cooking remains underfinanced, further advancement of innovative funding mechanisms, public-private partnerships and targeted subsidies can increase investment and adoption of clean cooking solutions.

UNDP supports the local commercialization of clean cooking value chains and cultivates a robust pipeline of clean cooking businesses and innovators, paving the way to attract private sector investment. This may include enabling access to risk-bearing capital – grants and technical assistance – to support small- and medium-sized enterprises, especially those that are female-led. **Through initiatives such as the [Platform for Investment Support and Technical Assistance \(PISTA\)](#), UNDP can contribute to enhancing clean cooking markets by developing bankable project pipelines and mobilizing scalable financing for renewable energy initiatives.** A key focus is to build a climate-aligned, low-carbon project pipeline that meets both the financial and developmental criteria set by a variety of stakeholders, including governments, development partners and financiers.

[Equally, UNDP works with countries to identify attractive investment opportunities for financiers, leveraging existing financing tools and frameworks such as \[Integrated National Financing Frameworks \\(INFFs\\)\]\(#\) and \[SDG Investor Maps\]\(#\).](#)

Partnerships with UN organizations, such as the United Nations Capital Development Fund (UNCDF), are pivotal in expediting access to finance mechanisms that help to de-risk the introduction of stove technologies and clean fuels. These mechanisms may include concessional loans, guarantees and blended finance solutions. Forging broader alliances with venture capital and impact investors as well as local financial institutions is also crucial. For example, the UNCDF-supported programme in Tanzania, “**CookFund**”, is providing financial and technical assistance to eligible enterprises and companies to accelerate market roll-out of clean cooking solutions (stoves and fuels) leading to improved social, economic and environmental conditions. UNDP is collaborating with UNCDF to expand the scope of this programme to Northern Tanzania by connecting access to clean cooking with biodiversity conservation and broader decarbonization efforts.



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UNDP also leverages high-integrity carbon market solutions related to readiness, Paris Agreement Article 6 support, and voluntary carbon markets to explore innovative uses of carbon credits to lower the costs of clean cooking solutions. Carbon markets can enable clean cooking companies to grow faster, drive down costs for consumers and facilitate expansion to new markets. As such, carbon markets represent one form of private climate finance that can be used as an enabler to the adoption of clean cooking options where clear climate benefits are linked. Where relevant, synergies with existing initiatives could be leveraged, for example, with the [Africa Carbon Markets Initiative](#), and other private and civil society initiatives that work on creating business models to reduce the cost to the end user, including through carbon credits.

UNDP's approach to clean cooking is aligned to the agency's **High-Integrity Carbon Markets Initiative**, which defines three guardrails that support high integrity: carbon elements, social and environmental safeguards, and enhancement of SDGs. Importantly, enhancing carbon accounting and transparency will be key to addressing issues of additionality, overestimated credits and double counting, which have been reported as challenges in some voluntary carbon market projects that support cookstoves. UNDP's High-Integrity Carbon Markets Initiative addresses these issues as follows:

- i. applying a concept of additionality that entails that the carbon credit represents GHG emissions reductions or carbon sequestration or removals that exceed any GHG reductions or removals required by law, regulation, or legally binding mandate, and that exceed any GHG reductions or removals that would otherwise occur in a conservative, business-as-usual scenario;
- ii. substantiating carbon accounting on conservativeness and completeness, and use of sound scientific methods that are consistent with the Intergovernmental Panel on Climate Change (IPCC) guidelines, and applying credible, updated baselines that reflect current conditions, robust MRV protocols, and discounting for uncertainty and leakage; and
- iii. by addressing non-permanence by compensation mechanisms, like mandatory buffer accounts.



Finally, regarding transparency and double counting, UNDP advocates for establishing carbon crediting programmes with provisions to ensure that:

- i. it does not issue carbon credits for GHG emission reductions or removals where another program has issued credits to the same mitigation activity and/or for the same GHG emission reductions or removals and has not cancelled those credits (double issuance);
- ii. the same emission reduction is not claimed by two or more entities (double claiming); and
- iii. a unique unit is not used twice (double use).

More broadly, there is an opportunity for countries to leverage REDD+^c financing to strengthen clean cooking initiatives. Where linkages have been established between initiatives that promote the reduction of GHG emissions and the use of clean cooking fuels, and where the use of wood and biomass is the common denominator, then climate finance (through REDD+ or performance-based finance – from public or private sources, market or non-market approaches) will be used to provide economic incentives and investments that help alleviate economic barriers

c As defined in the UNFCCC, REDD+ refers to policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.



to clean cooking. Since access to clean cooking is intricately linked to deforestation and forest degradation due to the widespread reliance on traditional biomass for cooking, then REDD+ offers a framework to provide financial incentives for reducing deforestation and forest degradation, which could also be directed towards scaling up clean cooking technologies.

For example, in Cambodia, UNDP was a partner in the World Bank's Forest Carbon Partnership Facility (FCPF) REDD+ readiness fund. The resources from this facility were aimed at preparing Cambodia for a full-scale operationalization of REDD+ activities at national level under the framework of the United Nations Framework Convention on Climate Change (UNFCCC). As a part of this, REDD+ pilot measures were to be tested to better inform the development of Cambodia's REDD+ National Strategy implementation plan. One of the tested measures was the use of biodigesters to produce energy at community level to address the unsustainable use of firewood, among others, as cooking fuel. Examples like this can be expanded and scaled up through additional climate finance aimed at implementing REDD+ National Strategies and NDC measures. **UNDP is assisting countries in accessing REDD+ finance through technical support, capacity building, or to deliver climate finance, while ensuring projects are aligned with international carbon standards and UNDP's high-integrity guardrails.**





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SPOTLIGHT 2
Carbon markets

Carbon markets offer an unprecedented opportunity to drive finance for clean cooking

Meeting the annual \$8 billion investment needed for clean cooking by the end of this decade requires a significant increase from the current \$2.5 billion that is spent annually today. This much-needed additional financing must come from a blend of concessional finance and a growing private sector, now better positioned to attract investment through equity and debt.

Within the debt financing portfolio, carbon markets present a significant potential for bridging the investment gap in the clean cooking sector. They can enhance climate action and advance the SDG agenda, especially in contexts where climate commitments are insufficient and funding for mitigation and adaptation is limited. As compliance and voluntary carbon markets expand, their growing geographic coverage and value make them increasingly attractive to investors, offering potential for impactful investments in developing countries. However, these opportunities require careful navigation due to the complexities and integrity concerns associated with carbon market transactions.

UNDP's High-Integrity Carbon Markets Initiative presents a structured approach to integrating carbon market investments into clean cooking initiatives, helping countries to strategically engage with carbon markets, ensuring that investments in clean cooking align with both global climate goals and local development priorities. By fostering these strategies, UNDP can play a pivotal role in catalysing the investments needed to achieve universal clean cooking access and significantly contribute to a net-zero energy transition.



2.2.3. Integrating clean cooking into data-driven electrification planning

Accelerating clean cooking will require a fundamental shift in focus from technology, procurement and distribution to a more integrated solution space and delivery model. This approach must prioritize job creation in energy value chains, sociocultural contexts, productive uses of clean cooking, and women as critical agents of change. One essential first step is to integrate clean cooking directly into national electrification planning through data-driven and participatory methods.

In the **Africa Minigrids Program** (AMP), electrification can be complemented with innovative appliance financing focused on electric cooking solutions, e.g., pressure cookers, induction stoves and electric stoves. In Eswatini, the AMP is already exploring how minigrids can contribute to productive uses of energy and energy-efficient appliances to improve revenue for minigrid projects. In **Zambia**, a policy roadmap on productive use in will seek to identify electrification opportunities in productive use market activities such as irrigation, refrigeration, and electric cooking, demonstrating the potential for electrification to support local development, particularly entrepreneurs and small and medium enterprises.

Partner initiatives such as the University of Loughborough's **MECS Cooking Support on Mini-Grids (COSMO) Challenge Fund** – that have tested the efficacy of electric cooking in minigrid contexts – are already showing positive results in Ghana, Haiti, Kenya, Nepal and the United Republic of Tanzania.²⁰ Integrating electric cooking in the initial planning of minigrid portfolios can achieve substantial enhancements to business viability. Higher demand from electric cooking can increase revenues, both for minigrid developers and utilities, while also reducing electricity tariff levels, minimizing high cost upgrades during peak load periods, shortening payback periods, and enhancing the investment proposition for electric cooking integration.





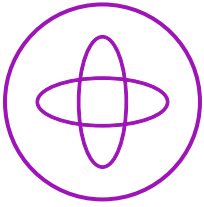
SPOTLIGHT 3
The case of Tanzania

Integrated net-zero, nature-positive solutions for electric cooking transition and biodiversity protection in Tanzania

A pivotal step towards achieving carbon neutrality and protecting biodiversity in Tanzania is addressing the primary reliance on fuelwood for cooking by 90 percent of households. Electric cooking presents a significant opportunity for forest conservation and advancement towards net-zero emissions. But market penetration remains minimal to date.

With UNDP support and US\$4.7 million in grant funding from the Global Environment Facility (GEF), the Integrated Net-Zero Nature-Positive national project is assisting the Government with energy solutions that curb deforestation and reduce fossil fuel dependency by overcoming major barriers such as inaccessibility, the high cost of electric cookstoves and electricity expenses. Project activities are expected to trigger a market transformation in which scaled supply chains and increased market awareness lead to sustained supply and demand for electric cooking devices.

Building on groundwork laid by the [UNCDF's CookFund project](#), which provided early-stage capital and business development support to distributors and sellers of clean cooking devices, the Integrated Net-Zero Nature-Positive project is broadening electric cooking market support to previously unserved regions. The project aims to provide consultative services to private-sector distributors, and supports digital metering, pay-as-you-go arrangements, performance-based payment systems, and links to carbon credits and special tariffs for electric cooking, in consultation with Up-Energy and TANESCO. The project targets 5,000 new household and enterprise users of digitally enabled electric cooking devices, including through target support to ensure affordability.



2.2.4. Understanding consumer behaviors, needs and realities

A multidimensional understanding of clean cooking applications and their multiplier effects for sustainable development can inform comprehensive, evidence-based approaches to developing interventions that respect social and cultural factors, integrate gender considerations, and are grounded in community realities. There is need to ensure that clean cooking data is fully integrated into national surveys, assisting national agencies in embedding clean cooking metrics that capture critical insights into public perceptions, affordability, fuel use, and environmental impacts. These metrics can also disaggregate data by age, gender and rural-urban distinctions, revealing diverse community needs and challenges.

For example, the **Global Multidimensional Poverty Index 2024**, developed by UNDP in collaboration with the Oxford Poverty and Human Development Initiative, demonstrates how reliance on solid cooking fuels is deeply intertwined with the various elements that shape poverty. This work highlights UNDP's commitment to leveraging national surveys to advance clean cooking progress worldwide, specifically targeting the most vulnerable regions. Periodical national surveys and reliable data are essential for driving effective clean cooking interventions, particularly in underserved regions where up-to-date information is scarce, and local nuances often remain underrepresented.

Through its extensive network of partners—including research institutions, governments, and civil society—UNDP can further support the harmonization of data collection and analysis methods, ensuring survey indicators are consistent across countries to enhance cross-country comparability. With robust national survey data, countries gain a powerful tool to track progress in clean cooking transitions and assess policy effectiveness. By quantifying impacts on critical goals like gender equality, health and environmental protection, this data underscores the tangible social, economic and environmental returns on investment, making a compelling case for innovative financing.

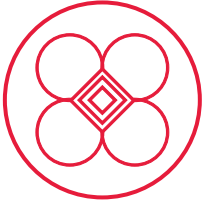
Innovative methods such as behavioural insights, community asset mapping and randomized control trials offer opportunities to develop and promote clean cooking solutions that are culturally appropriate and gender-sensitive, as well as effective in achieving widespread adoption and delivering broader development



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gains.^d The use of multiple approaches enhances UNDP's ability to capture different experiences, needs and preferences, including of women and men, towards steering the use of clean cooking fuels and technologies aligned with daily realities. Mappings can also identify community willingness to shift to modern cooking solutions and unpack intrahousehold dynamics that may constrain uptake, such as when the person who wants to shift to clean cooking lacks the power to make financial decisions. Local mapping is critical to informing context-specific policies and programmes that consider community needs and realities.

d Behavioural insights can unravel the motivations and barriers affecting clean cooking practices, and incorporate a gender lens to tailor interventions effectively. Community asset mapping leverages existing local strengths, ensuring that clean cooking initiatives are culturally appropriate and built on community resources, which is crucial for sustainability and acceptance. This method also illuminates community dynamics and roles in cooking decisions and identifies allies to promote clean cooking technologies. Randomized control trials offer a rigorous framework to test the efficacy of interventions, providing empirical evidence on strategies that successfully encourage the adoption of clean cooking solutions.



2.2.5. Connecting clean cooking with broader systems and multi-level partnerships

Dialogue and engagement with a diverse range of stakeholders is essential, spanning sectors such as energy, health, education, economy, information technology, industry, and trade.

UNDP collaborates extensively with a diverse array of stakeholders, including governmental bodies, private sector entities, and members of the United Nations Development System, to bolster national efforts toward achieving the SDGs. UNDP's comprehensive role in integrating SDGs at the national level, particularly its focus on SDG7 aimed at ensuring access to affordable, reliable, sustainable, and modern energy for all, uniquely positions it to champion clean cooking initiatives.

For example, under UNDP's **Climate Promise**, the *Pledge to Impact* programme has been instrumental in assisting countries in formulating or revising their NDCs to reflect more robust climate commitments. With a renewed focus, the work under UNDP's Climate Promise portfolio is now actively facilitating the implementation of these commitments, which supports clean cooking and the integration of gender and displacement considerations into climate actions.

As the momentum for updating NDCs and advancing the energy transition continues,^e UNDP remains committed to providing continuous support to governments. By collaborating with partners and leveraging insights from its global portfolio, UNDP aims to enhance the regional scalability of ongoing and future clean cooking initiatives, while also reinforcing the integration of gender equality and clean cooking solutions within broader climate action, energy and development frameworks.

^e Parties to the UNFCCC are expected to submit updated NDCs, NDC 3.0, in 2025.



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SPOTLIGHT 4 Data innovation

Data-driven solutions can drive access to modern cooking solutions

Further advancements in artificial intelligence (AI), geospatial data, the Internet of Things (IoT), and mobile technologies will increasingly offer critical opportunities to help make clean cooking not only affordable but accessible. As foundational data infrastructure becomes available, AI and analytics become increasingly effective at providing optimizations within the clean cooking value chain, ultimately making technologies more affordable and accessible and enabling new opportunities for finance. Digital platforms are increasingly proving their effectiveness in informing policy decisions and design to advance clean cooking goals.

Open-source geospatial data on fuel choices, preferences, and the willingness to pay for electricity are also critical to inform policy and programme design. For example, the [Energy Access Explorer](#) (deployed in Kenya) provides valuable insights for energy planners and entrepreneurs, identifying priority areas for intervention based on location-specific data. Open-source clean cooking geospatial models such as the OnStove Tool deployed in Nepal, integrate cost-benefit analysis to determine the most beneficial fuel-stove alternative for communities. The initiative is working to integrate AI into the OnStove tool to improve the spatial understanding of current cooking technologies and facilitate transitions to cleaner alternatives.

UNDP is committed to engaging and partnering with such platforms to facilitate replication in other countries and regions, providing policymakers with enhanced insights into critical demand and supply-side factors influencing market development and the potential to scale up modern solutions.



3. Future outlook: strengthening partnerships to champion clean cooking solutions

Clean cooking lies at the heart of UNDP's efforts to advance climate action and sustainable energy for development. As UNDP strengthens its commitment to clean cooking solutions, it is poised to drive transformative change on a global scale. The strategic priorities are clear. UNDP will champion evidence-based clean policies aligned with national aspirations, catalyze sustainable industry growth through innovative market mechanisms, and ensure that the design and deployment of clean cooking solutions is responsive to local realities and needs. In collaboration with partners across the UN system, civil society, and the public and private sectors, UNDP is dedicated to fostering a system-wide shift to accelerate access clean cooking, harnessing innovation, integrated expertise, and data-driven insights to empower communities and create lasting impact. [UNDP's Sustainable Energy Hub plays a pivotal role in this effort, serving as a global integrator to harness expertise, strengthen partnerships, and accelerate transformative action for universal clean cooking access.](#)

Please visit undp.org/energy and climatepromise.undp.org/what-we-do/areas-of-work/energy to learn more about our energy work under UNDP's Sustainable Energy Hub and Climate Promise.

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