

Energising Development Progress Report 2023



Partnership between

The German Federal Ministry for Economic Cooperation and Development (BMZ)

The Netherlands Ministry of Foreign Affairs, Directorate-General for International Cooperation (DGIS)

The Norwegian Agency for Development Cooperation (Norad)

The Swiss Agency for Development and Cooperation (DEZA)

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EnDev at a Glance

675 million people worldwide live without electricity and about 2.3 billion people lack access to clean cooking solutions. This has a dramatic impact on quality of life, environment, health, education, and income opportunities. EnDev's involvement focuses on providing access to needs-based, climate-friendly energy. This is a pivotal factor in strengthening socio-economic development and combatting climate change.

EnDev's drive is to improve the lives of the most vulnerable people, ensuring that no one is left behind. Economic opportunities and green jobs are created by building markets for modern, renewable energy. EnDev contributes to reduced greenhouse gas emissions to protect our planet's climate. Its approach is to empower structural, self-sustaining change, kickstarting market and sector development that evolves sustainably even after EnDev phases out.

EnDev's work is about people. Results are monitored and reported rigorously. EnDev's achievements in supporting people, schools, health centres, and companies to gain access to electricity or improved cooking technologies can be found in this report. This report also presents EnDev's impacts on gender, job creation, and reduced carbon dioxide emissions.

EnDev is a strategic partnership. Dedicated donors, partners and individuals work together to support social development and economic growth by providing access to modern, renewable energy in more than 20 countries around the globe. The driving force behind EnDev is the partnership of Germany, the Netherlands, Norway, and Switzerland: donors which are committed to accelerating energy access.



EnDev's Key Achievements

By December 2023

31.6 million

People with access to modern energy

7.4 million

People with access to electricity

24.2 million

People with access to modern cooking solutions

102,820

Micro, small and medium-sized enterprises with access to modern energy for productive use

2.91 million

Tons of CO₂e emissions mitigated per year

33,940

Social institutions with access to modern energy

1 Executive Summary

The Energising Development programme made significant strides in 2023 to empower millions with modern energy solutions, pioneer innovative approaches, and strengthen strategic partnerships, highlighting EnDev's commitment to inclusive and sustainable development.



Key trends

Energising Development (EnDev) continues to make significant progress towards achieving its targets by 2025. In 2023, EnDev provided modern energy solutions to a total of 2.9 million people, 2,390 *Social Institutions* (SIs), and 13,010 *Micro-, Small-, and Medium-sized Enterprises* (MSMEs). The figure of 2.9 million people reached is a record achievement in a single year. These efforts contributed to a cumulative total of 31.6 million people, 33,940 SIs, and 102,820 MSMEs reached by EnDev since 2005. Additionally, EnDev interventions resulted in the employment of 32,610 individuals and an emission mitigation of 2.91 million tons of CO₂ equivalents (CO₂e) in 2023.

Portfolio development

EnDev's *Multi-Annual Indicative Programming* (MAIP), approved in 2023, marked a significant milestone in the programme's strategic direction. While new *Leave No One Behind* (LNOB) interventions only began implementation in 2023, significant results can already be reported: 242,850 people from vulnerable groups were reached. The shift towards adopting *Higher-Tier Cooking* (HTC) solutions entails the promotion of cleaner and more efficient alternatives – such as electric cooking (eCooking) – bolstered by comprehensive awareness campaigns and innovative financing mechanisms. As a result of EnDev's increased focus on HTC, an additional 117,590 people now use HTC solutions to prepare their meals.

Financial situation

In 2023, EnDev secured additional funds of EUR 64.02 million, including core funding contributions from the *German Federal Ministry for Economic Cooperation and*

Development (BMZ) and the *Netherlands Directorate-General for International Cooperation* (DGIS), the Norwegian development agency Norad, as well as earmarked funds from several other donors. EnDev's total available funds now equal EUR 579.42 million, of which EUR 548.70 million are allocated.

Partnerships and innovation

Through its strategic focus on HTC and LNOB, EnDev leveraged long-standing partnerships and established new ones. Regarding HTC, EnDev became a founding member of the *Global eCooking Coalition* (GeCCo), through which implementation efforts on the topic of eCooking are closely aligned with high-level political priorities at both national and international levels. Meanwhile, with regard to LNOB, EnDev's *Demand-Side Subsidy* (DSS) Component made strides in its four pilot countries, promoting access to energy for low-income populations and collaborating with the World Bank and the *End-User Subsidy Lab* to scale-up successful approaches.

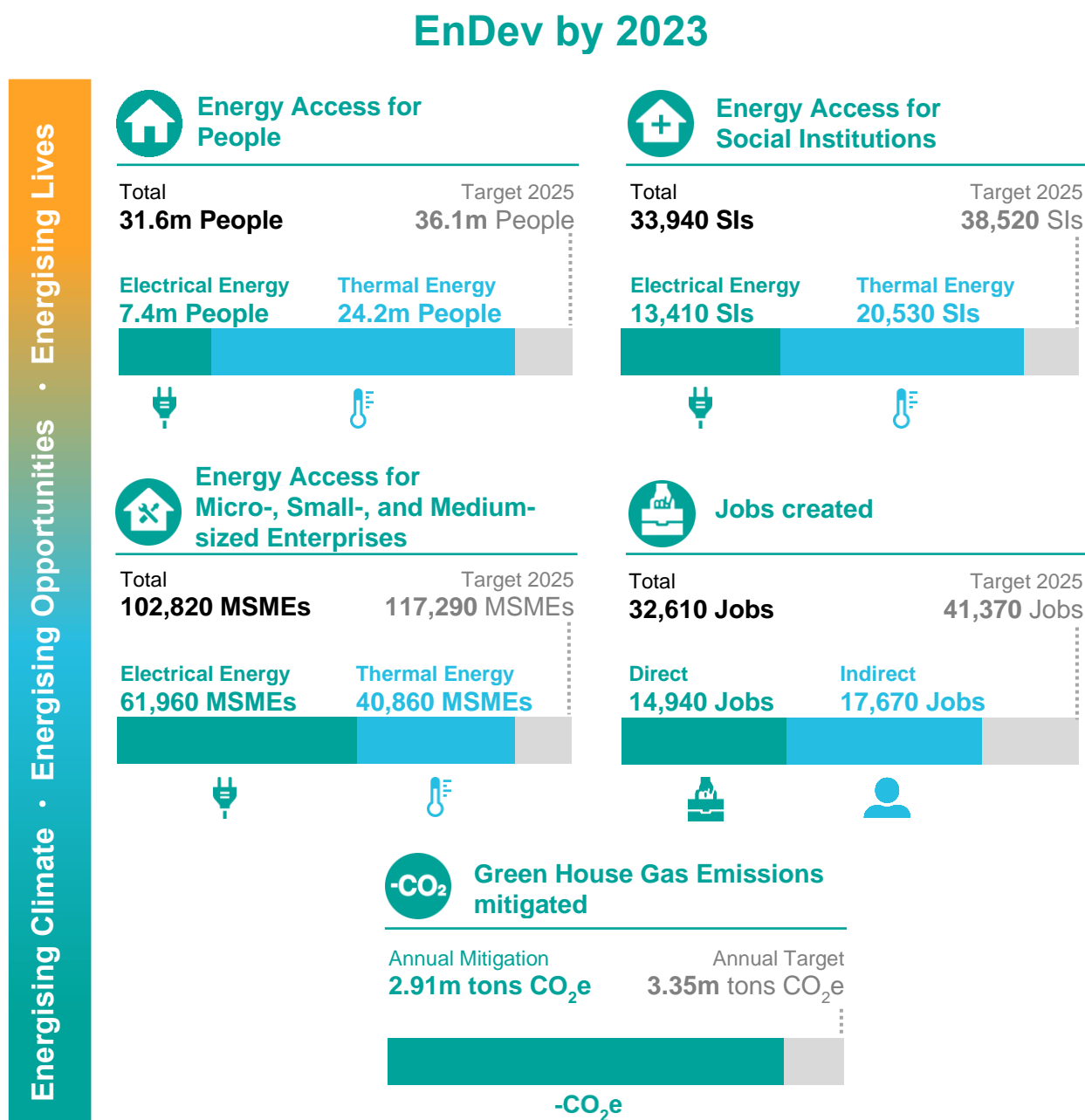
EnDev remained steadfast in its dedication to innovation and knowledge advancement through its Learning and Innovation Agenda, where the topics of digitalisation and access to finance took centre stage in 2023. Additionally, considerable attention was directed towards voluntary carbon markets and their potential impacts for the climate targets of partner countries.

In conclusion, EnDev's significant progress in 2023 towards its 2025 targets, coupled with important milestones in portfolio development, financial sustainability, and strategic partnerships, underscored its pivotal role in driving positive change for global energy access and sustainability efforts.

2 Progress of Outcomes and Impacts

Onwards and Upwards: EnDev reached a record number of households in 2023 and the programme is nearing the 2025-targets across all three impact areas: Energising Lives, Energising Opportunities, and Energising Climate.

Figure 2-1 Dashboard



2.1 Energising Lives: Social development

EnDev's focus on social development aims to reduce poverty and enhance health conditions through sustainable access to modern energy services for households and SIs.

Access to energy

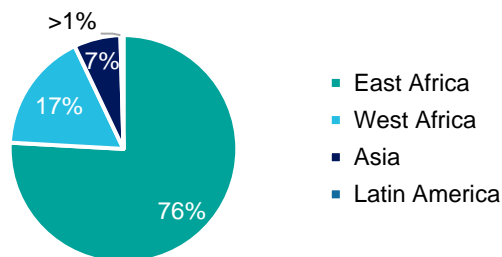


In 2023, EnDev reached 2.9 million people (1.5 million women and girls). This achievement in a single year marks the highest level of annual results to date. Cumulatively, EnDev reached 31.6 million people (15.8 million women and girls) with access to modern energy products and services. It is expected that EnDev will achieve its indicative target of reaching 36.1 million people set in the MAIP by 2025 (see dashboard on previous page).

The geographic emphasis of the programme continues to shift towards sub-Saharan Africa: 73% of the 31.6 million people reached since 2005 live in sub-Saharan Africa (see Figure 2-2).

EnDev's current focus on Africa is even more visible in the figures for 2023: In 2023 alone, 93% of the people reached, 2.7 million, were located in sub-Saharan Africa (see Figure 2-3).

Figure 2-3 People reached by region in 2023

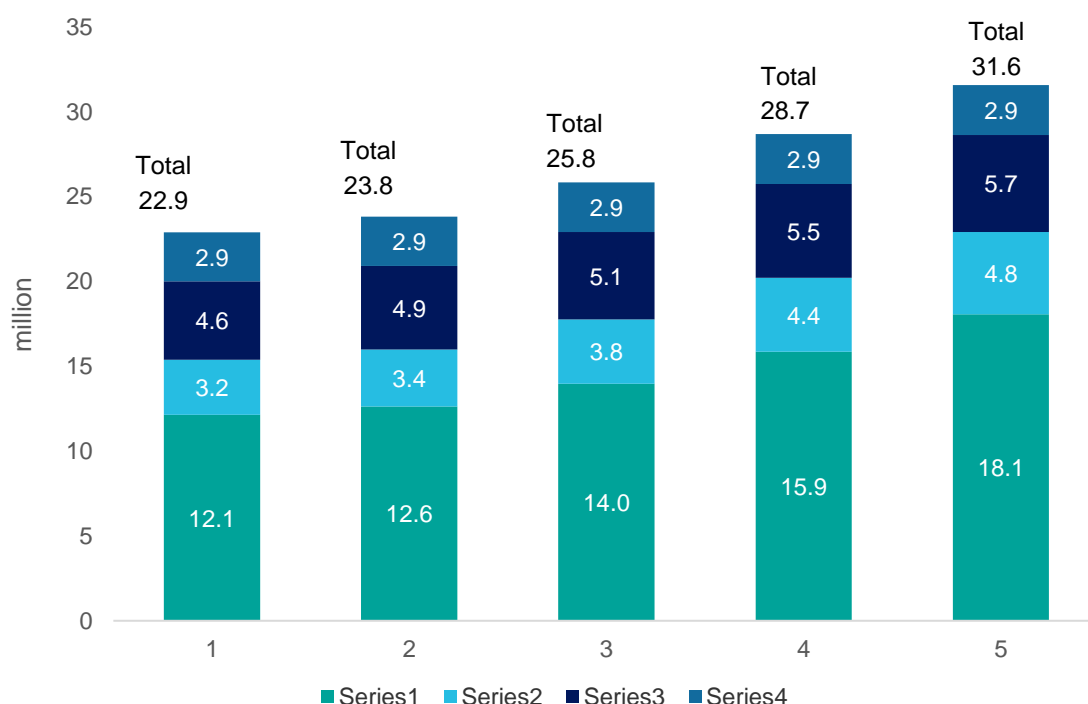


Total: 2.9 million people

At household-level, 76% of EnDev's cumulative results are derived from achieving access to thermal energy (clean cooking), with the remaining 24% are derived from access to electricity. In 2023, 90% are attributed to access to clean cooking and the remaining 10% stem from access to electricity.

Examining the relationship between achievements made in 2023 and expenditures of the programme, it is apparent that annual expenditures decreased from EUR 40 million in 2022 to EUR 35 million in 2023 (Table 4-4), while the number of people reached increased (2022: 2.8 million people, 2023 2.9 million people).

Figure 2-2 People reached



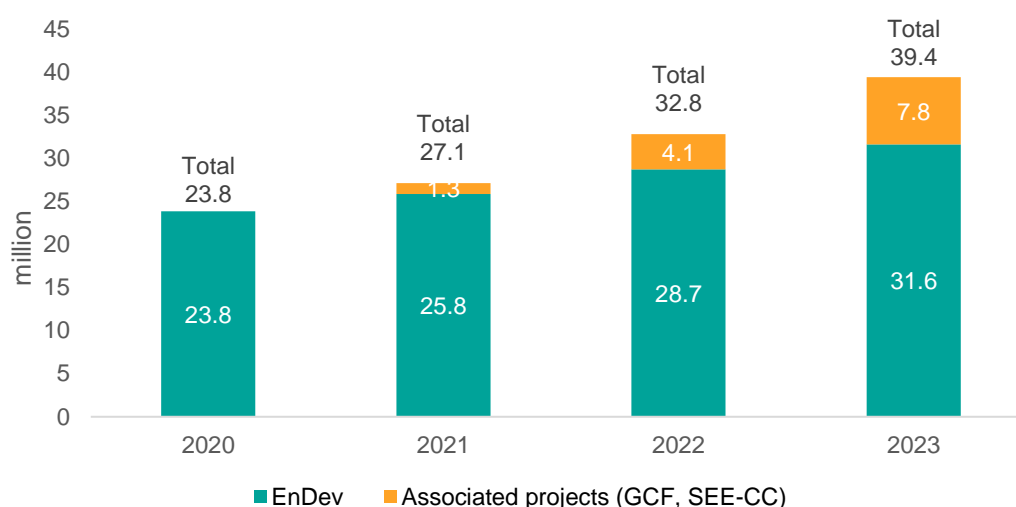
This suggests that EnDev's operations are increasingly cost-efficient. This is also visible in the trend of cost per person per year since 2021, see Box on Value for Money on page 15.

In addition to the results of the main EnDev programme, projects associated to the EnDev programme¹ also contribute results to the partnership's overall targets:

- The associated project *Promotion of climate-friendly cooking: Kenya and Senegal* funded by BMZ and the *Green Climate Fund* (GCF) implemented by GIZ achieved significant results with its market transformation approach for the improved cookstove market. In total, the project targets up to 11.2 million people. By end of 2023, the project reached a total 7.8 million people (51% women) with access to improved cooking technologies.

- The associated project *Strengthening the Entrepreneurial Ecosystem for Clean Cooking* (SEE-CC) funded by DGIS, the European Union (EU) and DANIDA and implemented by RVO has also made significant headway. The project is implemented along two main components: *African Biodigester Component* (ABC) and the *Higher-Tier Cooking Component* (HTCC). With activities in Burkina Faso, Kenya, Mali, Niger, and Uganda, ABC aims to reach 250,000 people by 2025. By the end of 2023, 8,740 people (48% women) were reached. HTCC aims to reach 600,000 people by 2025 in Bangladesh, Cambodia, Ethiopia, and Uganda. By the end of 2023, 2,510 stoves sales were reported, equivalent to approximately 12,540 people. Altogether, SEE-CC had enabled access to HTC of 21,280 people by December 2023.

Figure 2-4 People reached incl. associated projects



¹ Associated projects adhere to the EnDev Strategy 2019-2025 stipulating the objectives, key features, and approach of the EnDev programme.

Quality of access levels of electricity and clean cooking

Acknowledging that energy access is a spectrum of service levels experienced by households, businesses, and institutions, EnDev differentiates the quality of energy access using the *Multi-Tier Framework* (MTF). The MTF was developed by the World Bank’s *Energy Sector Management Assistance Program* (ESMAP), in

consultation with EnDev and other international partners under the *Sustainable Energy for All* (SEforALL) initiative. EnDev categorises its results on thermal and electrical energy in line with the MTF.



For electricity access, EnDev results can be differentiated by tier level according to the MTF for measuring access to electricity as follows:

Table 2-1 Number of people reached with electricity access by tier level

Access level	Number of people reached in total	Number of people reached in 2023	Growth in 2023	Example appliances, systems, and technologies
Tier 5	894,380	28,860	+3.3%	Grid, mini-grid, customized photovoltaic (PV)-Systems (≥ 2kW capacity)
Tier 4	872,170	570	+0.1%	Limited grid, mini-grid, customized PV-Systems (≥ 800W capacity)
Tier 3	258,180	2,250	+ 0.9%	Mini-grid, customized PV-Systems (≥ 200W capacity)
Tier 2	1,797,430	15,425	+ 0.9%	Customized / preconfigured PV-systems (≥ 50W capacity)
Tier 1	2,720,680	248,050	+ 10.0%	Preconfigured PV-Systems (≥ 3W capacity)



Similarly, EnDev classifies cooking solutions according to service levels taking MTF as orientation and considering additional criteria reflecting

the actual cooking situation on country level. EnDev’s target achievement in clean cooking can be summarised as follows:

Table 2-2 Number of people reached with clean cooking by tier level

Access level	Number of people reached in total	Number of people reached in 2023	Growth in 2023	Exemplary service level ²
Tier 5	145,200	83,630	+136%	Cooking with electricity and/or biogas and respective stoves
Tier 4	454,430	13,490	+3%	Cooking with ethanol cookers, pellet gasifier and/or advanced biomass stoves
Tier 3	162,720	20,470	+14%	Range of high performing solid biomass stoves
Tier 2	9,724,070	892,660	+10%	Range of medium performing solid biomass stoves
Tier 1 ³	9,467,400	1,595,130	+20%	Basic improved solid biomass stoves (with traditional cooking technologies and fuels)

² In practice, people often use a combination of cooking solutions in parallel to meet their cooking energy needs – this phenomenon is referred to as “stove stacking” in the international debate. The technology and fuel information provided in the table stands exemplary for the respective service level.

³ All cooking solutions promoted under EnDev must pass the eligibility criteria of either min. 20% thermal efficiency or min. 30% fuel saving compared to the baseline cooking solution.

Social Institutions



EnDev enhances access to energy not only for households, but also for SI, like schools and health centres.

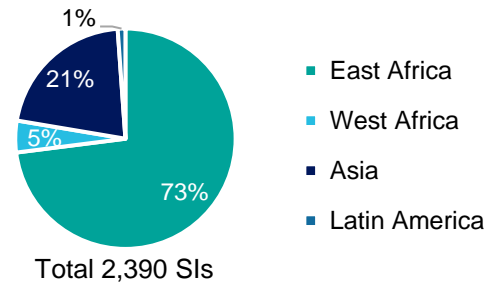
In 2023, 2,390 additional SIs received access to modern energy services through EnDev. Cumulatively, EnDev reached 33,940 SIs since 2005, thereby achieving 88% of its indicative target set in the MAIP of 38,520 SIs reached by 2025. Assuming the current trend is maintained, EnDev will achieve this target in time.

Since 2005, the largest contribution to the SI target achievement was in Latin America with 53% of the results. However, the share of results from sub-Saharan Africa grows and now reaches 35% (2022: 32%), see Figure 2-5. EnDev's increased focus on Africa is also visible in the distribution of the additional SIs reached in 2023. In 2023 alone, 78% of the SIs reached were in Africa, see Figure 2-6.

In 2023, the majority of SIs gained access to electrical energy, accounting for 57% of the SIs reached, thus highlighting the pivotal role of electrification in EnDev's ongoing activities.

The share of electrical energy of SIs reached since 2005 is 40%, with the remaining 60% comprised of thermal energy.

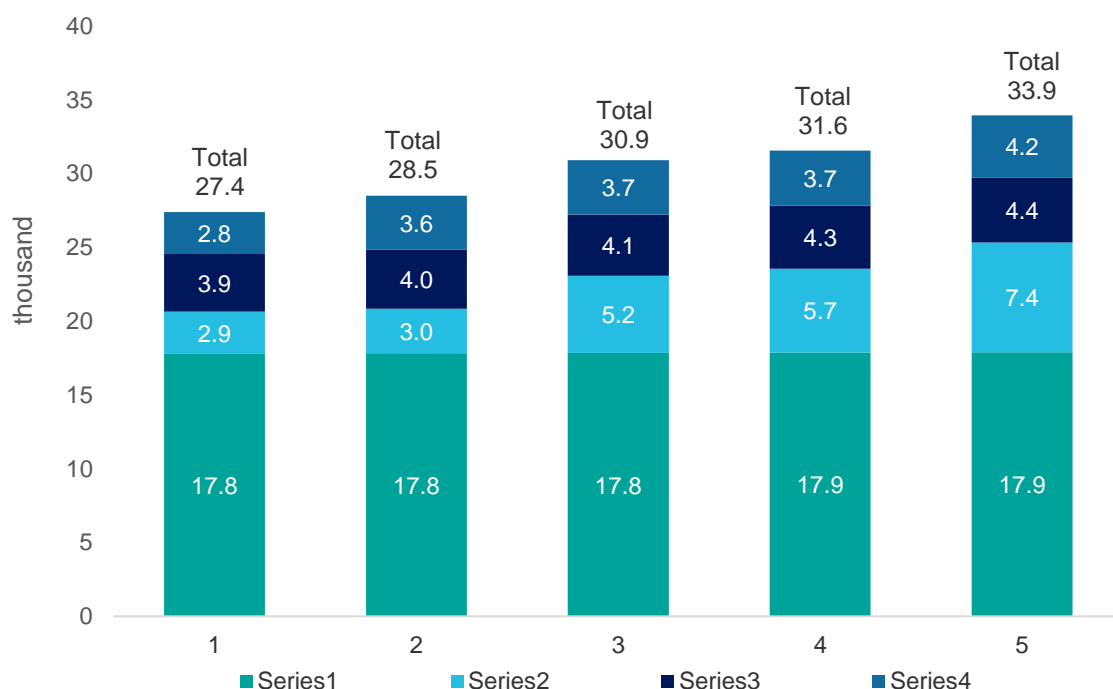
Figure 2-6 SIs reached by region in 2023



Of the 33,940 SIs reached since 2005, 67% are **health centres** (2,390) and **educational institutions** (20,310). Besides health centres and schools, EnDev enables access to energy for a multitude of other types of SIs, such as community centres.

EnDev's *Energising Health* activities significantly contributed to the results of 2023. EnDev surpassed its *Energising Health* target in 2023 by installing solar-powered, WHO-certified vaccine refrigerators and

Figure 2-5 SIs reached



solar power supply systems in 150 rural health facilities across Ethiopia, Liberia, Malawi, and Senegal. This initiative not only streamlines the distribution of vaccines – including those for Tuberculosis, Hepatitis, Yellow fever, and Covid-19 – but also markedly improves healthcare accessibility in remote areas. The versatile capacities created by these installations extend beyond vaccine storage, offering the potential to cool various medical products, and thereby further enhancing healthcare services. Additionally, EnDev’s provision of solar home systems to health centres for lighting, communication, and medical device charging represents a significant step forward. This complementary measure benefits both patients and on-site medical staff, ultimately strengthening healthcare delivery in remote regions.

EnDev’s pursuit of social development through enhanced energy access for households and SIs is marked by significant achievements and a steadfast commitment to inclusivity. With a focus on improving livelihoods and health outcomes, EnDev has reached millions of people, particularly in sub-Saharan Africa, with access to clean cooking and electricity. EnDev ensures quality energy access across various tiers, while its initiatives in SIs, such as schools and health centres, demonstrate a holistic approach to community empowerment and well-being. Through initiatives like *Energising Health*, EnDev not only improves healthcare accessibility but also fosters resilience and innovation in remote areas, underscoring its pivotal role in driving sustainable social development.



Ethiopia

Lalise Shiferaw, a dedicated nurse in Leenca, a village 60km northeast of Ethiopia's capital, works tirelessly at the local health centre where over 150 births occur annually. With support from EnDev with co-financing from the EU, a Solar Standalone System now powers essential lighting and refrigeration, ensuring vaccines are stored at a temperature of as low as 5°C. As a testament to its success, Leenca's Health Centre achieves vaccination rates of 95-100% of the recommended number of vaccinations for newborns and smaller children, illuminating a path towards a brighter, healthier future for mothers and newborns enabled by sustainable energy.

2.2 Energising Opportunities: Economic development

EnDev’s focus on economic development is geared towards bolstering rural economic vitality by encouraging the productive utilisation of energy and fostering job creation. To enhance income opportunities for MSMEs, EnDev concentrates its interventions on promoting access to and the productive use of climate-friendly energy. EnDev’s support to vital sectors in rural areas – including agriculture, craftsmanship, and services – improves productivity, heightens local processing and manufacturing activities, and facilitates the introduction of innovative services. This ripple effect not only drives prosperity but also establishes significant benchmarks for sustainable green growth.

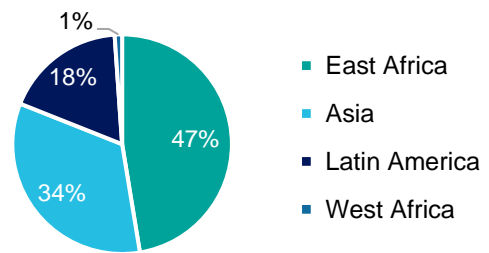
Micro, small and medium-sized enterprises

In 2023, EnDev provided energy access to an additional 13,010 MSMEs, bringing the total of number of MSMEs reached since 2005 to 102,820. This represents an 88% achievement of the indicative target set in the MAIP of 117,290 MSMEs reached by 2025.

35% of the MSMEs reached since 2005 were in East and West Africa. In 2023, these

regions accounted for 49% of the MSMEs reached, underscoring the programme’s focus on sub-Saharan Africa (see Figure 2-7 and Figure 2-8).

Figure 2-8 MSMEs reached by region in 2023

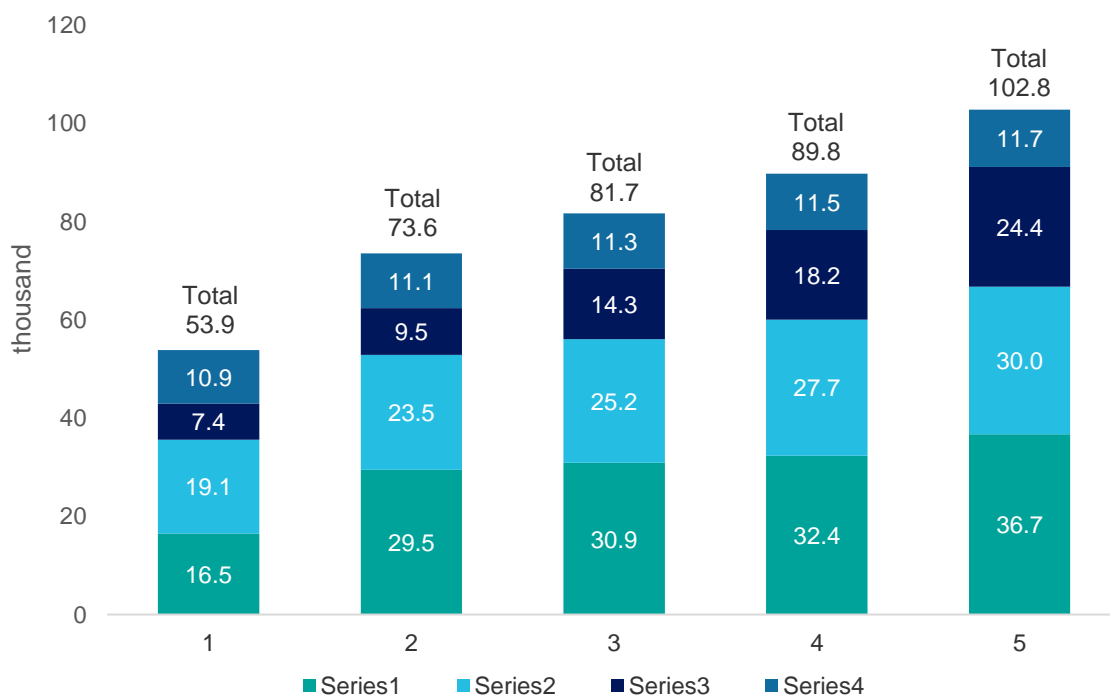


Total: 13,010 MSMEs

About half of the companies supported in 2023 offer accommodation and food services, while slightly more than a third are active in agriculture, forestry, and fishing. Wholesale and retail trade, local manufacturing and other service activities make up most of the remaining supported economic activities.

The proportion of the additional MSMEs accessing electricity versus clean cooking was nearly balanced (49% and 51%).

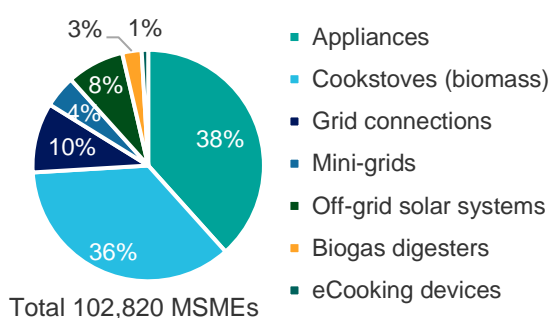
Figure 2-7 MSMEs reached



Since 2005, 60% of the supported MSMEs improved their access to electricity and electric devices, while 40% gained access to clean cooking.

In terms of all supported technologies, in 2023 nearly half of the MSMEs purchased solar water pumping equipment for agricultural purposes with EnDev support. Highlighting the newest trends, electric pressure cookers (eCooking) made their first appearance in MSMEs and their productive use, with notable uptake in Kenya and Nepal in particular. The market for other electrical machines and tools also continued to grow, bringing the share of companies benefitting from electrical energy appliances and systems to an overall share of 38% since 2005, see Figure 2-9.

Figure 2-9 MSMEs reached by technology since 2005



In 2023, the supported MSMEs used the electrical access technologies and appliances mainly for irrigation, lighting, diverse small appliances, and other agricultural uses like, cooling/freezing, milling, grinding, threshing, and sorting.

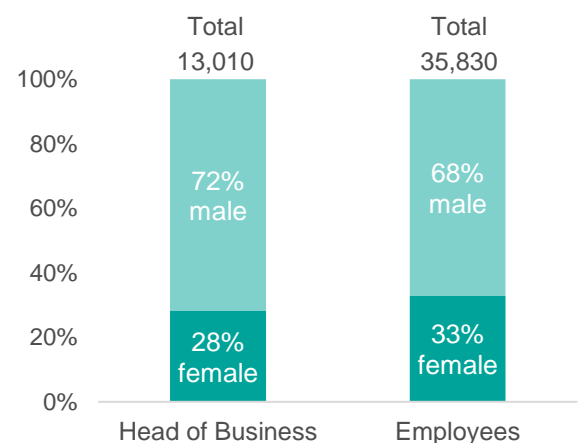
The countries leading in target achievement for productive use of electricity in 2023 are Kenya and Bolivia, followed by Malawi, Uganda, and Nepal. In Kenya, the large number of results reflect several successful Results-Based Financing (RBF) interventions as well as innovation pilots, resulting in significant sales of irrigation pumps

and electric pressure cookers as well as solar systems sold to businesses for lighting, and information services (TVs, radios, computers), and egg incubators.

The countries with the strongest cooking energy results in terms of productive use of energy are Bangladesh, Kenya, Laos, and Ethiopia. In Bangladesh, a successful effort to support tea-stall owners with improved biomass stoves continued with remarkable results. Kenya and Ethiopia also have long-standing institutional stove programmes for restaurants and bakeries that continue to make impressive gains, e.g., 500 companies were reached with improved biomass stoves in Kenya alone. Laos is notable for its HTC efforts as part of the Smoke-Free Village concept. In Bolivia, the intervention centred on supporting farmers organised in agricultural cooperatives, with a focus on female entrepreneurs using renewable energy for e.g., milling, threshing, grinding, and drying.

The overall focus of productive use interventions and achievements on agricultural value chains and food production is also reflected in fostering female entrepreneurship and employment. 28% of MSMEs supported in 2023 are led by women. Similarly, 33% of the employees in the supported MSMEs are women, see Figure 2-10. Of all MSMEs supported since 2005, 20% are female-led and 35% of the employees are women.

Figure 2-10 Gender distribution in MSMEs in 2023



Employment effects



Besides enhanced economic opportunities through the promotion of productive use activities, EnDev also focuses on improving job opportunities in clean energy supply chains. Job creation in the energy sector directly contributes to economic growth and local development, while improved energy access is a foundation for improved livelihoods and economic growth more broadly.

EnDev measures only the jobs created in the manufacturing and distribution of improved cookstoves and in the deployment of renewable energy infrastructure and appliances (e.g., solar energy companies, mini-grid operators). For stoves, employment effects are only counted for domestically produced stoves. The figures do not include jobs created from the income-generating use of cookstoves (e.g., street food sellers, newly established eateries, etc.), which are counted as productive uses of energy.

As a result of EnDev activities in 2023, a total of 32,610 people were employed compared to 33,520 in 2022. In relation to the target of 41,370 jobs created annually, this equates to a target achievement of 79%.

In 2023, 7,990 people were employed in the production, distribution, and sale of cooking energy technologies. In the electricity access sector, 910 people gained employment as solar product distributors and another 6,040 people found employment in technical and administrative operation of EnDev-

supported mini-grids.⁴ Within MSMEs that gained access to energy, it is estimated that 17,670 part-time jobs were created as an indirect result of EnDev support, see Table 2-3.

The slight decrease in the number of annual jobs created (2022: 33,520) can mainly be attributed to recent developments in the cookstove sector. The reduction in job creation is a consequence of improvements in production processes - semi-industrial production requires less personnel – and economies of scale in distribution networks. EnDev supported enterprises to streamline operations, optimised resource utilisation, and reduce manufacturing time. The reduction in labour hours aligns with the programme's goal of improving efficiency, allowing for greater impact and sustainability in the long run.

EnDev's endeavours in economic development, particularly in bolstering MSMEs and employment effects, underscore its commitment to fostering sustainable growth and prosperity in rural communities. The programme's focus on productive energy use has led to tangible results, with significant achievements in job creation and empowerment, particularly for women entrepreneurs. As EnDev continues to innovate and streamline its operations, it remains dedicated to maximizing efficiency and impact, laying a solid foundation for long-term economic resilience and development.

Table 2-3 Employment effects – People in EnDev-induced jobs in 2023

	Direct Jobs			Indirect Jobs
	Production and Assembly	Distribution and Sales	Operations and Maintenance	MSME application of technologies
Cooking energy	6,730	1,260		
Solar lights		910		17,670
Mini-grids			6,040	
Total	32,610 people in jobs			

⁴ Temporary jobs that exist during mini-grid construction are not considered.

Boosting clean energy business growth: Energy Enterprise Coach delivers support across 10 nations

In 2023, EnDev's *Energy Enterprise Coach* (EEC) achieved a significant milestone. The EEC provides business development support for EnDev and SEE-CC across 10 countries. In 2023, successful launches took place in Kenya, Uganda, Malawi, Mali, Benin, and Cambodia.

The EEC caters to companies focusing on clean cooking and electrification through eLearning, cohort training, and mentorship to support a diverse range of local EnDev businesses, from small and medium-sized to larger enterprises. The offer was well received, with 80 companies supported in cohort trainings and mentoring. In Uganda and Kenya, the second round of mentoring has commenced with 22 companies that 'graduated' from the cohort trainings. The EEC support enabled the companies to professionalise and eventually gain access to finance.

While the EEC gained traction, EnDev also started the preparation of a Global

Instrument on access to finance: The *Energy Access SME Finance Facilitator*, will mobilise (working capital) loans to make small businesses grow, become more bankable, and tap into financial resources previously out of reach, thus contributing to bringing markets to scale. This Global Instrument is complementary to the EEC and is expected to generate more economic activities and jobs, directly related to energy access.



The Finance Masterclass organised by EnDev, CCA and GET.invest (2022) was one of the first deliverables of the Energy Enterprise Coach ©RVO

2.3 Energising Climate: Combating climate change



EnDev's third impact area aims to combat climate change and its effects by mitigating greenhouse gas emissions through more efficient and cleaner cooking solutions and renewable energy-based electrification solutions. Climate impacts build upon EnDev's primary focus of providing sustainable energy access.

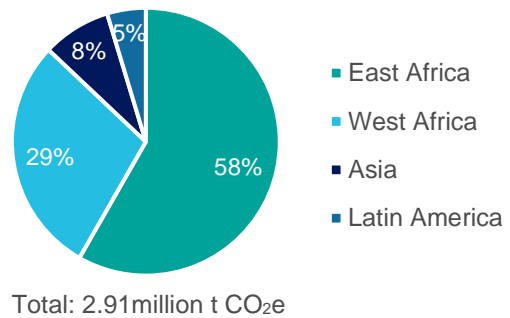
The annual emission mitigation achieved by EnDev shows a continuous positive trend. In 2023, 2.91 million tons of CO₂e were mitigated, exceeding the 2.75 million tons mitigated in 2022. Compared to the annual target of 3.35 million tons of CO₂e mitigated, this represents a target achievement of 87%. The cumulative CO₂e mitigation of EnDev since 2005 amounts to 25.13 million tons of CO₂e (see Figure 2-11). It is expected that the annual CO₂e mitigation will continue to further increase in the coming years.

In 2023, 1.3 million additional systems distributed in the scope of EnDev prompted the increase of mitigated CO₂e from 2.75 to 2.91 million tons CO₂e. 85% of the additional systems were cooking technologies, while the remaining 15% consisted of

renewable energy systems with different electrical capacities.

The majority (87%) of energy products sold in 2023 that contributed to CO₂e emissions mitigation can be attributed to sub-Saharan Africa, see Figure 2-12.

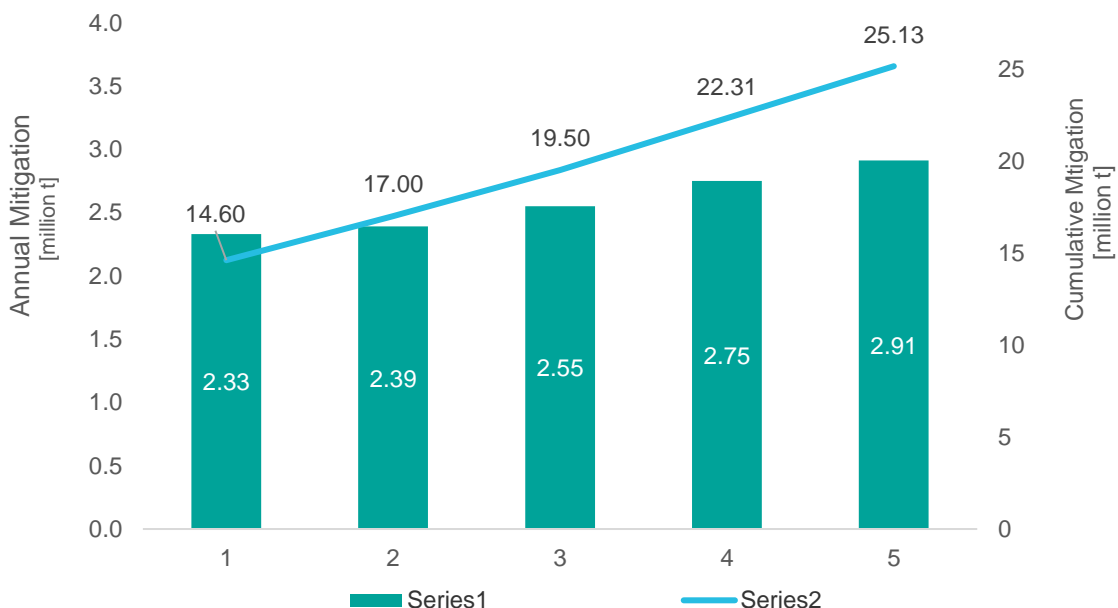
Figure 2-12 CO₂e mitigation by region in 2023



In addition to the 1.3 million systems supplied by EnDev in 2023, an additional 0.6 million systems were supported via carbon credit funding such as *Gold Standard*. These are not included into EnDev's emission mitigation calculation.

In its commitment to combat climate change, EnDev continuously explores additional avenues beyond its existing

Figure 2-11 CO₂e mitigation



interventions. Voluntary carbon markets play a role in the **mitigation of climate change** by providing a platform for individuals, organisations, and companies to voluntarily offset part of their greenhouse gas emissions. Considering the dual benefits of energy access and reducing emissions, in 2023 EnDev began preparations for a more structured approach towards carbon markets for scaling energy access interventions, whilst safeguarding the environmental integrity of such approaches. EnDev has benefitted from interfaces to the voluntary carbon market projects of some of EnDev's implementing partners. This helped to leveraging private funding against the backdrop of increased interest from partner countries and local companies alike. Tapping such additional revenue streams helps local producers and distributors of energy technologies to bring down retail costs for end-consumers and/or generate finance for expanding their businesses.

Looking at **climate change adaptation**, the conceptual link between energy access and strengthening the resilience of local communities is often overlooked in public discourse. This may partly be attributed to the methodological challenges of quantifying the positive impacts of adaptation measures.

Given the increasing relevance of climate change adaptation for EnDev's partner countries, EnDev has started to explore the linkages between energy access and adaptation within the EnDev portfolio. EnDev adaptation impacts will be assessed using selected EnDev interventions and energy access use cases. Potential additional measures and partnerships that can further increase these impacts will be explored.

EnDev's commitment to combating climate change through emissions mitigation remains steadfast, with significant achievements reflected in the positive trend of annual CO₂e mitigation. As EnDev explores additional avenues, including voluntary carbon markets, it continues to pioneer innovative approaches towards scaling energy access interventions while addressing the challenges of climate change adaptation in partner countries.

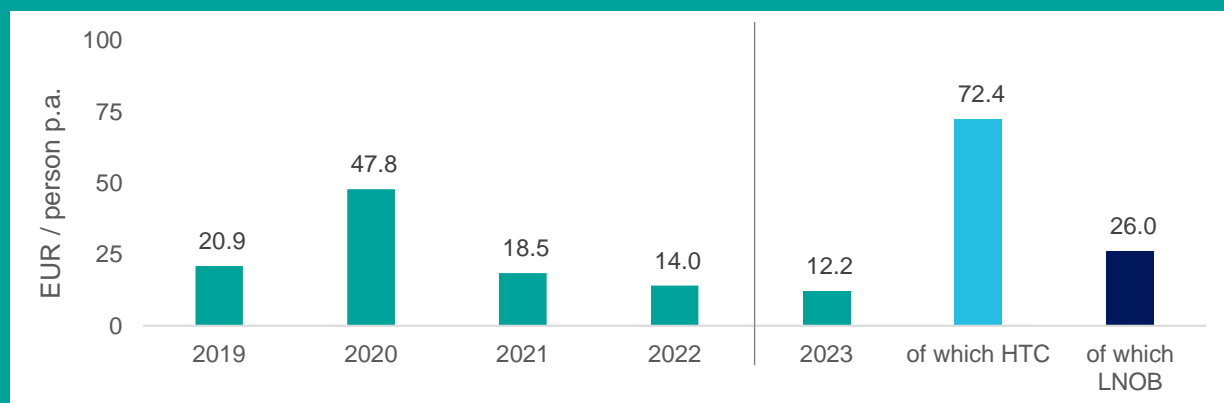
Value for Money

The average costs for EnDev of providing access to modern energy have shown a consistent and significant downward trend, indicating a marked increase in cost-efficiency per person. The cost-efficiency presented is based on annual expenditures and outcomes. As described in previous Progress Reports, the peak in 2020 can be attributed to the impacts of the Covid-19 pandemic and EnDev's interventions on economic recovery in its partner countries. Now, initial indicative cost-efficiency figures for the two strategic focus areas HTC and LNOB, based on the first months of implementing the MAIP, have been analysed. As

anticipated in the planning phase, costs per person to achieve higher-tier access in cooking solutions and reaching vulnerable groups are notably higher compared to average costs per person.

The level of cost-efficiency transparency that EnDev adheres to is unprecedented amongst internal cooperation programmes. It is therefore not possible to benchmark against other programmes, but it is safe to say that the steady improvement in efficiency is putting EnDev at the forefront internationally.

Figure 2-13 Value for money as of 2023



3 Progress in Portfolio Development

In 2023, EnDev's portfolio development demonstrated a strong commitment to the Leave No One Behind agenda and Higher-Tier Cooking, and achieved significant progress. Partnerships have once again been fortified and evaluations are driving continuous learning and innovation.

3.1 Update on the Multi-Annual Indicative Programming

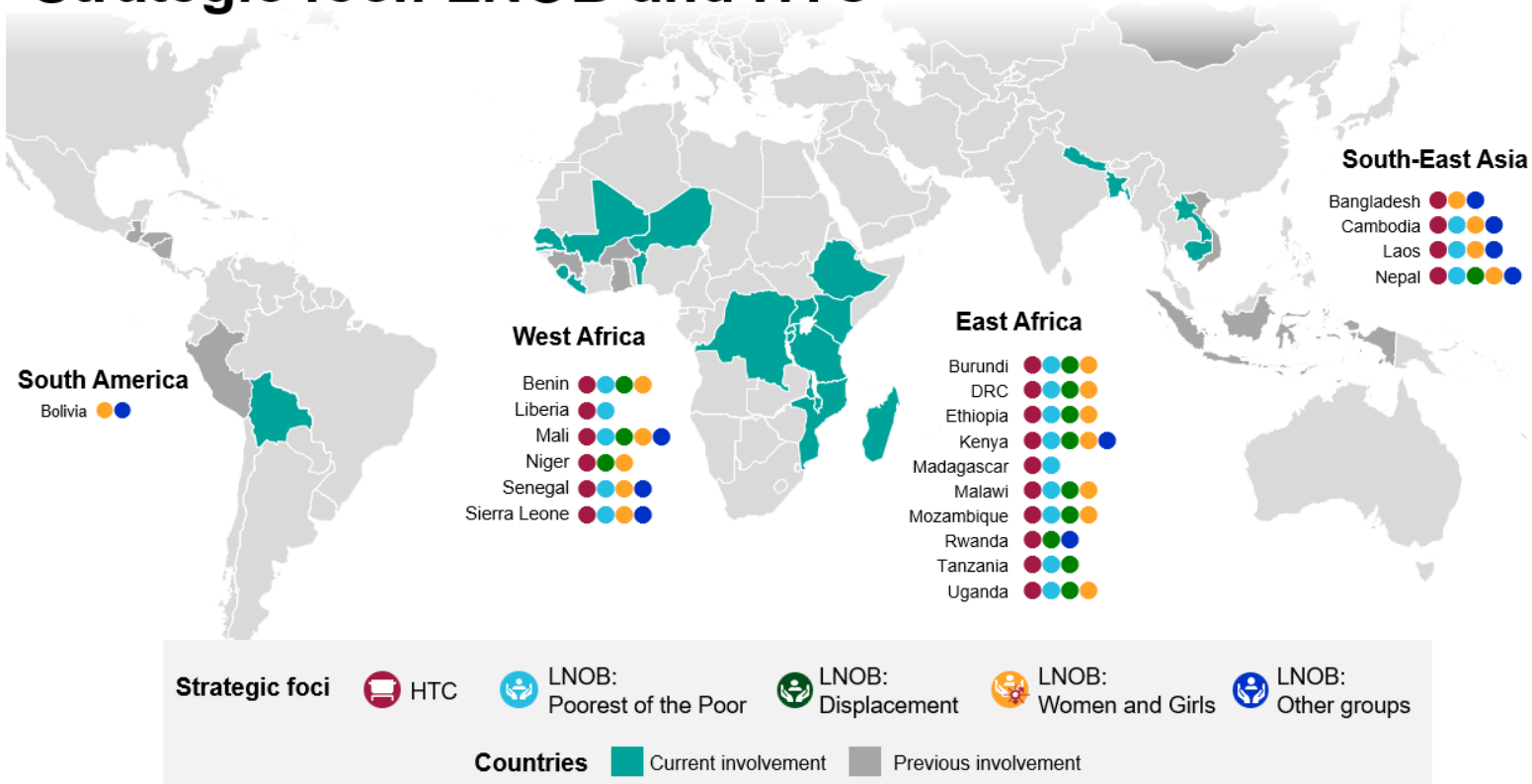


EnDev's **MAIP**, approved by the Consultative Group in June 2023, marked a significant milestone in the programme's strategic steering. With a much stronger focus on LNOB and advancing HTC, the MAIP outlines a comprehensive framework guiding EnDev's interventions across more than 20 countries. Operationalised immediately after approval, the MAIP set forth a dynamic implementation plan spanning from July 2023 to December 2025. Strategic steering within the MAIP emphasised interventions targeting LNOB and the transition to HTC, requiring country

projects to allocate 20-30% of their budgets to initiatives in these priority areas. This heightened ambition level underscores EnDev's dedication to addressing energy access disparities towards groups of customers that the regular market mechanism cannot reach and promoting modern, aspirational cooking solutions across the portfolio. Notably, all EnDev countries⁵ have developed tailored activities to reach LNOB target groups, ranging from refugees and internally displaced persons to socio-economically disadvantaged women and youth.

Figure 3-1 EnDev's portfolio with regards to LNOB and HTC

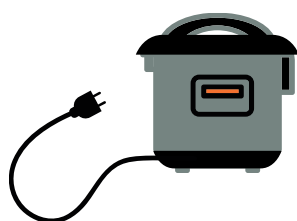
Strategic foci: LNOB and HTC



⁵ Except Guinea, which phased out in 12/2023.

In the area of LNOB, EnDev's initiatives encompass a wide array of interventions aimed at fostering inclusivity and empowerment. These efforts extend to refugee-hosting countries, where EnDev teams are facilitating energy access and market development despite formidable barriers. By leveraging instruments such as RBF and *Business Development Services* (BDS), EnDev is bridging energy access gaps and supporting MSMEs in underserved markets. Additionally, targeted approaches are underway to empower female entrepreneurs and enhance gender equality.

Transitioning to HTC solutions represents another pivotal aspect of EnDev's MAIP ambition. With a focus on eCooking technologies and various other clean fuel alternatives, EnDev aims to elevate cooking practices towards more sustainable and efficient options. Despite challenges posed by nascent markets and limited purchasing power of target customers, EnDev is committed to supporting the private sector in expanding supply chains and promoting consumer adoption. Awareness raising, behavioural change campaigns, innovative financing mechanisms including carbon finance and digitalisation all play an integral role in accelerating the uptake of HTC solutions. By ensuring total alignment with national energy priorities and market dynamics, these elements collectively contribute to fostering a conducive environment for scalable HTC adoption.



Looking ahead to 2024, the MAIP has set the stage for a new round of competitive **Top-Up Programming**, based on the achievements in 2023 within each EnDev country. Accordingly, the top-up funds will be distributed based on cost-efficiency metrics (i.e. EUR per person reached) across three assessment categories: overall cost-efficiency, HTC cost-efficiency and LNOB cost-efficiency. The objective of the Top-Up Programming is to scale-up the most impactful activities across the portfolio, in line with EnDev's strategic priorities.

Despite substantial progress made in implementation of the MAIP in 2023, political and security complexities in EnDev countries, especially those in the Sahel region, have hindered operations. Following the *coup d'état* in Niger in July 2023, activities were suspended; however, a special exemption to continue implementation of the DSS component was provided in the months that followed. Meanwhile, in Mali, despite the deteriorating security situation, EnDev continued operations, emphasising the importance of sustained engagement and collaboration with local authorities and civil society. The security situation following the withdrawal of MINUSMA remains very volatile, which has also had an impact on implementation, particularly in the north and centre of the country. In Ethiopia, armed conflicts between rebel groups and the federal government severely limited movement and implementation in key regions. If the security situations were to deteriorate further, the activities would have to be further adjusted or redirected or country targets reduced. EnDev monitors developments in partner countries closely and remains committed to adapting strategies to address emerging challenges, prioritising programmatic continuity as well as the safety of staff and partners.

Navigating through challenges and complexities, EnDev's MAIP serves as strategic framework for the commitment to inclusive energy access. With a strong focus on LNOB and HTC, the MAIP guides interventions across diverse landscapes, reflecting EnDev's dedication to addressing energy access disparities and promoting sustainable energy access solutions.

3.2 Leave No One Behind and Gender

Aligned with the principles of the 2030 Agenda for Sustainable Development, EnDev has leveraged its extensive experience in supporting vulnerable populations to craft a comprehensive approach to reach those customer groups who are otherwise not reached by energy access markets. Building upon this foundation, in 2023 EnDev intensified its dedication to embedding LNOB within its portfolio and raising ambition levels toward 2025. This commitment is amplified by the Top-Up Programming, which will provide additional funds to scale successful LNOB approaches. Concurrently, EnDev is further driving forward gender equality and women's self-empowerment. EnDev's Gender Strategy serves as a cornerstone of integrating gender-responsive and transformative approaches across the portfolio.

EnDev's LNOB approach



In 2023, EnDev made significant strides in the refinement and operationalisation of LNOB within its implementation structures. As a key priority area, the LNOB framework represents EnDev's commitment to addressing discriminations, exclusions, and inequalities of certain vulnerable groups through context-specific approaches and measurable results. The following groups are targeted by EnDev's LNOB interventions:

1. Poorest of the poor: Energy access is the foundation of a quality life and sustainable livelihood. However, as of mid-2023, an estimated 700 million people worldwide lived in extreme poverty, predominantly in South Asia and sub-Saharan Africa. People living in extreme poverty are among the least likely to have energy access.⁶

2. Refugees, internally displaced people and host communities:

According to UNHCR, there are around 17 million forcibly displaced people, including 5.2 million refugees within EnDev operating countries as of mid-2023.⁷ Refugees are defined as people forced to flee their home country, while internally displaced people (IDPs) remain within national borders. Refugees, IDPs, and their host communities are some of the furthest left behind in terms of energy access.⁸

3. Women and girls: Women generally continue to lag behind in energy access and access quality levels.⁹ In addition to gender mainstreaming, EnDev fosters gender responsive and transformative measures to address context-specific inequalities that prevent women from participating in and benefitting from local energy markets.

4. Other groups: EnDev operates in a multitude of different partner countries and recognises that vulnerability is multifaceted and context specific. The 'other' category allows EnDev country projects to identify any severely marginalised group that is left behind in terms of energy access due to social, religious, ethnic, or legal reasons. In 2023 this included indigenous people, ethnic minorities, formerly displaced people, extremely remote communities, and conflict-affected communities.

EnDev employs an intersectional approach¹⁰ within its LNOB framework, recognising that those most likely to be left behind are groups whose marginalisation intersects along different dimensions, thus exacerbating inequalities.

⁶ The World Bank (2023) [September 2023 global poverty update from the World Bank](#).

⁷ UNHCR (2023) [Mid-Year Trends](#).

⁸ UNITAR (2022) [The State of the Humanitarian Energy Sector](#).

⁹ ENERGIA (2019) [Gender in the transition to sustainable energy for all: From evidence to inclusive policies](#).

¹⁰ Intersectionality is the theory that various forms of discrimination centred on race, gender, class, disability, sexuality, and other forms of identity, do not work independently but interact to produce particularised forms of social oppression. Vulnerability is the result of intersecting forms of exclusionary practices.

The following examples highlight selected, successful LNOB approaches:

- **EnDev Mozambique**'s RBF facility provides improved cookstoves and off-grid solar products to poorest-of-the-poor households in rural areas, female-headed households, and internally displaced persons.
- **EnDev Malawi** supported the development, uptake, and usage of a locally manufactured higher-tier cookstove within Dzaleka refugee camp.
- **EnDev Bangladesh** trains women living in poverty from rural communities to provide maintenance and after-sales service for improved cookstoves, thereby improving livelihoods.

EnDev's LNOB results in 2023

While dedicated LNOB interventions only began implementation in 2023¹¹, significant results can already be reported. In 2023, 242,850 people among LNOB groups were reached, equating to 15% of the indicative target of 1,600,000 people reached by the end of 2025. Additionally, over 500 MSMEs and 100 SIs operating in LNOB contexts, e.g., extreme poverty and displacement settings, were reached. It is expected that LNOB results will increase throughout 2024 and 2025, once implementation fully commences across EnDev country projects.

Table 3-1 LNOB groups reached in 2023

LNOB Group	People reached
Total number of people reached ¹² , thereof	242,850
Poorest of the poor	167,930
Refugees, internally displaced people, and host communities	67,970
Women and girls (transformative gender approaches)	2,200
Other groups, e.g., ethnic minorities	8,920

¹¹ EnDev has always worked to provide vulnerable groups with access to modern energy. Under the MAIP, EnDev disaggregated LNOB-specific interventions and results from previous implementation activities and raised ambition levels in terms of LNOB-programming toward 2025.

¹² EnDev recognises that individuals may belong to multiple LNOB groups simultaneously. This is accounted for through disaggregated data across LNOB groups, while preventing double-counting of results for individuals who fall into more than one category.



Democratic Republic of the Congo (DRC)

Kimpaye, a resilient mother of seven residing in Kashara village on the remote Idjwi Island, faced daily struggles amidst conflict and poverty. Like many, she relied on traditional cooking methods, burning through firewood and charcoal to feed her family.

“Before EnDev’s intervention we used to consume a bag of charcoal each month. Now, thanks to the ICS, we use the same amount in three months”, generating significant savings, says Kimpaye. Further, she found a job as a ceramist at an ICS producer supported by EnDev. With the increased income and savings from fuel purchases, Kimpaye and her family could afford a big change: the renovation of the family’s home.

EnDev's gender ambition



EnDev's LNOB objective includes targeting women and girls with transformative approaches. Moreover, EnDev is advancing its efforts to promote gender equality and women's self-empowerment across all its activities, as delineated in its [Gender Strategy](#). This involves recognizing and appreciating the valuable contributions of women, ensuring their meaningful involvement in decisions that impact their lives and communities, and striving for equitable outcomes for men and women alike. To achieve these objectives, EnDev employs a multi-faceted approach, focusing on the promotion of female-led businesses, promotion of female employment in green jobs, and collaboration with feminist and female-led grassroots organisations.

During this reporting period EnDev has prioritised two core processes:

1. Implementation of the Gender Strategy: EnDev's Gender Strategy entrenches gender equality and women's self-empowerment. This involves providing guidance on implementation

approaches and tools. In 2023, intersectional gender trainings were conducted across all country projects in the portfolio, thereby further fostering the integration of gender-responsive and transformative results.

2. Development of Gender Action Plans: To further institutionalise gender considerations and elevate EnDev's commitment, four additional countries - Malawi, Benin, Bangladesh, and Niger - developed Gender Action Plans in 2023. These plans operationalise the integration of EnDev's Gender Strategy and thus gender responsive and transformative aspects into project implementation by developing targeted gender activities, and indicators, thus enhancing EnDev's impact on gender equity. As of 2023 a total of seven countries within the EnDev portfolio implement Gender Action Plans, emphasising the dedication to advancing gender equality.

Additionally, EnDev's gender impacts were prominently featured during a side event *Catalysing women and youth empowerment through clean cooking* organised in

Figure 3-2 Gender in EnDev

Gender in EnDev: key achievements

By December 2023

15.8 million

Women and girls have access to energy

6.3 million

women and children have lower exposure to hazardous pollutants through clean cooking solutions

20%

of supported MSMEs are led by women

2,390

health centres have access to energy improving services for women and children

35,990

women are employed in supported MSMEs

collaboration with *United Nations Industrial Development Organisation (UNIDO)*, *Clean Cooking Alliance*, and *SEforAll* as part of the *International Vienna Energy and Climate Forum*. This highlights EnDev's commitment to sharing its experiences and contributing to broader international discussions on gender equality within the energy sector.

Another significant effect of EnDev activities on women's wellbeing is evident when looking at HTC and the connection to **indoor air quality**: In most cases¹³, women are responsible for cooking and thus benefit most from improved cookstoves that emit fewer indoor air pollutants. Considering the number of people with access to HTC solutions reached by EnDev (see Table 2-2), and assuming an average household size of

five people home to at least one woman and two young children, it can be estimated that approximately 152,000 women and 305,000 young children benefit from significantly lower exposure to hazardous pollutants like particulate matter and carbon monoxide.

EnDev's achievements in LNOB and Gender of 2023 underscore the programme's dedication to sustainable development principles. By reaching previously underserved populations and prioritizing LNOB initiatives, EnDev has not only made significant strides but also set a commendable standard for inclusive energy access. This commitment is amplified by the Top-Up Programming, which will provide additional funds to scale successful LNOB approaches.

¹³ [The gender gap in cooking is widening. Across the globe women cook more than men : Shots - Health News: NPR](#)

3.3 Higher-Tier Cooking

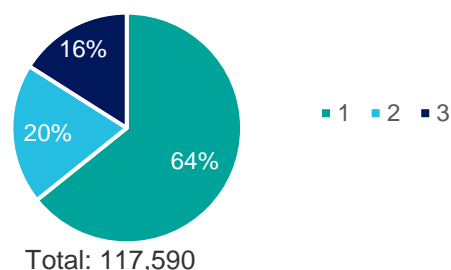


As per the strategic orientation provided by the EnDev Strategy 2019-2025 and in the MAIP, EnDev has a transitional approach towards higher-tier energy access, including HTC. HTC solutions not only cut down on the use of firewood and charcoal but also decrease harmful emissions like particulate matter, carbon monoxide - both detrimental to health - and carbon dioxide, which affects the climate. Therefore, HTC solutions contribute to healthier cooking practices for people and the environment. HTC can either be achieved via transitioning to clean cooking fuels and/or to more efficient and cleaner biomass stoves. This includes stove types powered by electricity, biogas, ethanol, and advanced biomass (e.g. pellets or briquettes).

EnDev builds on the World Bank’s MTF for measuring access to cooking solutions. It describes access quality along six tiers – ranging from tier 0 (traditional cooking) to tier 5 (the cleanest and most efficient cooking solutions, such as electric cooking). Tier levels of 3 or higher classify as HTC according to related definitions of “clean cooking” provided by ESMAP and UN Energy in the context of *Sustainable Development Goal (SDG) 7*. HTC represents cooking solutions that are cleaner, more efficient, more convenient, and safer than traditional ways of cooking (such as open fires or traditional biomass stoves).

HTC was identified a strategic focus area in the MAIP. Consequently, all EnDev projects incorporated activities to support the transition towards HTC into their portfolios and budgets, and EnDev increased its indicative target to 1,126,410 people reached by the end of 2025. In pursuit of this target, EnDev provided HTC to an additional 117,590 people in 2023 alone, see Figure 3-3. Cumulatively, EnDev has reached 762,360 people with HTC, equating to 68% of the indicative target set, and expects to reach this indicative target by the end of 2025.

Figure 3-3 People with access to HTC by region in 2023



To rapidly accelerate the electrification of cooking beyond EnDev, EnDev set up the *Global eCooking Accelerator (GeCA)* initiative together with partners in 2023. GeCA builds on the EnDev partnership, showcasing scalability, streamlined implementation, integration into partner government strategies, sustainable market cultivation, and equitable societal transformation.



The Global eCooking Accelerator (GeCA)

The Global eCooking Accelerator (GeCA) is a new initiative founded by EnDev with the ambition of fast-tracking the transition to clean, electric cooking. GeCA is the efficient implementation vehicle towards the objectives of the Global eCooking Coalition (GeCCo).

GeCA will implement its actions in three distinctive phases with respective access and cost-effectiveness targets. The first phase, consisting of EnDev eCooking pilots and innovation projects, was launched in 2023. GeCA, in its second phase, builds on EnDev upscaling interventions, expanding into more countries and reaching up to 500,000 people by 2025. GeCA’s ambition is to facilitate access to electric cooking for more than 5 million people by 2030, provided by a consortium of EnDev, SEforALL, and MECS.

3.4 Partnerships for scale



In 2023, EnDev intensified its dedication to strategic partnerships for advancing sustainable energy access. With a focus on cultivating collaborations aimed at accelerating progress, EnDev's latest efforts underscore the collective commitment of the international community to achieving SDG 7 and promoting scalable solutions.

In the area of HTC, the adoption of eCooking emerged as a pivotal focus within the energy access domain. EnDev actively engaged in the inaugural gathering of the *Global eCooking Coalition (GeCCo)* in June 2023, later solidifying its position as a founding member and anchor partner alongside SEforALL, the *Modern Energy Cooking Services (MECS)* programme from Loughborough University, and the *Global Energy Alliance for People and Planet (GEAPP)*. As the year progressed, GeCCo and its collaborators garnered significant attention, notably being featured during the *Africa Climate Summit* in September 2023 and holding a prominent presence at the 28th *UN Climate Change Conference (COP 28)* in December 2023. The coalition's momentum has since gained traction, drawing support from diverse entities including UN organisations, non-governmental organisations, development agencies, and governments. Beyond advocacy on the international stage, GeCCo is dedicated to translating its initiatives into tangible policy and implementation outcomes at the country level. EnDev has recently assumed the role of lead anchor partner in Laos, Cambodia, Malawi, and Rwanda, facilitating comprehensive support for members' eCooking endeavours and orchestrating engagement with government stakeholders.

In the area of LNOB, the DSS Component, supported by DGIS, continued its momentum across its four pilot countries throughout 2023. The primary aim of this component is to pioneer innovative DSS mechanisms in selected sub-Saharan African countries – namely Liberia, Niger, Malawi, and Uganda – aimed at facilitating access to modern, reliable, and affordable energy



The COP28 launch event featured distinguished speakers from government leaders to country Ministers, along with international organisations and programmes, all sharing a clear commitment towards electric cooking. ©SEforALL

services for targeted low-income and displaced populations, including their host communities, currently beyond the reach of commercial markets. The overarching vision is to promote global learning and knowledge-sharing on DSS mechanisms, as well as facilitate scale up of successful pilot initiatives through collaboration with government bodies and international financial institutions, notably the World Bank. In 2023, ESMAP contributed to the conceptualisation and design of the DSS component, both globally and within the targeted countries. These efforts are reinforced by EnDev's sustained participation as a core member of the *End-User Subsidy Lab*, a global initiative launched in 2021 by ESMAP, EnDev, and the *Global Off-Grid Lighting Association (GOGLA)*, with recent inclusion of the *Clean Cooking Alliance*. Milestones achieved include the finalisation of concept notes with review from the End-User Subsidy Lab, delivery of baseline reports, initiation of a fiduciary risk study, and fostering of peer-to-peer exchanges on communication and gender-inclusion. Notably, meetings with the World Bank in Uganda and participation in energy forums underscore the ongoing commitment to collaboration and engagement. Progress unfolded with the official launch of the pilots in Liberia and Uganda, and final preparation is underway for the launch in Malawi. In Niger, project preparation was initially disrupted by the *coup d'état* of July 2023, but resumed at full speed after a period in which

development cooperation activities were suspended. Meanwhile in Uganda, the DSS pilot was initiated at the *National Renewable Energy Conference* in November 2023. Concerted efforts are directed towards ensuring complementarity, avoiding duplication, and fostering collaboration with other initiatives, notably with the World Bank's *Electricity Access Scale Up Project (EASP)* implemented by the *Uganda Credit Capitalization Company (UECCC)*, as well as building synergies for future learning and scale-up.

Throughout 2023, EnDev cultivated stronger ties with the GEAPP. In September 2023, GIZ became an "alliance partner" within GEAPP, aligning itself with the objective of advancing the supply and adoption of affordable, green electricity. This move positions EnDev as a flagship initiative within the alliance, with a targeted focus on specific sectors such as distributed renewable energy and battery storage systems. With the support of GEAPP, EnDev continued to implement a variety of productive use pilot activities in the sugar, dairy, rice, and chili value chains in Malawi in 2023.

EnDev further expanded its engagement with other development programmes by joining the RBF Leadership Group organised by SEforALL. This initiative seeks to facilitate knowledge exchange and collaboration among donors and agencies involved in RBF for energy access. EnDev contributes to the group's objectives, including the enhancement of policy frameworks via SEforALL's *Virtual Knowledge Hub* and the dissemination of results to raise awareness of SDG 7. As a prominent RBF implementer globally, EnDev has contributed valuable data to the publicly accessible *Results-Based Financing Tracker* tool, further solidifying its position in advancing RBF initiatives worldwide.

Together with the Worldbank / ESMAP, EnDev supports the *Keeping the Lights On* activity initiated by GOGLA to investigate the current challenges around the *Pay-As-You-Go* business model and the degree to which it can sustainably reach lower income households currently not reached through

the regular market mechanism. Together with off-grid lighting industry partners, GOGLA investigates how *Pay-As-You-Go* can reach low-income households with sustainable access to electricity and avoid over-indebtedness.

EnDev continued to actively participate in prominent international conferences throughout 2023. Notably, it made significant contributions at events like the *Unlocking Solar Capital for Africa (USCA)* in Kampala and the *International Vienna Energy and Climate Forum*. Additionally, EnDev's collaborative efforts and strategic partnerships in 2023 have significantly advanced its mission to foster energy access and sustainability worldwide.



Programme Director Alexander Haack at the International Vienna Energy and Climate Forum 2023 (IVECF), emphasising the momentum for eCooking.

Through the aforementioned initiatives EnDev has demonstrated its commitment to innovative solutions and inclusive practices. These partnerships not only amplify EnDev's impact but also pave the way for scalable and sustainable energy interventions, ultimately driving progress towards achieving SDG 7. As EnDev continues to forge new collaborations and leverage existing partnerships, it remains steadfast in its pursuit of leaving no one behind and facilitating a transition to higher-tier energy solutions across its global portfolio.

3.5 Market-Based Approaches



In 2023, EnDev continued addressing energy poverty through its market-based approach, which aims to develop energy markets systematically and comprehensively through interventions at the supply side, demand side, and enabling environment levels. Thus, EnDev unlocks demand, stimulates supply, and facilitates sustainable market growth to ensure the emergence of vibrant markets.

Demand-Side Support Measures

EnDev implements a range of support measures aimed at stimulating consumer uptake and fostering transformative behavioural change. These measures encompass awareness creation, behaviour change, and improved access to financial products which are tailored to specific contexts, aiming to debunk misconceptions, raise awareness about the benefits of clean energy solutions, and empower households and MSMEs to make more informed investment decisions.

In addition to these general initiatives, EnDev continued the DSS activities in 2023 in four countries: Liberia, Niger, Malawi, and Uganda. Under the component, context-specific DSS interventions are strategically designed to reduce financial barriers, increase affordability, and expand access to cooking and electrification technologies among poorest-of-the-poor and displacement-affected communities. EnDev's targeted financial assistance empowers households to overcome economic constraints – in particular, an inability to pay – and adopt clean energy solutions.



Demand-side subsidies (DSS) can directly reduce the price of energy product for customers.

Supply-Side Support Measures

Complementing demand-side interventions, supply-side interventions form a crucial aspect of EnDev's approach to market development. These interventions encompass an array of activities aimed at empowering businesses and entrepreneurs to deliver clean energy products and services effectively with a view towards scale. EnDev tailors supply-side support to address country-specific challenges and opportunities. For instance, in Bangladesh, EnDev employs RBF mechanisms to incentivise manufacturers and distributors of energy-efficient eCooking appliances to expand to rural and peri-urban areas, while ensuring product reliability and consumer trust. Similar interventions were undertaken across the portfolio in 2023, focusing on capacity-building, performance-based financing, and gender inclusion to catalyse sustainable and scalable market growth. EnDev also provides *Business Development Services* (BDS) and context-specific technical assistance such as the *Energy Enterprise Coach* (EEC) and the *Small- and Medium-sized Enterprise (SME) Finance Facilitator* which, together, promote new and resilient business models. Together, these mechanisms enable capacity-building, market development, and access to finance, bolstering the resilience and competitiveness of energy enterprises.

Enabling Environment Support Measures

EnDev recognises the pivotal role of the enabling environment in facilitating market development and sustainability. A new Global Instrument of EnDev, the *Global Enabling Environment Facility* (GEEF), announced at the end of 2023, will serve to support country partners to achieve regulatory reform through capacity building and knowledge exchange.

Throughout 2023, EnDev continued to improve framework conditions at the political, legislative, and regulatory levels across the portfolio. This includes supporting the development of energy performance standards, testing procedures, and labelling schemes, as seen in Bangladesh and Burundi; the

development of policy and governance frameworks, as in Cambodia; and operational support for local private sector associations, as in Tanzania and Uganda. Moreover, EnDev facilitated gender mainstreaming efforts across the portfolio to empower local stakeholders and promote inclusive growth.

EnDev's market-based approach is based on a holistic understanding aimed at unlocking the full transformational potential of clean energy markets while balancing the

needs of private enterprises and the customers they serve. By stimulating demand, addressing supply-side constraints, and fostering an enabling environment, EnDev strives to accelerate the transition towards sustainable energy access for all.



3.6 Monitoring, Evaluation, and Learning and Innovation

Monitoring



EnDev's commitment to achieving results is underlined by its comprehensive monitoring system. The system – including data collection, aggregation, and analysis – continuously undergoes refinement. Notably, EnDev introduced an end-to-end digitalised monitoring process, from data entry at country level to aggregation at global level, in 2023.



Complementing the strategic focus areas outlined in the MAIP, in 2023 EnDev integrated LNOB and HTC into this newly established web-based monitoring platform.

The foundation for results calculation is a set of externally verified and aligned definitions and methodologies that enable EnDev to classify and categorise its achievements. For example, the differentiation of energy access levels is done based on the MTF and the inclusion of technical data for more than 1,000 energy access products, facilitating a clear and appropriate categorisation according to tier levels.

Monitoring serves not only the purpose of reporting, but also evidence-based programme steering and decision-making. Therefore, all results data collected from over 30 countries since EnDev's inception were uploaded into the database to facilitate trend analysis over time. The platform is now the custodian of over five million data points to ensure disaggregated and differentiated data collection and analysis.

Evaluation

Various studies and evaluations were conducted in 2023 to assess EnDev's impacts and gain insights into the sustainability, effectiveness, efficiency, relevance, and additionality of EnDev's interventions, in line with standard OECD DAC criteria.

The findings of the studies are used to reflect on EnDev's approaches and improve its implementation.

Real-Time Evaluation

EnDev has engaged on a real-time evaluation for the period of 2020 to 2023. It was carried out by an independent evaluation consortium of PricewaterhouseCoopers Advisory, the Vrije Universiteit Amsterdam, and SEO Amsterdam Economics. In 2023, the real-time evaluation was finalised. The consortium updated the programming and portfolio review processes as well as performance assessments of EnDev interventions conducted in 2021, including an assessment of EnDev's innovation process. The recommendation to broaden the implementer base and engage with new partners was adopted in the preparation for the Innovation Window of 2024. A comprehensive overview of recommendations will be available in 2024.



An integral part of the real-time evaluation were five country studies conducted between 2022 and 2023. Key learnings were shared and discussed in a series of learning events zooming into the eCooking component in Nepal, and the off-grid solar component in Mozambique and Benin. A key lesson from the analysis is that EnDev effectively addresses transition barriers. However, the technology innovation systems required for the sustainable diffusion of technology and the development of markets still requires strengthening, including enabling environment and access to finance support. This point is already part of EnDev's global instruments and will be continuously supported.

Phase-out Country Studies



In 2023, independent experts from *Edburgh Consultants* and *Danish Energy Management* conducted phase-out studies in countries where EnDev recently ended its engagement. The studies assessed the impact of EnDev on market transformation and sector development, as well as the sustainability of the results achieved. Phase-out studies were finalised on the component for improved cookstoves in Nepal and on the grid densification and productive use of energy components in Bolivia. In addition, ex-post studies were conducted in Vietnam (biogas), Indonesia (mini-grids), Ghana (productive use of energy) and Burkina Faso (improved cookstoves).

As all the phase-out country studies used the same methodology, there is a certain degree of comparability despite the high context sensitivity of findings. Accordingly, a meta-study of the individual phase-out studies was carried out to identify key lessons learnt across the portfolio. The main recommendations emphasise the importance of collaboration to maintain and ensure ownership of interventions at country level and



Exit study in Bolivia showcasing this entrepreneur's business of selling products of the Melipona honeybee. ©RVO

support sustained market growth post-EnDev. The findings will form the foundation for drawing conclusions and extracting lessons to enhance EnDev's approaches in the future.

Learning and Innovation



By encouraging new approaches and business models, testing their viability in the market, and scaling them up effectively, EnDev is dedicated to continuous learning and innovation. Innovative approaches are brought forward under the EnDev Innovation Window, and lessons learnt are disseminated through learning events of practitioners' groups under the EnDev Learning and Innovation Agenda.

The **EnDev Innovation Window** is a format designed to encourage, support, and expand innovations to speed up EnDev's impact toward achieving SDG 7. It also acts as a catalyst for promoting learning among various stakeholders and fostering innovative partnerships. The EnDev Innovation Window embraces the ethos of "failing forward," inviting exploration beyond conventional boundaries and opening avenues for creative thinking and groundbreaking solutions.

By 2023, all nine EnDev Innovation Window projects were completed. The projects were spread across seven countries and focussed on four main themes: productive use of energy, digitalisation, eCooking, and gender-related initiatives. The results of these projects were shared through several webinars and have been taken up in the MAIP.

Further in 2023, EnDev embarked on the second cycle of the learning format **EnDev Learning and Innovation Agenda**, with a particular emphasis on "Digitalisation for Scale" and "Innovative Finance" – topics which were identified by an array of energy access practitioners. To delve into these topics, EnDev organised more than 15 deep-dive interviews and workshops in the course of 2023. The sessions provided an opportunity for practitioners to exchange insights, share best practices, and explore collaborative solutions in a South-South exchange. Opportunities for cross-over/nexus discussions were leveraged, recognising

the interdependencies of all EnDev Learning and Innovation Agenda topics, and exploring specific synergies between digitalisation and innovative finance.

EnDev's ongoing activities under Learning and Innovation reflect a commitment to continuous improvement and adaptation in response to evolving challenges and opportunities. By fostering knowledge exchange, exploring innovative solutions, and aligning interventions with climate objectives, EnDev aims to maximise its impact and contribute to sustainable energy access for all.

Emerging Approaches

EnDev's commitment to innovation goes beyond the Innovation Window: innovative approaches are an integral part of EnDev's portfolio across the board. For example, several EnDev projects piloted new ideas and approaches on eCooking in 2023. Notably, innovations were piloted on household level, integrated in mini-grids, or as part of a DSS pilot with metered eCooking appliances in Uganda, Rwanda, Senegal, Kenya.

Technological innovation also played a pivotal role, particularly for the productive use of energy. In Senegal, EnDev developed an energy efficient fish smoker, acclaimed by the Ministry of Fisheries as the "best innovation in the sector in the last 20 years." In line with the programme's LNOB objectives, the smokers are operated by female-led fish smoker cooperatives without access to investment capital.

In Bolivia, a cassava peeling and washing machine was developed with EnDev support. The machine is produced by *Mujeres de Hierro* – a women's metal mechanic cooperative. Peeling time of cassava is reduced by 94%, while being safer than peeling by hand. In addition, there is an 80% saving in water consumption. The success of this innovation can be seen in its uptake by other producer organisations and women's associations.

Energy-Climate Nexus

Each year, the link between development cooperation and international climate finance grows in importance on the world stage. In 2023, EnDev dedicated significant attention to the potential role of voluntary carbon markets in the energy landscape and their implications for partner countries' *Nationally Determined Contributions* (NDCs) to the Paris Agreement. Through a series of deep-dive interviews, workshops, and trainings, EnDev engaged with country teams and partners to enhance their understanding of voluntary carbon markets and its potential impact on affordability and NDC achievement, notwithstanding the uncertainties and risks involved. This effort culminated in the development of a strategy paper outlining engagement options, paving the way for informed decision-making and strategic alignment with national climate targets within the programme.



The innovative fish smoker ("Nopalé") has been successfully implemented at 19 sites across Senegal.

EnDev's commitment to continuous improvement through rigorous monitoring, evaluation, and learning initiatives underscores its dedication to achieving sustainable energy access for all. By fostering innovation, sharing insights, and aligning interventions with global objectives, EnDev remains at the forefront of efforts to address energy challenges and drive positive change worldwide.

4 Report and accounts

In 2023, EnDev successfully secured an additional EUR 64.02 million of funds, comprising contributions from core donors DGIS, Norad, and BMZ, alongside earmarked funds from various other donors.

4.1 Overview

In 2023, EnDev marked a highly successful year in securing extra funds. Specifically, EnDev was commissioned with EUR 64.02 million. The order value considered all adjustments with increasing, decreasing, interest and exchange rate fluctuations. Overall, the order value changed with core funding of EUR 56.53 million from DGIS and Norad alongside earmarked funding totalling EUR 7.49 million. Besides the commissioned funds, one donor pledged an additional EUR 17 million for the year 2026. The present report only includes the funds available until 12/2025.

EnDev's total available funds sum up to EUR 579.42 million of which EUR 548.70

million have been allocated. Expenditures in 2023 reached EUR 35.28 million. This is a decrease compared to the annual average of the three previous years of EUR 40.47 million and was caused by the extension of sub-contracts in the second half of 2023 following the approval of the MAIP. Nonetheless, the results achieved were maintained at high levels. Total expenditures by the end of 2023 reached EUR 457.99 million. Thus, an allocated amount of EUR 90.81 million remains available, thereof EUR 26.02 million for planned core activities until 12/2024 and EUR 64.79 million for planned co-financing activities until the end of the respective co-financing contracts.

Table 4-1 Global budget and funding (in EUR)

Allocation of total budget	
Allocated to country projects based on the Annual Operational Programming 2024	493,120,760
Allocated to programme management level	55,578,898
Total allocated budget	548,699,658
Total available funds incl. BMZ commission as of December 2023	579,423,572
Remaining funds	30,723,914

4.2 Funds

As of end 2023, BMZ had commissioned the amount of EUR 579.09 million. Table 4-2

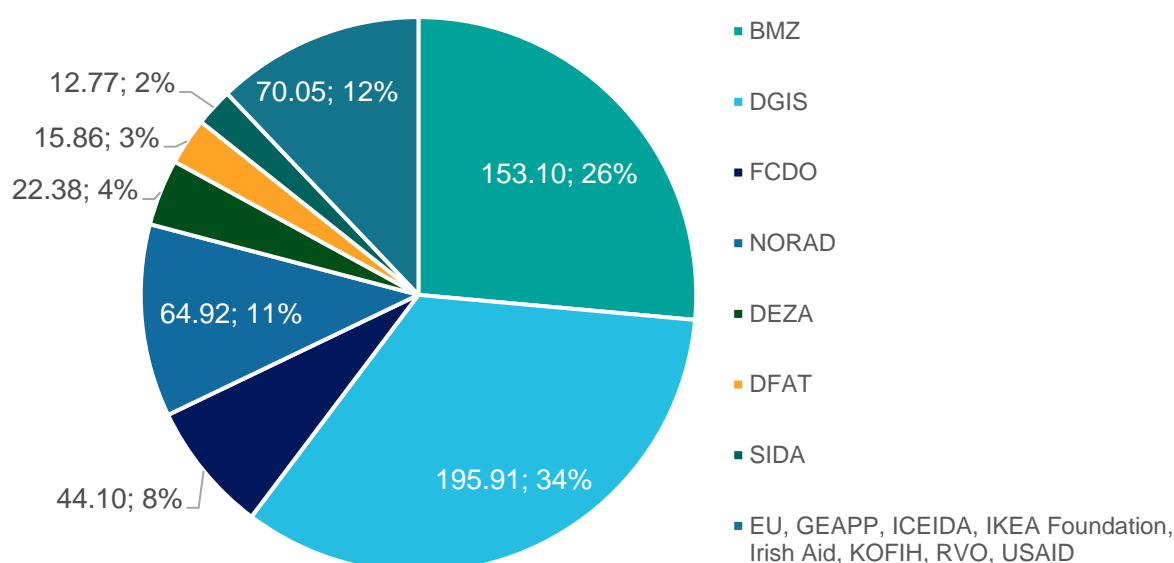
and Figure 4-1 show of the commissioned funds by donor.

Table 4-2 Funds by donor (in EUR)

Donors	2021	2022	2023
Consultative Group			
BMZ	123,595,220	153,095,220	153,095,220
DEZA	21,930,000	22,379,190	22,379,190
DFAT	15,858,077	15,858,077	15,858,077
DGIS	131,879,138	150,879,138	195,908,737
FCDO RBF	50,216,000	50,216,000	42,054,980
Norad (MFA)	52,455,404	52,199,307	64,921,307
SIDA	12,774,794	12,774,794	12,774,794
Additional donors			
EU	23,020,014	30,020,014	36,020,014
FCDO Bangladesh	2,049,360	2,049,360	2,049,360
GEAPP	0	0	3,760,000
ICEIDA	715,000	715,000	1,715,000
IKEA Foundation	8,000,000	8,000,000	8,000,000
Irish Aid	3,944,943	3,944,943	3,947,475
KOFIH	908,000	684,000	684,000
RVO	1,531,773	9,281,773	12,981,773
USAID	2,952,000	2,967,140	2,938,407
Total	451,829,723	515,063,957	579,088,335

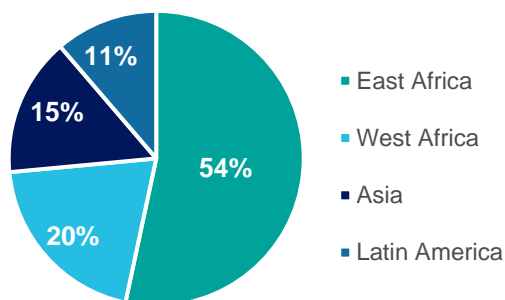
Note: Differences due to rounding are possible.

Figure 4-1 Funds by donor (in million EUR, share of total funds)



The geographic focus of EnDev continued shifting toward sub-Saharan Africa in 2023, as highlighted in chapter 2. The trend gets even clearer when looking at the funding by region, where sub-Saharan Africa's share of funds is 74% (54% in East-Africa and 20% in West Africa), Figure 4-2.

Figure 4-2 Funds by region since 2009



The previously observed trend towards earmarked funds from co-financings (e.g., ICEIDA, Irish Aid, KOFIH, RVO, USAID, EU, GEAPP, IKEA Foundation) has continued. In 2023, 72.3 % of funds were not earmarked and thus available for core financing, while 27.7% of funds were earmarked (7.3% RBF, 20.4% bilateral co-financings and soft earmarking for technologies and/or countries), see Figure 4-3.

See Table 4-3 on the following page for an updated list of the funds according to the latest BMZ commission, as well as available funds, expenditures, and income.

Figure 4-3 Funds by type

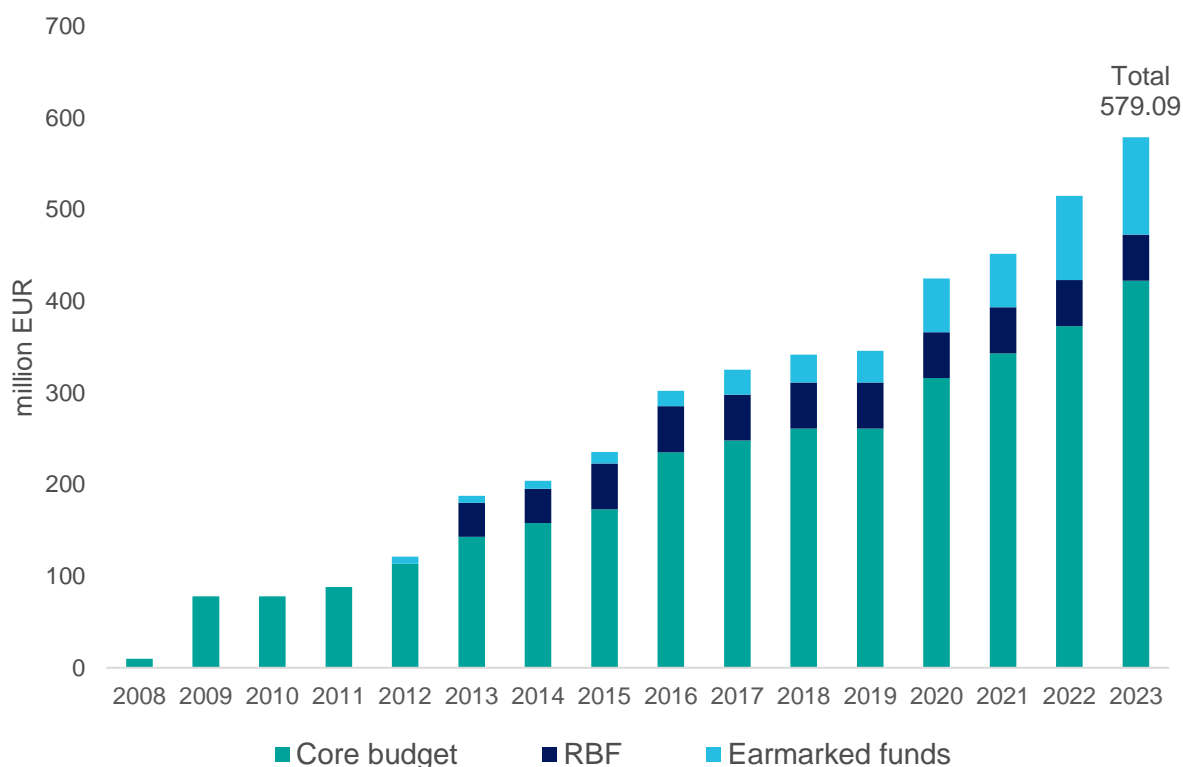


Table 4-3 Funds according to BMZ commission, available funds, expenditures, and income (in EUR)

Donors	Funds according to BMZ commission	Total available funds ^{a)}	Expenditures	Income
Consultative Group				
BMZ	153,095,220	153,095,220	137,450,972	137,450,972
DEZA	22,379,190	22,698,921	21,404,253	20,832,254
DFAT	15,858,077	15,858,077	15,858,077	15,858,077
DGIS	195,908,737	195,908,737	134,041,316	148,658,737
FCDO RBF	42,054,980	42,054,980	42,668,679 ^{b)}	42,054,979
Norad (MFA)	64,921,307	64,934,346	52,260,206 ^{b)}	60,693,680
SIDA	12,774,794	12,774,794	12,841,907 ^{b)}	12,774,794
Total Consultative Group funds	506,992,306	507,325,076	416,525,410	438,323,493
Additional donors				
EU	36,020,015	36,020,015	21,248,070	25,378,779
FCDO Bangladesh	2,049,360	2,049,360	2,038,615	2,049,360
GEAPP	3,760,000	3,762,467	455,678	2,822,467
ICEIDA	1,715,000	1,715,000	841,882	1,715,000
IKEA Foundation	8,000,000	8,000,000	4,929,931	8,000,000
Irish Aid	3,947,475	3,947,475	3,973,297 ^{b)}	3,947,475
KOFIH	684,000	684,000	636,341 ^{b)}	684,000
RVO	12,981,773	12,981,773	4,755,608	7,404,051
USAID	2,938,407	2,938,407	2,582,661	2,938,407
Total additional funds	72,096,029	72,098,496	41,462,083	54,939,539
Total	579,088,335	579,423,572	457,987,493	493,263,032

Note: Differences due to rounding are possible.

a) Due to contributions in foreign currencies (CHF, GBP, NOK, USD), an amount of EUR 0.33 million is reserved for the exposure to exchange rate fluctuations resulting in available funds of EUR 579.42 million in comparison to commissioned funds of EUR 579.09 million.

b) Expenditures to be corrected at the end of the project.

4.3 Expenditures and income by donor

EnDev's expenditures, income, and funds are presented in the following tables. by donor, by type, and by country

Table 4-4 Expenditures by donor (in EUR)

	2009-2020	2021	2022	2023	Total
BMZ	98,773,247	12,298,570	19,315,056	7,064,098	137,450,972
DEZA	11,390,848	5,049,968	219,577	4,743,861	21,404,253
DFAT	15,858,077	0	0	0	15,858,077
DGIS	100,944,122	11,431,022	7,032,951	14,633,219	134,041,316
FCDO RBF	43,145,975	400,849	-836,798	-41,346	42,668,679
Norad (MFA)	43,644,259	2,470,041	6,281,581	-135,676	52,260,206
SIDA	12,869,085	0	-4,775	-22,403	12,841,907
EU	9,438,331	2,967,150	4,153,186	4,689,403	21,248,070
FCDO Bangladesh	2,090,850	-4,588	-47,590	-57	2,038,615
GEAPP	0	0	0	455,678	455,678
ICEIDA	108,258	387,078	224,080	122,465	841,882
IKEA Foundation	0	994,616	2,429,068	1,506,247	4,929,931
Irish Aid	4,007,475	-8,341	46,524	-72,361	3,973,297
KOFIH	708,952	-4,834	286	-68,063	636,341
RVO	1,541,173	-960	932,494	2,282,901	4,755,608
USAID	835,655	1,342,717	286,135	118,155	2,582,661
Total ^{a)}	345,356,307	37,323,288	40,031,777	35,276,122	457,987,493

Note: Differences due to rounding are possible.

Table 4-5 Income by donor (in EUR)

	2009-2020	2021	2022	2023	Total
BMZ	98,266,034	12,805,784	19,315,056	7,064,098	137,450,972
DEZA	13,979,190	2,776,235	1,976,871	2,099,958	20,832,254
DFAT	15,858,077	0	0	0	15,858,077
DGIS	107,658,737	7,000,000	9,000,000	25,000,000	148,658,737
FCDO RBF	43,026,005	0	-971,025	0	42,054,979
Norad (MFA)	42,362,819	4,970,450	4,866,038	8,494,372	60,693,680
SIDA	12,774,794	0	0	0	12,774,794
EU	14,380,875	0	6,504,281	4,493,623	25,378,779
FCDO Bangladesh	2,049,360	0	0	0	2,049,360
GEAPP	0	0	2,822,467	0	2,822,467
ICEIDA	445,000	270,000	0	1,000,000	1,715,000
IKEA Foundation	2,587,766	2,872,188	2,540,046	0	8,000,000
Irish Aid	3,947,475	0	0	0	3,947,475
KOFIH	684,000	0	0	0	684,000
RVO	1,531,773	2,009,000	1,253,500	2,609,778	7,404,051
USAID	2,595,943	367,762	0	-25,298	2,938,407
Total ^{a)}	362,147,847	33,071,420	47,307,234	50,736,532	493,263,032

Note: Differences due to rounding are possible.

Table 4-6 Funds and expenditure by type and country (in EUR) since 2009

EnDev	Funding	Expenditures
EnDev programme total available funds	579,423,57	457,987,493
Total funding according to Annual Operational Programming	548,699,65	
Remaining available funds	30,723,914	
Programme management and cross-cutting activities	Funding	Expenditures
Total	55,578,898	47,134,712
Management, monitoring, backstopping, learning, etc.	38,461,000	34,661,578
Globally managed country activities (SCCIF, SIINC, IKEA, etc.)	13,117,898	8,547,224
Globally managed extra activities (refugees, RBF preparations, etc.)	4,000,000	3,925,910
Country activities	Funding	Expenditures
Total	411,364,00	330,417,510
Bangladesh	28,989,000	27,105,420
Benin	28,924,000	22,044,306
Bolivia	20,192,000	19,688,222
Burundi (from 01/2021)	1,015,000	1,271,241
Cambodia	5,532,000	4,537,991
Democratic Republic of Congo	2,161,000	1,414,666
Ethiopia	52,111,000	45,416,281
Kenya	36,389,000	29,580,730
Laos	2,885,000	2,074,499
Liberia (with Guinea until 12/2023)	16,052,000	12,140,460
Madagascar	2,278,000	1,629,601
Malawi	26,386,000	12,848,548
Mali	18,507,000	14,783,422
Mozambique	39,819,000	34,870,122
Nepal	12,417,000	10,590,738
Niger	5,057,000	417,341
Rwanda (incl. Burundi until 12/2020)	32,468,000	27,781,207
Senegal	31,371,000	25,908,881
Sierra Leone	7,219,000	2,962,773
Tanzania	14,337,000	13,297,505
Uganda	27,255,000	20,053,556
Completed activities	Funding	Expenditures
Total	81,756,760	80,435,271
Burkina Faso	6,970,000	7,016,450
Cambodia (until 11/2019)	3,150,000	3,058,876
Central America (Guatemala, Honduras, Nicaragua)	17,640,000	17,756,523
Ghana	3,845,000	3,660,805
Indonesia	16,231,000	16,426,015
Mongolia	495,046	495,046
Peru	17,188,900	17,120,720
Vietnam	4,427,000	4,186,390
RBF 3: Mozambique, Rwanda, Uganda	2,906,400	1,833,224
RBF 3: Bangladesh, Kenya, Rwanda, Tanzania, Uganda	5,528,700	5,505,260
RBF 3: Kenya, Tanzania, Uganda	1,574,700	1,575,947
ProCEAO (EU West Africa: Burkina Faso, Benin, Senegal)	1,800,014	1,800,015

Note: Differences due to rounding are possible.

5 Annexes

- A. Results overview
- B. Country overview
- C. Country project status

A. Results overview

Table A-1 and Table A-2 provide an overview of the main quantitative results of EnDev, and the results achieved by the end of 2023.

Table A-1 Overview of results

		Achievement in 2022	Additional in 2023	Achievement in 2023
People [million]	People with access to modern energy	28.7	2.9	31.6
	People with access to thermal energy	21.5	2.6	24.2
	People with access to electrical energy	7.1	0.3	7.4
SI	SI with access to modern energy	31,500	2,390	33,940
	Schools with access to modern energy	18,970	1,340	20,310
	Health centres with access to modern energy	2,180	210	2,390
MSMEs	MSMEs with access to modern energy	89,800	13,010	102,820
Value for money	Cost-efficiency per year	14.0	-	12.2

Table A-2 Climate and employment results

		2022 only	2023 only
Employment Effects ¹⁴	People with jobs total	33,520	32,6100
	People with jobs in cooking energy technologies production	8,670	6,730
	People with jobs in cooking energy technology distribution	1,832	1,260
	People with jobs in solar system distribution	1,576	910
	People with jobs in mini-grid operation	5,864	6,040
	People with jobs in MSMEs	15,578	17,670
Climate	Annual CO ₂ e savings [in million tons]	2.75	2.91
	CO ₂ e saved total [in million tons]	22.30	25.13

Note: Differences due to rounding are possible.

¹⁴ Employment effects are reported as „people with employment“. Until 2019 full-time-equivalents were used.

B. Country overview

Table B-1 Countries and technologies in 2023

	Thermal energy		Electrical energy		
	Improved cookstoves	Higher-tier cooking*	Off grid solar systems**	Mini-grids / Nano-grids	Grids
Bangladesh	●	● (AP)			
Benin	●	●	●	●	
Bolivia	●		●		●
Burundi	●				
Cambodia	●	● (AP)			
Democratic Republic of the Congo	●	●			
Ethiopia	●	● (AP)	●	●	
Guinea	●		●	●	
Kenya	● (AP)	● (AP)	●	●	
Laos	●	●			
Liberia	●	●	●		
Madagascar	●	●			
Malawi	●	●	●		
Mali	●	● (AP)	●	●	
Mozambique	●	●	●	●	
Nepal		●		●	●
Niger	●	● (AP)	●		
Rwanda	●	●			●
Senegal	● (AP)	●	●	●	●
Sierra Leone	●	●	●	●	
Tanzania	●	●			
Uganda	●	● (AP)	●		










* Including eCooking and biogas

** Including Solar Home Systems and Pico PVs

Components that are being implemented as part of an Associated Project are designated by the abbreviation “AP”.























Components that phased out are shown in lighter colour.

Table B-2 Ongoing country and regional projects

Country	Type of energy	Lead political partner	Project duration		Funding (in EUR 1,000)	Planned outcomes on HH level (in 1,000 persons) ¹⁵
			start	end		
All ongoing projects (incl. country-level managed extra activities)					411,364	
Bangladesh		Ministry of Power, Energy and Mineral Resources	06/09	12/24	28,989	4,234
Benin		Ministère de l'Energie	10/09	12/24	28,924	1,565
Bolivia		Vice-Ministry of Electricity and Alternative Energy (VMEEA) of the Ministry of Energy	10/09	06/24	20,192	787
Burundi		Focus on local private sector	01/21	12/24	1,015	258
Cambodia ¹⁶		Ministry of Mines and Energy (MME)	03/15	12/24	5,532	57
Democratic Republic of the Congo		Ministère des Affaires Etrangères	12/19	12/24	2,161	150
Ethiopia		Ministry of Water and Energy (MoWE)	01/10	12/24	52,111	2,978
Kenya		Ministry of Energy and Petroleum (MoEP)	04/09	12/24	36,389	7,395
Laos ¹⁶		Ministry of Science and Technology (MoST)	03/15	12/24	2,885	241

¹⁵ Indicative target forecasts are not adjusted to the extended project duration. Indicative targets span a time horizon until the end of 2025 and are not broken down to mid-term targets.

¹⁶ Formerly, Cambodia, Laos and Vietnam were part of a multi-country approach with Cambodia as the regional hub. Since 07/2023, each country is presented separately with a separate budget and individual indicative targets.

Country	Lead political partner	Project duration		Funding (in EUR 1,000)	Planned outcomes on HH level (in 1,000 persons) ¹⁷
		start	end		
Liberia (with Guinea until 12/2023) ¹⁸	  Liberia: Ministry of Mines and Energy	05/12	12/24	16,052	34
Madagascar	 Ministère de l'Energie et des Hydrocarbures	12/12	12/24	2,278	922
Malawi	  Ministry of Energy	12/12	12/24	26,386	2,178
Mali	  Direction Nationale de l'Energie/Ministère des Mines, de l'Energie et de l'Eau du Mali	04/09	12/24	18,507	204
Mozambique	  Ministry of Mineral Resources and Energy	10/09	12/24	39,819	1,119
Nepal	  Ministry of Energy, Water Resources, and Irrigation	05/09	12/24	12,417	673
Niger	 <i>To be determined</i>	07/22	12/24	5,057	4
Rwanda	  Ministry of Infrastructure (MININFRA)	10/09	12/24	32,468	342
Senegal	  Ministry of Petroleum and Energy	04/09	12/24	31,371	3,000
Sierra Leone ¹⁸	  Ministry of Energy	07/17	12/24	7,219	35
Tanzania	  Ministry of Energy	12/12	12/24	14,337	2,389
Uganda	  Ministry of Energy and Mineral Development (MEMD)	04/09	12/24	27,255	2,333

¹⁷ Indicative target forecasts are not adjusted to the extended project duration. Indicative targets span a time horizon until the end of 2025 and are not broken down to mid-term targets.

¹⁸ Formerly, Sierra Leone, Liberia and Guinea were part of a multi-country approach with Sierra Leone as the regional hub. As of 07/23, Sierra Leone and Liberia are presented separately with a separate budget and individual indicative targets, whereas Guinea ended in 12/2023. Sierra Leone was commissioned by BMZ in December 2023 with a share of EUR 0.5 million and a contribution of the EU-Delegation in Sierra Leone by EUR 3 million.

Table B-2 Management and thematic activities

Topic and/or country		Duration		Funding (in EUR 1,000)
		start	end	total 55,579
Global level	Management, monitoring, backstopping, learning, etc.	01/09	12/24	38,461
Global level	Globally managed country activities (SCCIF, SIINC, IKEA ¹⁹ , DSS-management at HQ-level, etc.)	08/18	12/24	13,118
Global level	Globally managed extra activities (RBF, reparation of RBFs, etc.)		12/24	4,000

¹⁹ Lead political partners for IKEA-funded activities at country are: Ethiopia: Ministry of Water and Energy (MoWE); Kenya: Ministry of Energy; Uganda: Ministry of Energy and Mineral Development (MEMD). The lead political partners for SCCIF and SIINC in Kenya and Uganda are the same ministries as listed for IKEA-Foundation in Kenya and Uganda.

C. Country project status

Ongoing projects

- Bangladesh *page 42*
- Benin *page 44*
- Bolivia *page 46*
- Burundi *page 48*
- Cambodia *page 50*
- Democratic Republic of Congo *page 52*
- Ethiopia *page 54*
- Kenya *page 56*
- Laos *page 58*
- Liberia *page 60*
- Madagascar *page 63*
- Malawi *page 65*
- Mali *page 68*
- Mozambique *page 70*
- Nepal *page 72*
- Niger *page 74*
- Rwanda *page 76*
- Senegal *page 78*
- Sierra Leone *page 80*
- Tanzania *page 82*
- Uganda *page 84*

Note that the project targets presented in the country sheets reflect the target of EnDev core (cf. [Multi Annual Indicative Programming 2023-2025](#)), while project results may include results of co-financing projects within a country.

Bangladesh



Country facts

Population	171.2 million
Human Development Index	Rank 129 / Index 0.661
UN Classification	LDC
Access clean cooking	25%
Access electricity	96%

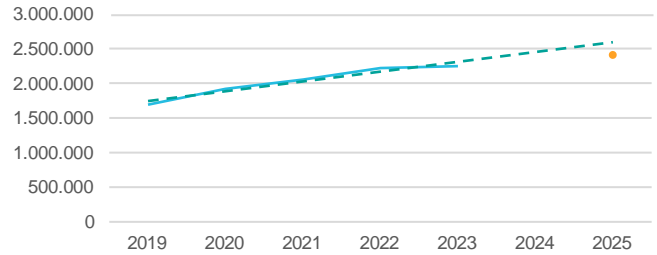
Project facts

Project period	09.2009-12.2024
Budget	EUR 28,989,000
Core funding incl. RBF	EUR 26,939,641
Earmarked	EUR 2,049,360
Average annual turnover of the last three years	EUR 512,410
Implementing Organisation	GIZ, CLASP, PA, Bangladesh Bondhu Foundation
Lead political partner	Ministry of Power, Energy and Mineral Resources

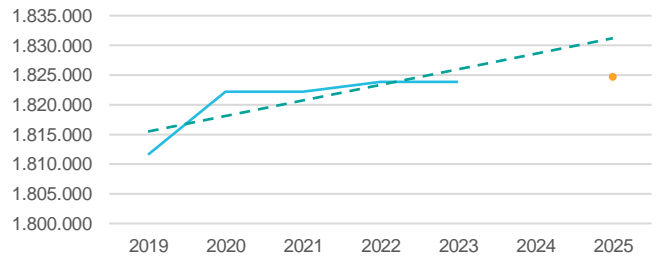
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	2,409,295	2,247,461
People: Electricity	1,824,696	1,823,858
SI	970	969
MSME	22,818	25,482

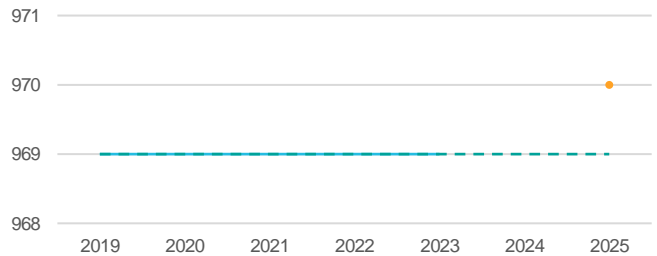
People reached: Access to clean cooking



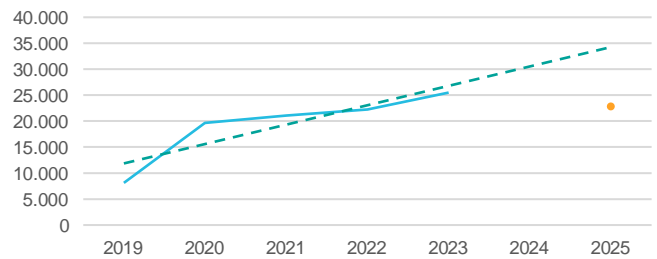
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - - Trend
- Target

Empowering Lives: EnDev's Impact on Clean Cooking and Women's Livelihoods



©Abu Bakkar, AVA Development Society

Background information

EnDev Bangladesh supports the provision of efficient and clean cooking technologies as well as the productive use of solar energy. The current focus areas include developing the market for eCooking appliances, supporting biomass-based improved cookstoves (ICS), and demonstrating the viability of solar battery charging stations for e-rickshaws. Additionally, EnDev Bangladesh aims to fulfil the LNOB agenda by disseminating ICS to tribal communities and providing trainings for rural women to become ICS technicians, thereby creating employment opportunities and ensuring that vulnerable groups are not left behind.

Project progress during monitoring period

To promote eCooking, EnDev Bangladesh used a Results-Based Financing (RBF) mechanism to incentivise sales by Walton and ATEC, two established manufacturers and distributors of eCooking appliances, in the Khulna region of Bangladesh. Walton promoted rice cookers, induction cookers, and infrared cookers, while ATEC specifically promoted induction cookers.

For biomass-based ICS, EnDev Bangladesh worked with Bangladesh Bondhu Foundation (BBF) to disseminate ICS stoves in commercial and institutional settings, as well as to conduct the ICS “Bondhu Chula Doctor” programme that trains disadvantaged women from rural communities how to provide maintenance and after-sales service. The program not only improves the sustainable use of ICS cookstoves, but also benefits rural women with improved job opportunities and well-being. Over the intervention’s lifetime, roughly 11,000 commercial and institutional biomass-based ICS stoves were disseminated, and around 2,100 Bondhu Chula Doctors (56% women and 44% men) were trained. EnDev Bangladesh currently works with AVA Development Society for the continuation of these two activities in tribal communities focusing on LNOB.

On the demand side, EnDev Bangladesh worked with Practical Action on awareness-raising campaigns promoting the benefits of high-quality eCooking appliances. Under this programme, 25,000 households were reached, communication materials disseminated, and various stakeholders involved.

For the enabling environment, EnDev Bangladesh has actively supported its partners, Bangladesh Standards and Testing Institution (BSTI) and Sustainable and Renewable Energy Development Authority (SREDA), in the eCooking sector to establish energy performance standards and testing protocols for eCooking appliances including rice cookers, induction stoves, and electric pressure cookers (EPC). Moreover, EnDev provided technical support to BSTI on the adoption of these standards.

For solar battery charging stations, EnDev Bangladesh worked on an analysis of EV typology and business models. A training was conducted for garage owners in the Khulna region in collaboration with various stakeholders, including SREDA and the concerned Utility, focusing on business models and business viability of solar battery charging station for electric 3-wheeler as well as introducing an EV charging guideline.

"Empowering Journeys: Sathi Begum's Triumph as a Bondhu Chula Doctor"

Sathi Begum is 32 years old. Her family struggled to make ends meet on her husband’s low income. When she learned about the ICS Bondhu Chula Doctor Training Programme provided by BBF, she decided to participate. With her new skills, she began working in Gaibandha and supporting her family financially by selling and installing stoves and providing ICS maintenance. Monthly she sells approx. 100 stoves and earns 20,000-30,000 BDT.

After moving to Rangpur, Sathi continued her work selling and installing stoves and began to tell others about the advantages of the Doctor Training. Her hard work has paid off: people now come to her specifically to buy stoves, allowing her family to lead a more secure life. Today, Sathi's story showcases how determination and effort can change lives. As an ICS Doctor, she not only improved her family’s situation but also became a source of inspiration for many other women like her.

Benin



Country facts

Population	13.4 million
Human Development Index	Rank 166 / Index 0.525
UN Classification	LDC
Access clean cooking	4 %
Access electricity	41 %

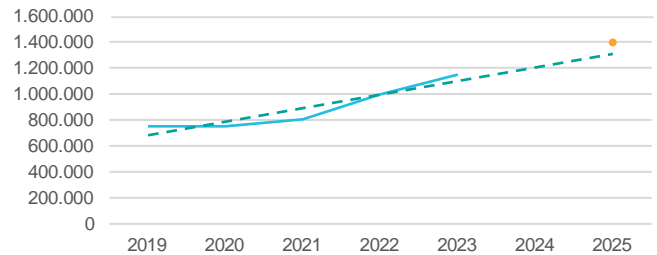
Project facts

Project period	10.2009-12.2024
Budget	EUR 28,924,000
Core funding incl. RBF	EUR 23,924,000
Earmarked	EUR 5,000,000
Average annual turnover of the last three years	EUR 1,696,429
Implementing Organisation	GIZ
Lead political partner	Ministère de l'Énergie

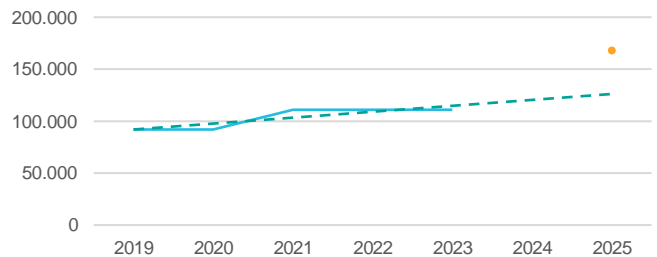
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	1,396,664	1,148,786
People: Electricity	167,959	111,010
SI	826	268
MSME	2,818	1,409

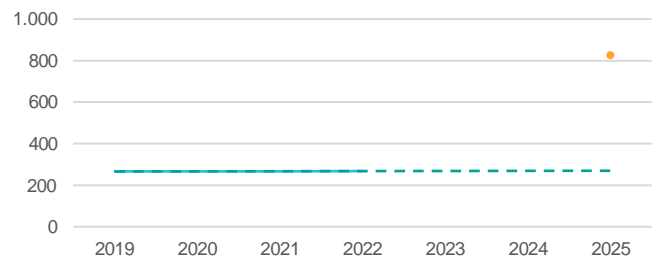
People reached: Access to clean cooking



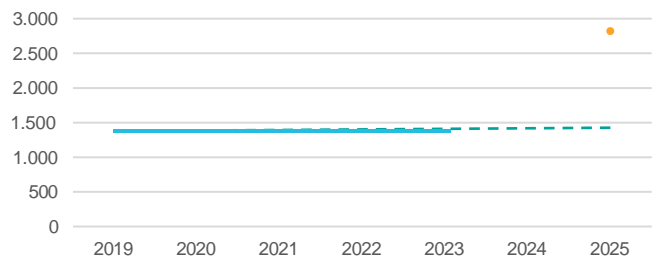
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- Trend
- Target

Fostering forest preservation via Improved Cookstoves



Background information

EnDev in Benin has supported the improved cookstove (ICS) market since 2009 through technical assistance for producers and distributors. The current approach, which started in 2021, focuses on professionalisation and enlarging production and distribution networks for the cooking sector to support sustainable market growth. In 2014, EnDev began its activities in the solar sector and facilitated market development through Results-Based Financing (RBF) incentives and capacity building for market actors. Since 2021, the support to the solar electricity sector focuses on quality assurance and strengthening supply chains in rural areas in order to reinforce consumer trust in product quality and expand to new niches.

Thanks to additional co-financing from the European Union for the period 2022-2025, EnDev Benin can expand its activities on household stoves and solar products, thereby focusing on clean cooking innovations and the certification of solar companies. In this first year of implementation, interventions included household awareness raising, preparatory activities for the creation of a clean cooking innovation centre, and several studies on the development of the renewable energy market in Benin.

"The National Agency for Standards in Benin adopted the quality standards for solar products developed with the support of EnDev"

Project progress during monitoring period

For the solar energy component, in 2023 the programme reached an important milestone in the process of certifying solar products: the National Agency for Standards in Benin adopted the quality standards for solar products developed with EnDev support. This is in line with the objective of promoting the quality and certification of solar products marketed in Benin. To support the supply side and help companies obtain local financing, financial institutions were sensitised to the market and growth potential and encouraged to facilitate financing of solar companies. Furthermore, EnDev

is developing a national e-waste management plan in collaboration with the Ministry of Energy to provide a better framework for the end-of-life management of solar e-waste.

For the cooking component, new cookstove prototypes for institutional and productive use were identified and tested to support the supply of ICS. The programme also continued to provide support and training to producers on quality ICS. In addition, awareness-raising sessions were organised with productive users of energy to demonstrate the benefits of ICS and stimulate demand. A market assessment study was carried out, which shows that there is great potential for the biodigester market in Benin. This study is a steppingstone for the project to develop a national biodigester roadmap with the Ministry of Energy.

Slashing firewood: 80% reduction triumph

A public vocational school in Benin was faced with a high consumption of wood (5.5 tonnes per month), to prepare meals for the students. This caused significant costs for the school as well as harmful smoke, which affected the health of the predominantly female cooks. In June 2021, the school was able to invest in an ICS, as a result of EnDev's provision of financial incentives to a local company, which enabled them to expand distribution networks to the area in which the school is located. Consequently, the school was able to reduce wood consumption to 1.1 tonnes per month, thus improving efficiency, reducing costs, and leading to improved health conditions. The cooks were delighted with the ICS for making their lives easier, reducing smoke-related illnesses, and speeding up the daily cooking process. The school administration noted the transformative impact and was able to utilize the cost savings for the school's general expenses.

Bolivia



Country facts

Population	12.2 million
Human Development Index	Rank 118 / Index 0.692
UN Classification	LLDC
Access clean cooking	86%
Access electricity	98%

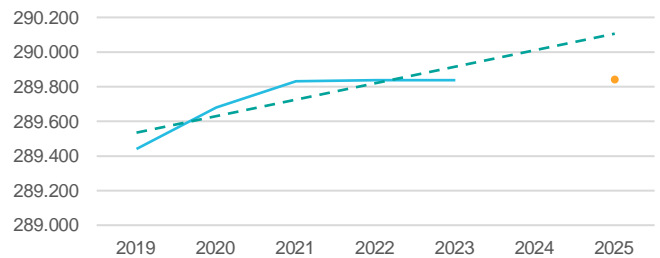
Project facts

Project period	06.2009-06.2024
Budget	EUR 20,192,000
Core funding incl. RBF	EUR 20,192,000
Earmarked	EUR 0,000,000
Average annual turnover of the last three years	EUR 896,763
Implementing Organisation	GIZ
Lead political partner	Vice-Ministry of Electricity and Alternative Energy (VMEEA) of the Ministry of Energy

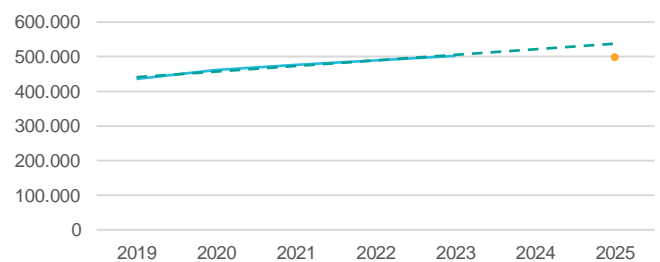
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	289,841	289,838
People: Electricity	497,572	502,277
SI	7,654	7,670
MSME	18,900	19,931

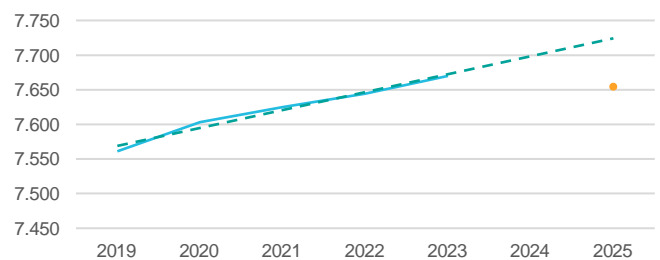
People reached: Access to clean cooking



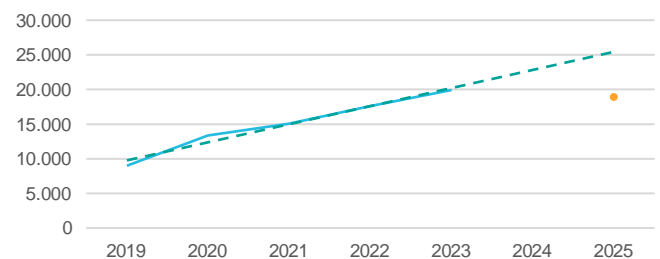
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - Trend
- Target

“The training was very useful for me, in this context of heavy droughts and lack of electricity in rural areas.”



Background information

In Bolivia, the past year was marked by the end of EnDev's implementation in the country in June 2023, and the begin of phase-out activities, which will be finalized until the project's official closure in June 2024. Although the socio-political environment in Bolivia continued to deteriorate in 2023, and the economy showed clear signs of fragility, EnDev managed to achieve and surpass its targets in all its components in the areas of grid densification, market development for solar products, and the promotion of Productive Use of Energy (PUE) for MSMEs.

Project progress during monitoring period

The Women's Energy Fund (FEM) initiative continued to stand out, with the number of female-led organisations gaining access to PUE appliances as well as individualized and tailored technical advice further increasing. The share of women within the supported organisations stood at 70%. Support comprised at least eleven value chains in different eco-regions, such as amazon fruits, textiles, Andean grains, health and personal care, baking, recycling, honey, coffee, horticulture, and camelids. Three additional training workshops were carried out to develop and strengthen capacities on business management for the supported productive organisations, reaching a total of 50 women from 22 organisations. EnDev's support for indigenous women groups via the FEM contributes to the LNOB agenda by ensuring that vulnerable and marginalised groups are not left behind.

Phase-out activities began in July, aiming for the sustainability of EnDev's strategic approaches and results. Approaches, strategies, and knowledge on PUE and FEM were successfully transferred to the Plurinational Authority of Mother Earth (APMT) and Practical Action. APMT secured funding from UNDP to continue implementing FEM

through Practical Action, thus ensuring its continuity and institutional anchorage in the country after EnDev's closure. Databases containing information from 19 years of implementation are being distributed among rural electrification partners, and their staff is receiving training from EnDev on basic data management so they can make the best use of the gathered information.

Strengthening suppliers through specialised technical trainings with the Netherlands Senior Experts Program (PUM)

To further strengthen the technical capacities of solar and PUE technology suppliers in Bolivia, EnDev partnered with the Netherlands Senior Experts Program (PUM),¹ an organisation that provides specialised support in developing countries through a pool of expert volunteers across a wide variety of areas. For the solar sector, three one-day training events on the technical aspects of solar pumping were conducted, focusing on identifying, sizing, and selecting solar pumping systems. Climate factors, crop water requirements, and financial aspects were analysed using digital tools provided by the experts and EnDev, with a highly practical approach. For PUE technology providers, a five-day training workshop was developed on how to design PUE equipment tailored to the clients' needs. Design Thinking methodology was applied to technology, design, prototyping, cost analysis and operation safety. Public and private universities also showed interest in both trainings, with the intention to replicate them in the future. With these training activities, EnDev sought to strengthen a segment of the private sector that is directly related to rural markets and producers supported by the project.

¹ Netherlands Senior Experts Program ([PUM](#)).



Country facts

Population	12.9 million
Human Development Index	Rank 187 / Index 0.426
UN Classification	LDC / LLDC
Access clean cooking	0%
Access electricity	12%

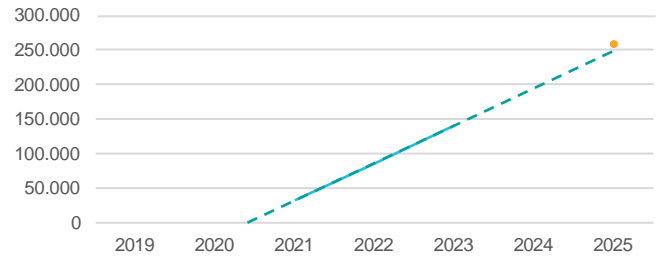
Project facts

Project period	01.2021-12.2024
Budget	EUR 1,015,000
Core funding incl. RBF	EUR 1,015,000
Earmarked	EUR 0,000,000
Average annual turnover of the last three years	EUR 473,976
Implementing Organisation	AVSI
Lead political partner	Focus on local private sector

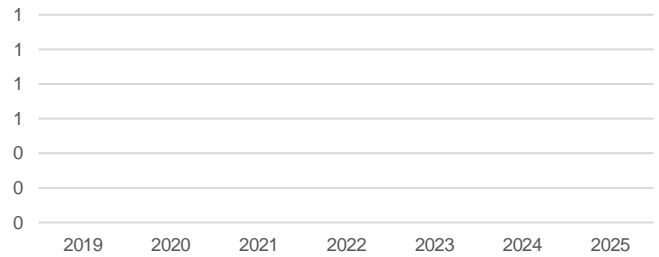
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	257,815	140,534
People: Electricity	0	0
SI	0	0
MSME	146	21

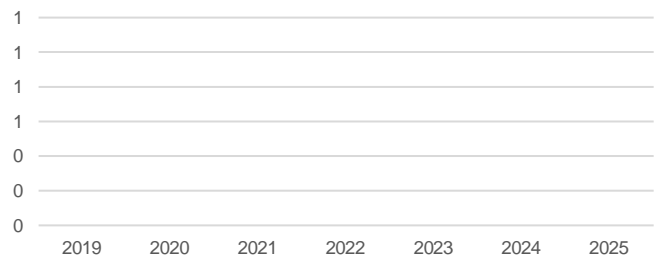
People reached: Access to clean cooking



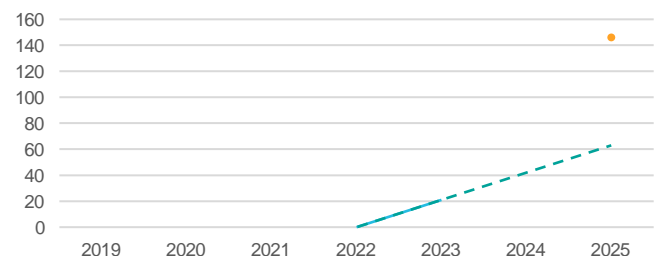
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- Trend
- Target

Promotion of improved cookstoves: an opportunity for the most vulnerable



Economically disadvantaged women selling improved cookstoves. ©AVSI/Ntaraka Gustave 2023

Background information

Since 2017, EnDev Burundi has been providing technical support to local producers of improved cookstoves (ICS) to develop their autonomy and distribution networks and ensure a growing and sustainable market for ICS across the country. The project aims to reach people living in extreme poverty, who make up the vast majority of the population, and to support rural value addition. EnDev Burundi also works with the local administration, NGOs, and the local private sector (cooperatives, small traders, etc.) to raise awareness of the benefits clean cooking. In terms of marketing, EnDev has established partnerships with local media to reinforce clean cooking awareness campaigns through advertisements and radio broadcasts. Special attention will be paid to involve unemployed youth, especially women, in the production and marketing of improved cookstoves.

"I have developed a solid knowledge of marketing and awareness-raising to appeal to consumers in a positive way. At the moment, business is going very well, and I am able to meet my basic needs." - Bigirimana Eliphaz, a youth trained in the production of improved cookstoves.

Despite the now growing market and the success in creating jobs for young people, there are many groups in Burundi that require special interventions. These LNOB groups include the Batwa communities, economically disadvantaged women, and refugees.

Project progress during monitoring period

In 2023, EnDev intensified its support to Burundi's most vulnerable populations (Batwa communities, economically disadvantaged women, and Congolese refugees). EnDev's support included awareness-raising sessions, training, technical assistance, and the provision of equipment and materials for new workshops.

In particular, 178 producers from the Batwa community received technical assistance, 33 economically disadvantaged and vulnerable women received training, and 16,009 Congolese refugees were reached through four awareness-raising campaigns organised in two refugee camps through regular meetings with their leaders.

In 2023, EnDev also worked with the World Bank to support the inclusion of local producers of ICS in a new energy access fund to further scale up improved stove production in 2024 and 2025.

Economically disadvantaged women regain hope

The *Union des femmes vendeuses des foyers améliorées* is an association of vulnerable women who make their living by collecting waste in Buterere, the largest rubbish dump in the city of Bujumbura. The site is frequented by over 300 economically disadvantaged women (some with their children) in search of food and waste to sell such as charcoal and scrap metal. The women and their children are exposed to wounds, snake attacks, rape, banditry, and sanitation-related diseases. Since January 2023, EnDev has been organising campaigns in collaboration with the Bujumbura municipality to encourage women to abandon these practices and become sellers of improved cookstoves. 33 women have participated in awareness-raising sessions, training in sales techniques, and financial education.

"I used to spend all day collecting waste from the dump under very difficult conditions, but now I can sell four improved cookstoves in half a day and spend the rest of the time looking after my children. I hope the future will be better thanks to this activity."

Béatrice Nduwimana, member of the association.

Cambodia



Country facts

Population	16.8 million
Human Development Index	Rank 146 / Index 0.593
UN Classification	LDC
Access clean cooking	22%
Access electricity	86%

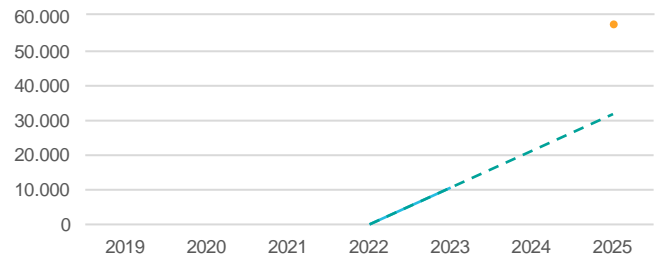
Project facts¹

Project period	03.2015-12.2024
Budget	EUR 5,532,000
Core funding incl. RBF	EUR 5,532,000
Earmarked	EUR 0,000,000
Average annual turnover of the last three years	EUR 656,473
Implementing Organisation	SNV
Lead political partner	Ministry of Mines and Energy (MME)

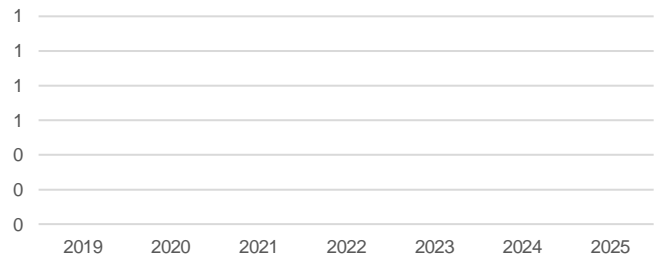
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	57,078	10,620
People: Electricity	0	0
SI	0	0
MSME	18	0

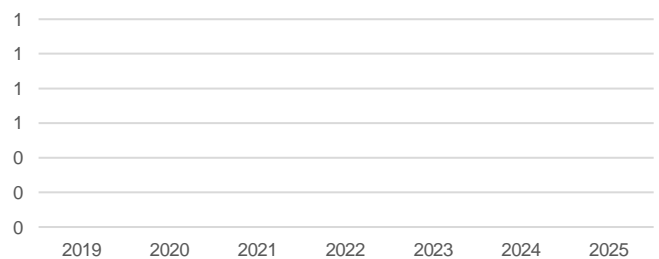
People reached: Access to clean cooking



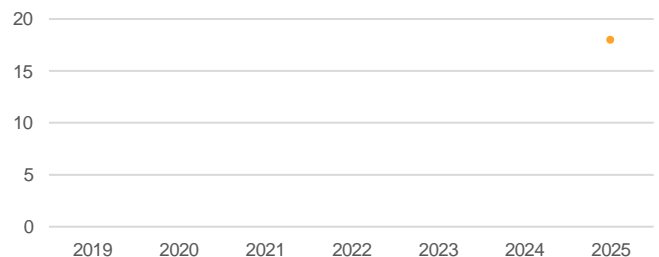
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- Trend
- Target

¹ Formerly, Cambodia, Laos and Vietnam were part of a multi-country approach. Since 07/2023, each country is presented separately with a separate budget and individual indicative targets.

Committed to promote clean cooking fuels under Cambodia's National Energy Efficiency Policy Framework



©SNV

Background information

Since 2016 EnDev has supported the market for improved and higher-tier cookstoves in Cambodia. While initially market development for clean cookstoves was to be stimulated through Results-Based Financing (RBF) mechanisms, end-user awareness proved to be a more significant barrier. Accordingly, in 2020 EnDev shifted its focus from supply-side support towards end-users. Taking inspiration from the WASH sector, where village-based behavioural change communication serves to improve sanitation, methods and tools were repurposed to educate people about the disadvantages of traditional cooking as compared to clean cooking. To address the negative impacts of traditional cooking, EnDev's Smoke-Free Village (SFV) approach sparks the aspiration to replace traditional fuels with clean cooking energy. The approach provides evidence-based information substantiated through surveys, tests, and internal and external verification methods. Suppliers of electric cooking appliances benefit from enhanced demand and business opportunities in the clean cookstoves market.

Project progress during monitoring period

By 2023, 31 Commune Councils for Women and Children, covering a total of 243 villages, partnered up with SFV as the main implementation partner. Furthermore, 200 primary schools, health centres, and religious temples are actively involved under this approach. These actors collaborate under Working Groups for Clean Energy and gather on a quarterly basis to review their progress. Accordingly, in the past year, 1,066 SFV events were organised, including door-to-door visits and village meetings. These events reached over 22,700 people (61% female) of which 20% were part of vulnerable Gender Equality and Social Inclusion (GESI) groups. Moreover, comprehensive data collection on cookstove uses among all households took place, showing an increase of 4,502 electric cookstoves and a decrease of 5,076 traditional stoves in 2023.

Households using clean cookstoves as their primary stove increased in 2023 from 55% to 68%. The share of traditional stoves in households dropped from 65% to 28%, while the exclusive use of traditional biomass stoves dropped from 19% to 11%. Adopting clean cookstoves among GESI households increased from 83% in Q4-2022 to 88% in Q4-2023. Out of 243 villages with 54,000 households, 73 villages have been declared Smoke-Free. This means that in these villages at least 85% of households use primarily clean energy for cooking. To make a systemic change, SNV signed an MoU with the Ministry of Mines and Energy that formalized the collaboration and provides a legal basis for subnational governments to work on clean cooking. Through the World Bank, a National Clean Cooking Strategy was submitted to the Ministry. Communes increasingly allocated their own development budgets for clean cooking, reflecting strong local ownership. Additionally, EnDev established a collaboration with the Loughborough University to review survey data and analyse changes in cooking behaviour. Basing on EnDev's experience in Cambodia, the replication of the Smoke Free Village approach has been initiated with support of EnDev and other development partners in Laos, Nepal, Mozambique, and Ethiopia.

Smoke Free Village declaration ceremony

In October 2023, SNV organized a Smoke-Free Village declaration ceremony in Siem Reap province, with 165 participants, amongst them subnational governments, ministries, diplomats, NGO partners, clean cooking suppliers, and the local population. The event officially recognized the achievements of 37 villages in 4 target provinces. In the two years of the Smoke-Free Village intervention, these villages achieved Smoke-Free Village status, with more than 85% of households having adopted clean cookstoves as their primary stoves. The event inspired stakeholders to realise more Smoke-Free Villages in the future.

Democratic Republic of the Congo



Country facts

Population	99.0 million
Human Development Index	Rank 179 / Index 0.479
UN Classification	LDC / LLDC
Access clean cooking	4%
Access electricity	19%

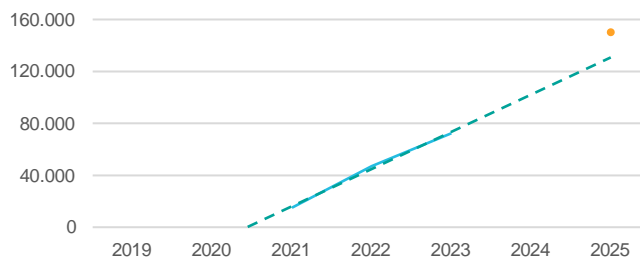
Project facts

Project period	12.2019-12.2024
Budget	EUR 2,161,000
Core funding incl. RBF	EUR 2,161,000
Earmarked	EUR 0,000,000
Average annual turnover of the last 3 years	EUR 475,655
Implementing Organisation	AVSI
Lead political partner	Ministère des Affaires Etrangères

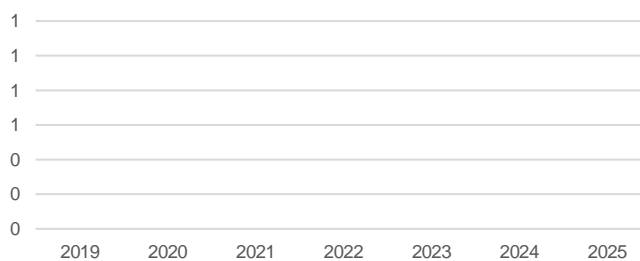
Target achievement: Energy access

Beneficiaries	Targets	Achieved
People: Cooking	150,097	72,402
People: Electricity	0	0
SI Access	0	0
MSME Access	54	29

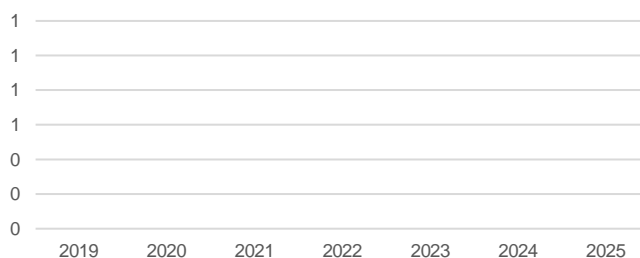
People reached: Access to clean cooking



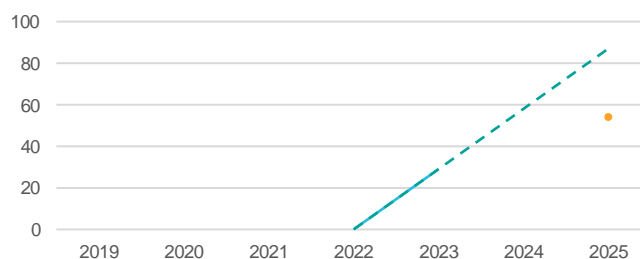
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - - Trend
- Target

Promoting improved cookstove access to internally displaced people



Technical training on improved cookstoves production in a refugee camp, Bunia. © AVSI/Mattia Bordon 2023

Background information

Since 2019, EnDev has been working in Eastern DRC with a focus on Idjwi island (Province of South Kivu) and the cities of Bunia (Province of Ituri) and Kalemie (Province of Tanganyika). This low-income region has one of the lowest electricity access rates in the world (1% in rural areas)¹ and is chronically affected by political crises and armed conflict. In late 2023, the fighting between the Congolese army and non-state armed groups in Eastern DRC again intensified and added to displaced populations in North Kivu, South Kivu, and Ituri, where over 7 million people are affected by the conflict. By 30 November 2023, 5.59 million internally displaced people (IDPs) were registered in the three provinces (2.48 million in North Kivu, 1.68 million in Ituri, and 1.5 million in South Kivu).²

EnDev's intervention areas are home to approx. 178,000 households with average monthly incomes between USD \$90 - 195. Families spend around USD \$30 per month on firewood and charcoal, a significant share of which is produced by armed groups hidden in Virunga National Park. EnDev promotes sustainable development and energy access in DRC through the promotion of clean cooking in all three intervention areas and the promotion of the productive use of energy (PUE) on mini-grids on Idjwi Island, south of Goma.

Project progress during monitoring period

In 2023, sales from supported producers of improved stoves (ICS) grew on target despite the volatile security situation and the continued resurgence of the militant group M23. A behavioural change study and a higher-tier cooking market assessment were conducted. Improvements to three supported production sites were made, with three cycles of business management coaching at all sites and three sales training sessions conducted. Moreover, all producers were supported through trainings on technical aspects, business

management, and marketing as well as provided individual coaching and production assistance. Through the distribution network established by EnDev, thirteen producers have now expanded their reach to sell ICS along the main traffic axes that branch out from the cities of Bunia and Kalemie to the cities of Goma and Bukavu. This is also due to the monthly behavioural change activities to promote the adoption of ICS. On the PUE side, after the identification of profitable value chains, local small businesses using the mini-grid in Bugarula were selected and provided with training and coaching on the use of electric appliances for productive use and business management.

Internally displaced persons become trainers for producers of improved stoves in their community

In 2019, a group of IDPs in a refugee camp in Bunia attended a training on ICS sales and production techniques organised by EnDev DRC in collaboration with UNHCR. In 2023, they moved to the Bujari refugee camp near their home village (close to Goma), but were unable to fully return home due to ongoing conflict. In Bujari, EnDev organised another training with UNHCR, and they decided to employ this group of refugees as trainers for other IDPs.

This highlights a remarkable journey of empowerment and resilience. The initial training provided in 2019 enabled the beneficiaries to become trainers themselves. Their experiences reflect the transformative power of education and collaboration, demonstrating how individuals can overcome adversity and create positive change within their communities. Through their dedication and commitment, they have improved their own lives and inspired others to follow in their footsteps.

¹ [World Bank \(2021\)](#)

² [Democratic Republic of the Congo: Ituri, North Kivu, South Kivu - Scale up Response Report \(Reporting Period July - November 2023\) | OCHA \(unocha.org\)](#)

Ethiopia



Country facts

Population	134.4 million
Human Development Index	Rank 175 / Index 0.498
UN Classification	LDC / LLDC
Access clean cooking	7%
Access electricity	51%

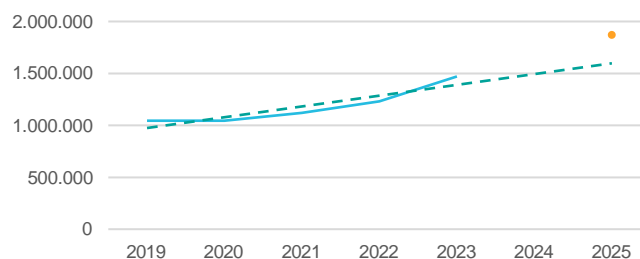
Project facts

Project period	01.2010-12.2024
Budget	EUR 52,111,000
Core funding incl. RBF	EUR 33,889,099
Earmarked	EUR 18,221,901
Average annual turnover of the last three years	EUR 5,839,731
Implementing Organisation	GIZ, SNV
Lead political partner	Ministry of Water and Energy (MoWE)

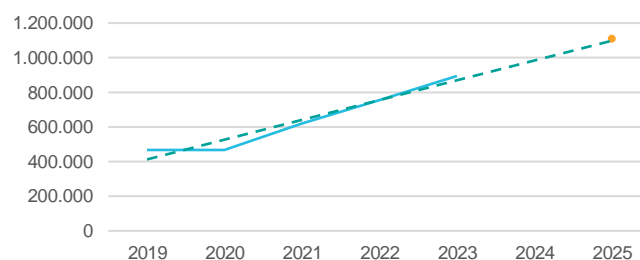
Target achievement: Energy Access

Beneficiaries	Target	Achieved
People: Cooking	1,870,069	1,471,484
People: Electricity	1,108,076	894,292
SI	7,899 ¹	3,468
MSME	18,338	7,211

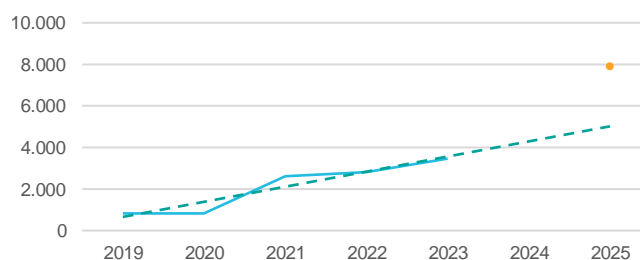
People reached: Access to clean cooking



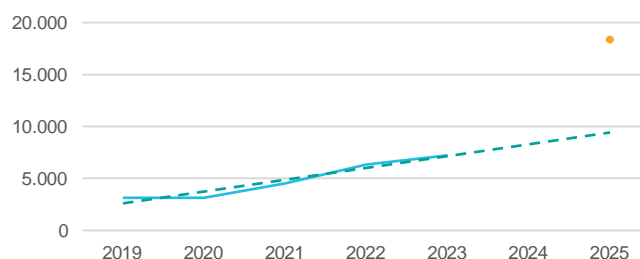
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - - Trend
- Target

¹ Target figures for SI have been adjusted since the MAIP 2023-2025.
Progress Report 2023

Ethiopia: Energising Lives, Energising Change



Background information

Ethiopia has abundant renewable energy potential, but low energy consumption. Ethiopia's National Electrification Programme 2.0 estimates that 56% of the population lack reliable electricity, with 35% needing off-grid solutions, thus limiting economic growth and social development. Moreover, the rural population in Ethiopia lacks knowledge about clean cooking. Over 90% of cooking fuels are unsustainable charcoal or firewood, leading to deforestation, soil erosion, and health problems.

EnDev aims to create self-sustaining markets for clean energy, focusing on renewables and better cooking solutions for low-income households, social facilities, and small to medium-sized businesses in Ethiopia. The interventions are based on four types of services: energy-efficient and improved cookstoves (ICS), solar home/stand-alone systems (SHS), community-based off-grid electricity supply through photovoltaic mini-grids, and on-grid densification. EnDev provides technical and business development support to clean cookstove producers and solar retailers, as well as comprehensive market development support for productive use of energy (PuE). EnDev also supports the government electricity distribution utility responsible for rural electrification. The project further supports the installation of solar systems for electricity access in social institutions such as schools and health centres.

Project progress during monitoring period

In the year 2023, EnDev and partners worked on providing solar technologies including mini-grid systems to electrify rural areas. Also, over 1,000 solar home systems and around 90,000 solar lanterns (PicoPV) have been sold by EnDev-trained retailers, lighting up over 136,000 people.

In 2023, over 239,000 people in households gained access to improved cooking energy and over 24,000 people among LNOB groups gained access to modern energy. EnDev also

provided access to medium and small enterprises and to social institutions serving participants of the Productive Safety Net Programme (PSNP), a safety net programme provided by the government of Ethiopia for households that are both chronically food insecure, poor, and often affected by shocks.

Furthermore, the BMZ-funded Green People's Energy project supported the renovation of two of the five micro hydro-power plants' (MHP) from the EnDev pilot MHPs that were installed in 2012, notably the Gobecho II MHP (28kW installed power) and the Hagera Sodicha MHP (40kW installed power) both in the Sidama region.

Women Spearheading Energy Access in Ethiopia

In a tribute to her exceptional work in achieving universal energy access, Bezawit Mekonnen, a trailblazer at the Ethiopian Electric Utility (EEU), received the Influential Women in Energy Award Ethiopia 2023. Collaborating seamlessly with the Ethiopian Women in Energy Association (EWIEN) and EnDev, she spearheaded transformative initiatives electrifying rural areas leaving an indelible impact on numerous communities. As ADELE Project Coordinator, Bezawit's orchestrated the successful installation of electricity in over 2,000 towns. This encompasses vital institutions such as health centers and schools, fostering reliable rural electric service, and advancing gender equality within the sector. The recognition presented to Bezawit at the national awarding ceremony underscores the importance of women's visibility and participation in the energy sector. Bezawit and her fellow awardees are leading the change towards universal energy access in Ethiopia. The initiative was supported by EnDev reflecting a shared commitment to empowering communities. [Click here to the link of Youtube video](#)

Kenya



Country facts

Population	54.0 million
Human Development Index	Rank 152 / Index 0.575
UN Classification	N/A
Access clean cooking	24%
Access electricity	77%

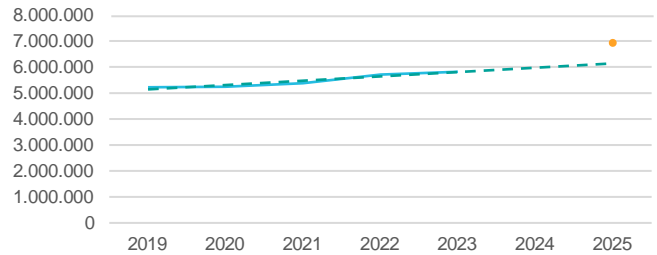
Project facts

Project period	04.2009-12.2024
Budget	EUR 36,389,000
Core funding incl. RBF	EUR 29,844,000
Earmarked	EUR 6,545,000
Average annual turnover of the last three years	EUR 2,080,501
Implementing Organisation	GIZ, CLASP, SNV
Lead political partner	Ministry of Energy and Petroleum (MoEP)

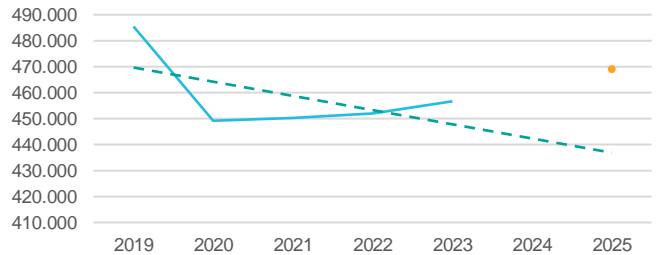
Target achievement: Energy access

Beneficiaries	Targets	Achieved
People: Cooking	6,925,606	5,816,660
People: Electricity	469,044	456,742
SI	1,320	1,544
MSME	13,030	13,030

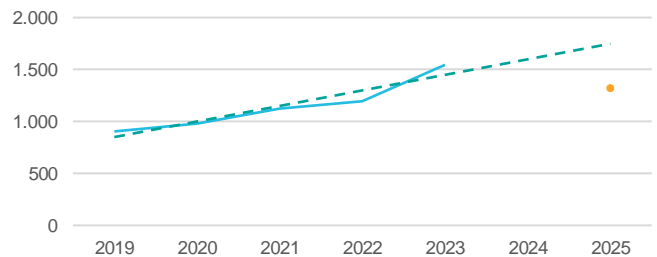
People reached: Access to clean cooking



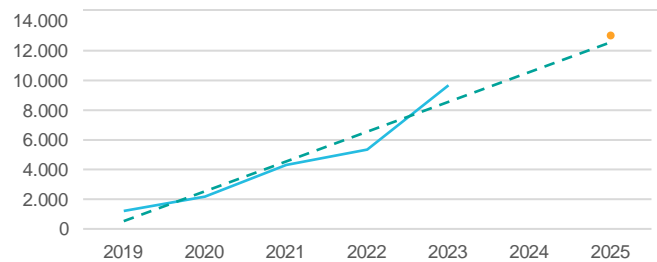
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - - Trend
- Target

Enabling efficient and self-sustaining markets for productive use and higher-tier cooking through result-based financing



©Daniel Abonyo

Background information

Since 2009 EnDev has promoted access to sustainable energy for households, social institutions, and MSMEs in Kenya. Approximately 75% of the Kenyan population has access to electricity, while about 30% have access to clean cooking solutions. EnDev supports Kenya's goals to achieve universal access to electricity by 2030 and to clean cooking by 2028 by focusing on rural areas and displacement settings, and by providing various initiatives to strengthen the demand side, supply side, and enabling environment.

EnDev Kenya further implements a USAID-funded Smart Community Coalition Innovation Fund project for solar e-cycles in the humanitarian context, as well as the Sustainable Energy for Smallholder Farmers (SEFFA) project, funded by the IKEA Foundation, which promotes productive use of energy (PUE) solutions in rural value chains. In addition, EnDev implements the African Biogas Component Kenya, an associated project funded by DGIS and DANIDA, which promotes a sustainable and growing market for biogas.

Project progress during monitoring period

In 2023, EnDev Kenya initiated two RBF schemes to promote uptake of solar PUE technologies, and one RBF for higher tier cooking (HTC). One of the solar PUE RBFs is designed for Last Mile Entrepreneurs (LMEs) and informal businesses, who promote and sell solar PUE technologies, whereas the second RBF is designed for regular solar PUE companies. Both PUE RBF are expected to reach more than 8,000 MSMEs as well as 20 social institutions and community water projects.

The HTC RBF is expected to reach 10,500 households and MSMEs, and is designed for companies that promote adoption of electric and bio-ethanol cooking appliances. All three RBFs are contributing to sector transformation by enabling efficient and self-sustaining markets.

Regarding gender mainstreaming, EnDev launched the Transforming Women in Energy Project, implemented by the Women in Sustainable Energy Entrepreneurs Cooperative (WISEe). The goal of this collaboration is to train 100 women on entrepreneurial skills as well as clean cooking and solar

system installation. This activity will empower female entrepreneurs, tackle gender barriers, and increase women's participation in the energy sector.

Furthermore, EnDev supported the Ministry of Energy and Petroleum in undertaking two studies: one to determine the extent of energy access in social institutions, and another to assess the effect of taxation on stimulating the domestic bioethanol industry and uptake of bioethanol cooking fuel in Kenya.

To effectively promote access to finance, EnDev – in collaboration with other projects in GIZ Kenya's Energy, Transport, and Climate Change Cluster – organised a workshop on financing options for clean cooking and solar technologies. The workshop informed financial intermediaries and investors in Kenya on financing opportunities in clean cooking and solar PUE technologies.

Under the humanitarian energy component implemented by SNV, EnDev facilitated trainings for solar technicians, sales agents, and vendors on basic repair and maintenance for solar products, eCooking appliances, and institutional improved cookstoves.

A Menace turned into Clean Energy

To curb the challenges faced by women gathering firewood in Kanyadhiang' village, Homabay county, Linah Anyango came up with an alternative renewable source of energy that is cleaner and more affordable.

Recognizing the problematic issue arising from water hyacinths in Lake Victoria, Linah had an innovative idea of making fuel briquettes from hyacinths which would then be used as a clean energy source. She founded Kanyadhiang' Briquettes Nyale, which translates to "briquettes are our solution" in the local dialect. Using hyacinth briquettes to replace firewood does not only reduce indoor air pollution but also provides 35 women with income. EnDev Kenya supported the testing of the briquettes and is planning to turn the production site into a learning center for other women and entrepreneurs.

Laos



Country facts

Population	7.5 million
Human Development Index	Rank 140 / Index 0.607
UN Classification	LDC
Access clean cooking	9%
Access electricity	100%

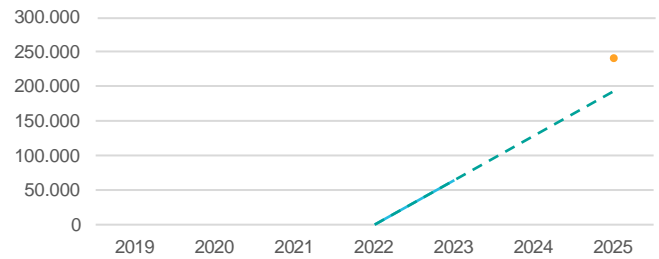
Project facts¹

Project period	03.2015-12.2024
Budget	EUR 2,885,000
Core funding incl. RBF	EUR 2,885,000
Earmarked	EUR 0,000,000
Average annual turnover of the last three years	EUR 465,181
Implementing Organisation	SNV
Lead political partner	Ministry of Science and Technology (MoST)

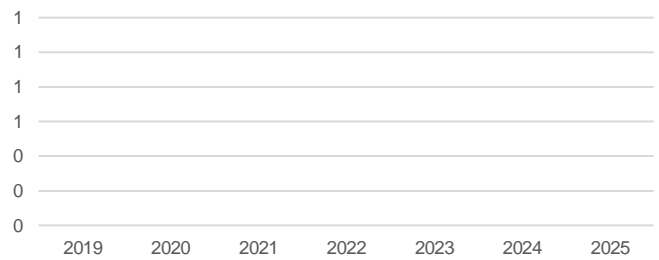
Target achievement: Energy Access

Beneficiaries	Target	Achieved
People: Cooking	240,510	64,251
People: Electricity	0	0
SI	140	190
MSME	846	398

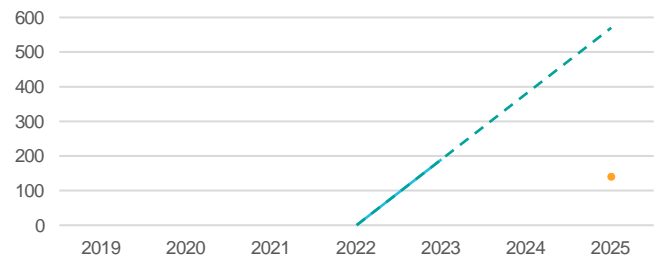
People reached: Access to clean cooking



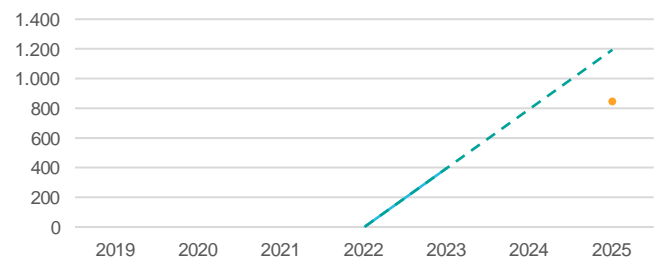
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - Trend
- Target

¹ Formerly, Cambodia, Laos and Vietnam were part of a multi-country approach. Since 07/2023, each country is presented separately with a separate budget and individual indicative targets.

Promote smarter cooking, reduce deforestation and greenhouse gases.



Background information

EnDev Laos has been implemented by SNV since 2016, focusing on both improved and higher-tier biomass cookstoves and electric cooking. The project has extended supply chains to underserved areas, concentrating on impoverished and remote areas to ensure no one is left behind. The project is now intensifying project activities in isolated remote areas to boost local production (quality assurance, testing, and research and development) and strengthen the supply chain network. In addition to this, the promotion of institutional cookstoves for productive use of energy (PUE) and the development of the electric cooking (eCooking) market through the piloting of the Smoke Free Village (SFV) concept.

Although only 4% of the population in Laos uses non-solid fuels for cooking,² the prospects for eCooking are promising given abundant hydropower potential, an electrification rate of over 95%, and the national strategy to become the “Battery of Southeast Asia”.

Project progress during monitoring period

EnDev has helped to establish and strengthen the improved cookstove (ICS) market in Laos, contributing to sustainable access to clean cooking solutions. The current project supply chain network includes 34 ICS producers, 11 distributors, over 2700 retailers, and 5 stove testing centres. Overall, the project has reached 64,251 people with ICS and induction cookstoves (e-cookstoves) at household level as well as 398 MSMEs and 190 social institutions with institutional cookstoves. A long-term partnership has been established with the Lao Women Union (LWU) to mainstream gender in the ICS market. Together with the LWU, female entrepreneurs and female-led enterprises were supported, and women targeted in demand generation activities.

As a result, the representation of women in the ICS labour market is remarkable, i.e. 50% of the jobs in ICS production

centres are held by women and 80% of the retail shops are owned and managed by women.

In the current phase EnDev has been piloting the Smoke Free Village approach in five villages to promote e-cooking solutions, based on the SFV approach practised in Cambodia. These initiatives have been well-received by the government and the local community. The Lao government sees eCooking as a key driver for improving human and environmental health. Traditional cooking practices using charcoal and wood biomass contribute to 8,000 deaths a year in Laos from household air pollution. Consequently, the government has signed a letter of intent to partner with the Global eCooking Coalition (GeCCo) to promote e-cooking across the country.

Laos aims to reduce household exposure to air pollution

The Government of Laos and EnDev co-organised an international workshop on e-cooking in June 2023 to bring together key stakeholders and identify opportunities and barriers for scaling up electric cooking in Laos. Policymakers and international experts shared experiences and insights from Laos, Cambodia, Nepal, and beyond. In his opening remarks, Dr Sinava Souphanouvong, Deputy Minister of Energy and Mines said: *“The use of electrical cooking devices for food preparation provides a significant opportunity to promote smarter cooking methods as well as to reduce deforestation and the greenhouse gases that cause climate change, while addressing air pollution within the household.”* Laos has significant potential for eCooking with 80% of its energy generated from renewable sources (hydropower), a high electrification rate, and a low electricity tariff.

² Lao Statistics Bureau (2015). [Fourth population and housing census. Progress Report 2023](#)

Liberia



Country facts

Population	5.3 million
Human Development Index	Rank 178 / Index 0.481
UN Classification	LDC
Access clean cooking	0%
Access electricity	28%

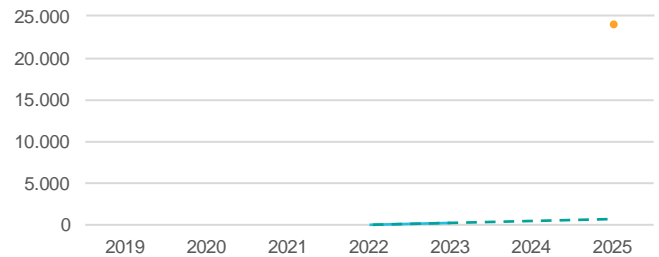
Project facts¹

Project period	05.2012-12.2024
Budget	EUR 16,052,000
Core funding incl. RBF	EUR 12,236,000
Earmarked	EUR 3,816,000
Average annual turnover of the last three years	EUR 2,030,190
Implementing Organisation	GIZ
Lead political partner	Ministry of Mines and Energy

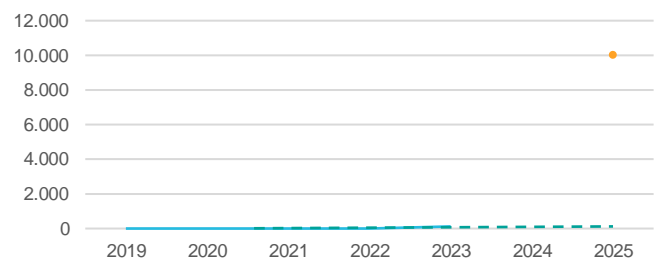
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	23,927	232
People: Electricity	10,005	122
SI	98	38
MSME	5	0

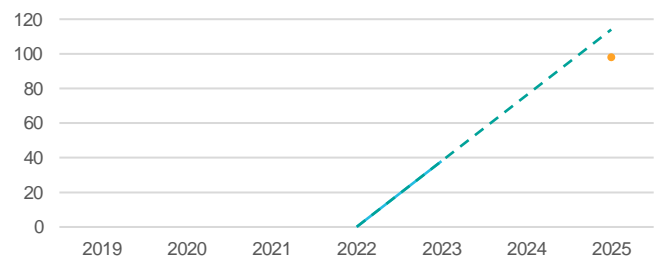
People reached: Access to clean cooking



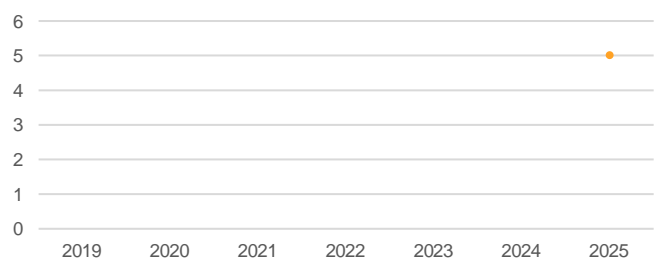
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- Trend
- Target

¹ Formerly, Sierra Leone, Liberia and Guinea were part of a multi-country approach. As of 07/23, Sierra Leone and Liberia are presented separately with a separate budget and individual indicative targets, whereas Guinea ended in 12/2023.

Remote Monitoring for Better Energy Services in Health Facilities



Background information

More than 52%² of Liberia's 5.3 million inhabitants live below the poverty line, and the country is significantly affected by inadequate access to healthcare, education, and basic utilities, such as energy. To date, only 28% of households have access to electricity, the majority of which through off-grid solar (OGS) solutions, while access to clean cooking solutions is reported at 0%.³

Project progress during monitoring period

In 2023 EnDev decided to unbundle the joint programming for Sierra Leone, Liberia, and Guinea and implement separate country measures for Sierra Leone and Liberia – while Guinea was phased out. This country-specific approach allows for the implementation of more tailored interventions to overcome the energy access gaps within each country.

In this context, EnDev has restructured its team in Liberia, bringing on board additional expertise to enhance its measures in the focus areas of clean cooking energy, the electrification of health facilities, and demand-side subsidies (DSS).

With ear-marked funding from BMZ ("Energising Health"), EnDev Liberia has started to electrify more than 300 health facilities with solar lighting systems and solar direct-drive (SDD) vaccine fridges. The installation of 169 SDD fridges will bring vaccines to last-mile patients in underserved regions who would otherwise only be reached by vaccines delivered in ice boxes via motorbike.

Efforts have been closely coordinated with the Ministry of Health and other core donors in Liberia, such as UNICEF, to ensure an optimal allocation of vaccine cold chain equipment and logistics. EnDev expects to finalize installation and

commissioning of all systems within the first quarter of 2024 – just in time for Liberia to receive its first doses of the newly approved Malaria vaccine (see text box for more information).

The market for clean cooking energy and improved cookstoves in Liberia is still in its infancy, with only a handful of active and successful companies. EnDev has commissioned a baseline study to further investigate the sector's most pressing challenges and design concrete solutions. Work has already started for developing various interventions aimed at supporting artisans in the production of improved cookstoves, as well as for providing institutional stoves to schools in vulnerable areas.

Energising Health (EnHealth): Remote monitoring improves operations and maintenance of solar equipment in remote health facilities

All solar equipment provided under the EnHealth initiative comes fully equipped with remote monitoring functionalities. This means that officials at the Ministry of Health in Monrovia, technical support teams in the county capitals, or the manufacturer have 24-hour access to performance data and information. Alarm notifications are sent if a system goes offline or if fridge temperatures exceed a certain threshold, which would have negative consequences for the integrity of the vaccines. This first-of-a-kind, full roll-out of remote monitoring capabilities in the Liberian health sector is expected to positively contribute to the Government's capabilities by facilitating predictive maintenance and quick responses to system anomalies and failures.

² UNDP (2023) Liberia [Multidimensional Poverty Index](#)

³ World Bank (2021). Liberia Electricity Sector Strengthening and Access Project – [Project Appraisal Document](#). The World Bank. **Progress Report 2023**

Demand Side Subsidy Component

Project Facts

Project Period	07.2022-09.2025
Estimated Country Budget	EUR 3,816,000
Political Partner(s)	Ministry of Mines and Energy (MME)

Progress of the DSS component in 2023

With the Demand-Side Subsidy (DSS) pilot in Liberia, EnDev aims to facilitate access to electricity – in particular: Tier 1 solar home systems (SHS)⁴ – for low-income and vulnerable communities, which are currently not reached by commercial markets. The DSS pilot is implemented within Liberia’s Solar Home System Result Based Financing (LSHS-RBF) Programme and complemented by a supply side subsidy (SSS) from the World Bank’s Liberia Electricity Sector Strengthening and Assets Project (LESSAP), implemented by Liberia’s Rural and Renewable Energy Agency (RREA). EnDev has also contracted BRAC Liberia as the project’s fund manager.

Intensive work sessions with RREA and the World Bank throughout the year led to the successful launch of the DSS pilot in December 2023. Several companies have submitted applications, and EnDev expects to see the first sales under the pilot within the first quarter of 2024. Applications are open on a running basis until 31 May 2024.

Initially, EnDev will roll out its subsidies in two particularly vulnerable counties in Liberia’s Northwest – Grand Cape Mount and Gbarpolu. Due to the distinct geographical scope, and lack of specific targeting data to select beneficiaries, EnDev has set a conservative subsidy level of 20% of the market price, with a maximum cap at USD \$40 per product. After evaluating the success of initial implementation, EnDev envisages scaling up its subsidies to additional counties, making energy access more affordable and accessible for those furthest left behind.

In parallel, EnDev has started to develop and implement capacity building for participating companies to overcome challenges associated with low business expertise and financial constraints.

Alignment and collaboration with World Bank

In Liberia, the DSS pilot is part of the “Liberia Solar Home System Results-Based Financing (LSHS-RBF)” programme. The LSHS-RBF is a joint RBF initiative between EnDev and the World Bank/RREA. Under this joint pilot, EnDev provides end-user subsidies through the DSS component, while the World Bank through RREA provides companies with a supply-side subsidy for each product sold.

This collaborative approach is manifested in shared creation, a joint operations manual, joint claims processing procedures (e.g., the joint contracting of an independent verification agent), and the utilization of a joint RBF management platform currently being developed by RREA.

KPI	Target	Achieved
# of people reached (solar products)	37,950	N/A

DSS lessons learned

Liberia’s off-grid solar (OGS) sector is still in its infancy, and companies’ capacities to implement large-scale RBF interventions are limited. The largest, and more mature, companies are contracted to deliver SHS sales under the Beyond-the-Grid-Fund-for-Africa initiative and signalled only limited capacities to absorb further RBF funding. Therefore, the DSS pilot works with smaller companies that require further development. Extra capacity building and one-on-one business coaching throughout the project’s duration is necessary in order to successfully expand market reach to the target regions.

Additionally, while EnDev’s subsidies are earmarked for a direct reduction of end-consumer prices, the World Bank’s supply-side subsidies will provide companies with the financial resources to import products and expand market reach to remote areas. In combination, this complementary approach promises to both increase affordability for the poorest and most vulnerable communities, while at the same time supporting OGS companies to sustainably expand their business and develop new markets.

⁴ The DSS pilot in Liberia only supports Tier 1 SHS as defined by the [Multi Tier AFramework | Tracking progress toward sustainable energy goals \(esmap.org\)](#)

Madagascar



Country facts

Population	29.6 million
Human Development Index	Rank 173 / Index 0.501
UN Classification	LDC
Access clean cooking	1%
Access electricity	34%

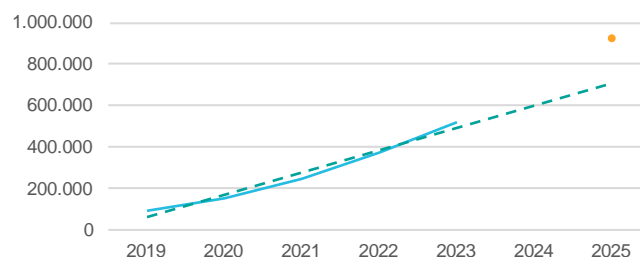
Project facts

Project period	12.2012-12.2024
Budget	EUR 2,278,000
Core funding incl. RBF	EUR 2,278,000
Earmarked	EUR 0,000,000
Average annual turnover of the last three years	EUR 140,909
Implementing Organisation	ADES
Lead political partner	Ministère de l'Energie et des Hydrocarbures

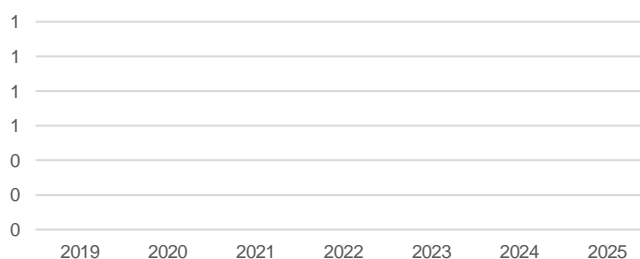
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	922,080	517,748
People: Electricity	0	0
SI	474	627
MSME	2,197	1,790

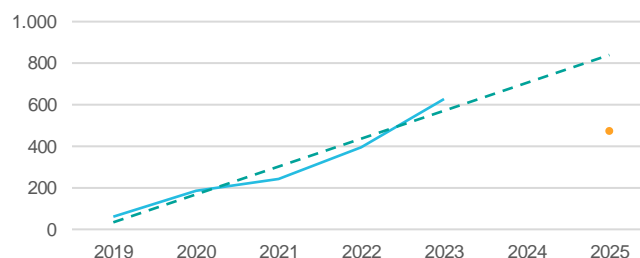
People reached: Access to clean cooking



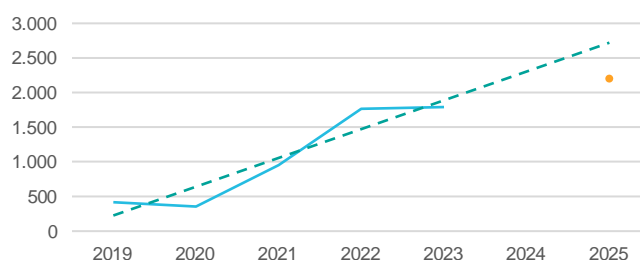
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - - Trend
- Target

Pro-poor pricing for improved cookstoves



Background information

Madagascar has one of the highest deforestation rates in the world, threatening its unique biodiversity as well as its people. The country also has one of the highest poverty rates in the world, reaching 80%¹ in 2022. The situation has been further exacerbated by the global COVID-19 pandemic, with full recovery still years away. A high rate of unemployment, job precariousness, malnutrition, low school attendance, domestic violence and alcoholism, combined with widespread corruption, continues to increase inequalities across the entire country.

EnDev works in Madagascar through the Swiss NGO ADES, which advocates for the preservation of natural resources through energy-efficient cooking solutions, reforestation, and educational projects. With its production factories, sales and distribution centres, mobile branches, and networks of resellers, ADES reaches a large part of the population in all regions of the island.

Project progress during monitoring period

With the support of EnDev, ADES managed to increase its productivity indicators in 2023. The 500,000th stove, a parabolic cooker, was installed in a Malagasy household in the South. Production increased to nearly 100,000 cookers, with sales slightly behind at more than 87,000 pieces. At the end of 2023 sales topped 10,000 two months in a row, a milestone for ADES. The limit of the production capacity, currently 100,000, is one of the next challenges ADES plans to address.

In addition to the production of improved stoves, ADES successfully builds modular customized kitchens for schools – which include electrification and running hot water supply – and trains kitchen staff with the support of EnDev.

In 2023 an additional 1,088 children profited from the nine institutional kitchens that have been installed, as well as dozens of school staff and cooks.

Among the sales channels ADES relies on, the network of resellers leads with a share of 60%, followed by direct sales and partnerships, each with 20%.

At the end of 2023, ADES entered a phase of consolidation of the large progress made since 2020, namely doubling the production capacity and expanding its presence throughout the country in successive expansion phases financed by EnDev.

Pro-poor pricing for improved cookstoves

Roughly 80% of Madagascar's population lives below the international extreme poverty line of USD \$2.15 per day¹. Limited purchasing power means people often cannot afford an improved cookstove. Therefore, in 2022 ADES developed a special pro-poor target that is aimed to improve energy access for people living in extreme poverty. To achieve this, ADES introduced a new pricing system based on a vulnerability index to provide access to modern cooking solutions for the most impoverished communities in Madagascar. Stove prices were reduced by 30-50%, depending on the model and region. In 2023, over 100,000 people profited from this pricing system.

¹ [Global_POVEQ_MDG.pdf \(worldbank.org\)](https://www.worldbank.org/POVEQ-MDG)

Malawi



Country facts

Population	20.4 million
Human Development Index	Rank 169 / Index 0.512
UN Classification	LDC / LLDC
Access clean cooking	1%
Access electricity	15%

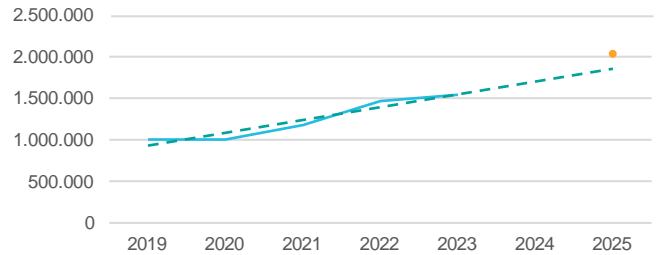
Project facts

Project period	12.2012-12.2024
Budget	EUR 26,386,000
Core funding incl. RBF	EUR 12,045,000
Earmarked	EUR 14,341,000
Average annual turnover of the last three years	EUR 2,321,530
Implementing Organisation	GIZ, MEAVE, United Purpose
Lead political partner	Ministry of Energy

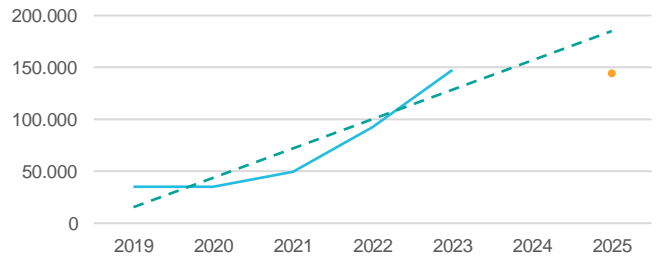
Target achievement: Energy Access

Beneficiaries	Target	Achieved
People: Cooking	2,033,367	1,540,059
People: Electricity	144,159	147,490
SI	31	167
MSME	436	521

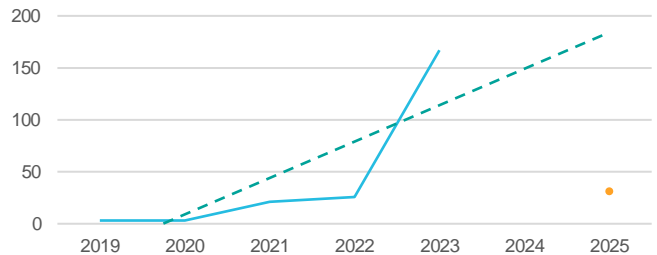
People reached: Access to clean cooking



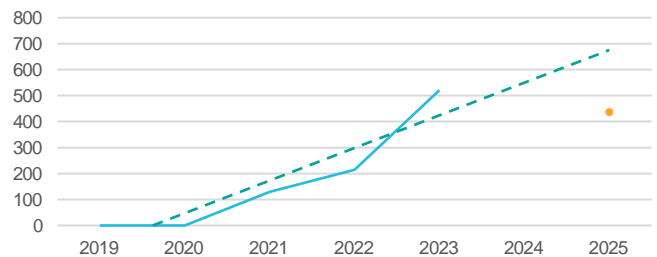
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - - Trend
- Target

Solar refrigerators for enhanced health services and quality vaccinations



Background information

In 2023, EnDev marked 11 years of supporting households, MSMEs, and social institutions (SI) to gain access to sustainable energy in Malawi. The Malawi portfolio has consistently supported market and business development initiatives for a wide range of technologies, including improved cookstoves (ICS) and off-grid solar (OGS) PicoPV and solar home systems (SHS). Besides contributing towards carbon emissions reduction and improving the enabling environment for private sector growth, EnDev's interventions have also resulted in building the capacity of enterprises and institutions affiliated with Renewable Energy Industries Association of Malawi (REIAMA) and the National Cookstoves Steering Committee (NCSC). EnDev's co-financed components – AgEnergy financed by the Global Energy Alliance for People and Planet (GEAPP), Putting Energy to Work! financed by the European Union (EU) and EnergICE co-financed by the Embassy of Iceland in Lilongwe – have carried out stakeholder consultations, finalised conceptualisation, and begun implementation. These components focus on promoting PUE technologies, job creation and women's empowerment, and energising social institutions.

Projects' progress during monitoring period

EnDev offered production groups of ICS stoves with business development support, financial literacy trainings, and linkages to microfinance institutions, and provided stove retailers with marketing support. Additional incentives for last-mile ICS agents, vertical integration along the ICS value chain, adoption of quality standards, and a unified serial numbering system were successfully piloted and upscaled in 2023. EnDev commissioned the testing of the Higher-Tier Cooking (HTC) "Zipolopolo" pellet stove and supported the market development of the stove in Lilongwe and Blantyre districts, with promising adoption levels among users.

EnDev continues to provide tailor-made Business Development Support (BDS) to solar companies in Malawi with the objective to enhance business models and capacities as well as improve access to financial resources. BDS will be

strengthened by the complementary support from RVO's Energy Enterprise Coach (EEC) initiative and GET.invest.

EnDev consciously supports constructors of local ICS and OGS solutions for social institutions. The EnergICE co-financed project designed cooking shelters for guardians in health facilities. The project also successfully instituted District Solar Coordination Units (DCCUs) – teams trained on the operation and maintenance of backup solar power installations in district hospitals and schools – within the Mangochi district.

To support the enabling environment, EnDev provides extensive technical support to the NCSC and REIAMA. Under the NCSC, EnDev continues to lead a working group on fuel use and firewood stoves, and supports the monitoring of clean cooking targets in Malawi's Energy Compact. EnDev supported REIAMA to host the second National Energy Conference, played a key role in organising the 2023 Annual Cleaner Cooking Conference, and took the lead on a cook-a-thon showcasing stoves in action. Additionally, as an anchor partner of the Global Electric Cooking Coalition (GeCCo), EnDev provided input to the Malawi eCooking Roadmap.

Energising Health: solar refrigerators for enhanced health services and quality vaccinations

With ear-marked funding from BMZ, the Energising Health project is providing COVID-19 support in 12 districts across Malawi by targeting rural health posts and health centres selected by Ministry of Health. The project supported the installation of 184 Solar Direct Drive (SDD) refrigerators for vaccine cold-chain and 94 solar kits, including wiring and re-wiring as needed, to electrify and remotely monitor all installations in facilities. This roll-out of solar refrigeration and remote monitoring capabilities will enhance the delivery of health services and provide a guarantee that patients receive quality vaccinations.

Demand-Side Subsidies Component

Project Facts

Project Period	08.2022 - 09.2025
Estimated Country Budget	EUR 4,866,000
Political Partner(s)	Ministry of Energy

Progress of the DSS component in 2023

The Demand-Side Subsidies (DSS) pilot in Malawi aims to bridge the affordability gap for the most vulnerable by targeting those classified as ‘poorer’ and ‘poorest’ in the United Beneficiary Registry, a nation-wide social registry system hosted by the Ministry of Economic Planning and Development. Using a Results-Based Financing (RBF) mechanism, EnDev will facilitate access to off-grid solar products (OGS) and improved cookstoves (ICS) for people in ultra-poor settings who would otherwise not be reached by the commercial market or existing public initiatives. The pilot will commence in the districts of Balaka, Dedza, Nkhatabay, and Salima.

In 2023, EnDev Malawi has made significant progress in operationalising project design and preparing for implementation. The pilot was presented to the respective district committees in all four districts, the concept note underwent an external review by the End User Subsidy Lab, and the operations manual was drafted. Self-Help Africa (SHA) was selected as the Project Manager and will subcontract CUMO Microfinance Limited (CUMO) to serve as the Fund Manager of the RBF.

EnDev collected data from OGS and ICS companies to track the prevailing market prices of products supported under the pilot, thereby informing initial subsidy levels for each product category. A baseline survey, led by Partners for Innovation (PFI) and AKVO, was conducted to track the current indicators related to market access and affordability of OGS and ICS products within the target districts as well as to provide useful information for setting initial subsidy levels and finalising project design.

Alignment and collaboration with World Bank

EnDev Malawi and the World Bank ESMAP team held regular, bi-weekly exchanges to coordinate and align between the DSS pilot and the World Bank’s Ngwee Ngwee Ngwee Fund, a component of the Malawi Electricity Access Project (MEAP). Collaboration with the World Bank team throughout the inception phase informed the pilot’s design, as well as indicated the potential to scale successful DSS models under a second phase of the World Bank MEAP project.

KPI	Target	Achieved
# of people reached (total)	200,000	N/A
# of people reached with solar products	20,000	N/A
# of people reached with cooking products	180,000	N/A

DSS lessons learned

It is encouraged to seek data from different sources – sister programmes, government departments, or multilateral agencies – to design a subsidy approach as well as determine willingness and ability to pay among target beneficiaries, which is usually difficult to deduce. A baseline study is useful in determining affordability metrics and subsidy levels for initial implementation, while data from other partners and programmes can be utilised to validate the assumptions. Throughout the implementation period, the subsidy level will be periodically reviewed and adjusted based on updated income and affordability metrics, product uptake (i.e. sales figures) from the pilot, as well as evidence that market distortion has not occurred.

The pilot will test the novel approach of using the UBR database to identify eligible households and set the requisite subsidy levels per UBR classification and product type. To reduce any social tensions that could result from this targeting approach, communities will be properly sensitised on the UBR, the meaning of its classifications, and the reason for allocating different subsidy levels. EnDev thereby aims to share lessons-learned on the use of social registry systems within DSS mechanisms and RBFs more broadly.

Mali



Country facts

Population	22.6 million
Human Development Index	Rank 186 / Index 0.428
UN Classification	LDC / LLDC
Access clean cooking	1%
Access electricity	51%

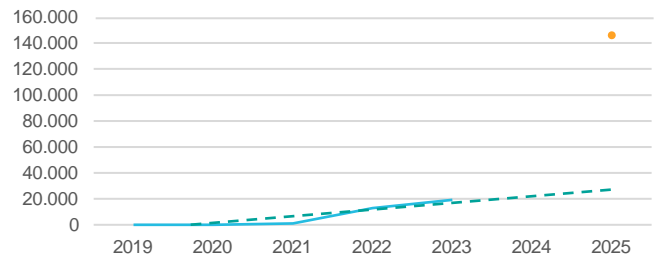
Project facts

Project period	04.2009-12.2024
Budget	EUR 18,507,000
Core funding incl. RBF	EUR 18,507,000
Earmarked	EUR 0,000,000
Average annual turnover of the last three years	EUR 2,262,189
Implementing Organisation	GIZ, SNV, NIS
Lead political partner	Direction Nationale de l'Energie du Ministère des Mines, de l'Energie et de l'Eau du Mali

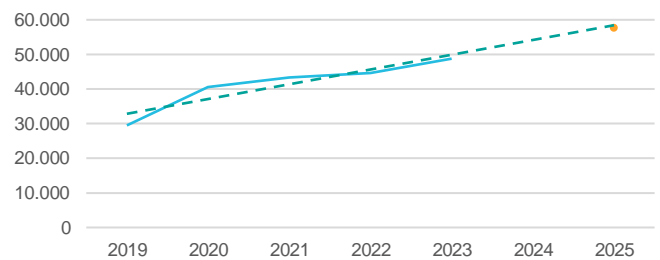
Target achievement: Energy Access

Beneficiaries	Target	Achieved
People: Cooking	146,040	19,215
People: Electricity	57,679	48,767
SI	512	424
MSME	484	255

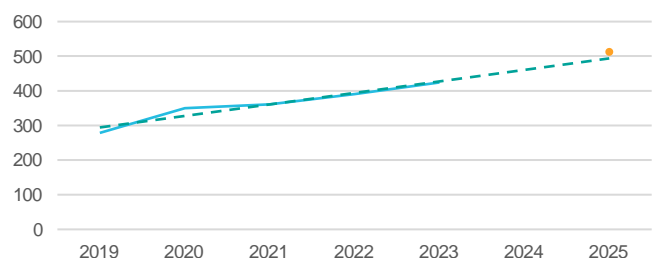
People reached: Access to clean cooking



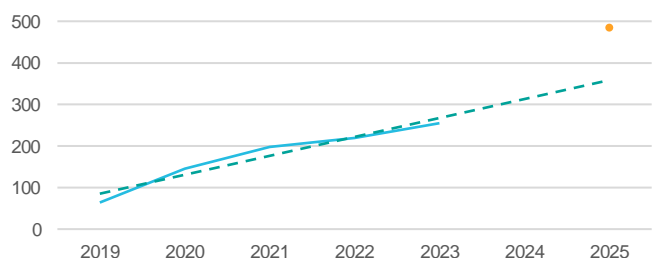
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - Trend
- Target

Experiment and innovate: Energy access for the most vulnerable



Background information

After the most recent coup d'état in 2021, the Malian government's decision to end the Algiers Peace Agreement, and the recent announcement to leave the regional organization ECOWAS, the political and security situation remains volatile. Political instability and the deteriorating security situation have led to constantly changing conditions for implementation and negatively affected market development, as the ability to pay and conditions for companies to establish distribution chains in rural areas decreased. Since mid-2023 an electricity crisis has impacted the solar market by increasing product prices due to the high demand. Despite the difficult market situation, new solar and cookstove enterprises entered the market and the available product range increased.

In 2023, EnDev strengthened its activities targeting internally displaced people (IDPs) and communities in conflict areas, while continuing to support the general development of the solar and improved cook stoves market with a comprehensive portfolio of different technologies.

Project progress during monitoring period

Despite the difficult security context EnDev continued its activities in northern and central Mali, focusing on income generating electrification and the installation of additional streetlights to increase security during the nighttime: more than 600 IDP households were supported with access to affordable Pico PV systems. Within the demand-based approach that focuses on the circle of Barouéli, new productive use (PUE) technologies were piloted to diversify solar-based income generation. Cooperation with local women's groups started to facilitate women's access to PUE systems for the agriculture sector. Out of the 21 PUE systems financed in the framework of communal lease purchase facilities, ten were installed at MSMEs owned by women. Using solar fridges, women are now able to sell freshly produced juice and cold beverages. The number of certified cookstoves increased to a total of 18 and during the first half of 2023, and five companies profited from

Results-Based Financing (RBF) payments increasing the availability of and access to improved cookstoves. Activities took place to create awareness on cooking technologies for productive use at twelve female cooperatives engaged in agro-processing activities. Specific attention was also given to training female resellers in marketing and sales techniques linked to the established quality label for cookstoves. Besides regions covered in the former phases, interventions have been expanded to the area of Mopti, where clean cooking is growing ever more challenging with a growing amount of IDPs. Though market development is not yet evident in that area, the know-how and presence of efficient and mobile cookstoves responds to a direct need.

Energy access in conflict areas

The continuously changing security situation in partner communities is one of the main challenges for energy access activities in conflict areas, leading to limited access, refugee movements, and difficulties in project planning. Therefore, it is necessary to experiment with different approaches and remain adaptable. As implementing in conflict areas is linked to high risks and costs, different technologies and market development approaches are tested in the more stable circle of Barouéli. Successful approaches are then transferred to conflict areas and linked to subsidies, if necessary. Close monitoring allows for adaptation of approaches to the specific conditions in northern and central Mali.

Based upon past experiences, energy access for IDPs is mostly supported with Pico PV technologies, given the need for mobility. While energy access through mini-grids was initially planned, EnDev quickly adapted this approach and instead installed 16 nano-grids. As public and private structures in conflict areas are often weak and unstable, nano-grids present a more sustainable option, as ownership and management can be transferred to users and is more likely to find a suitable operator.

Mozambique



Country facts

Population	33.0 million
Human Development Index	Rank 185 / Index 0.446
UN Classification	LDC
Access clean cooking	5%
Access electricity	31%

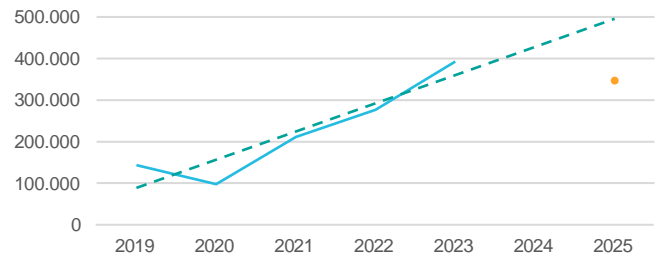
Project facts

Project period	10.2009-12.2024
Budget	EUR 39,189,000
Core funding incl. RBF	EUR 25,463,000
Earmarked	EUR 14,356,000
Average annual turnover of the last three years	EUR 4,484,927
Implementing Organisation	GIZ
Lead political partner	Ministry of Mineral Resources and Energy

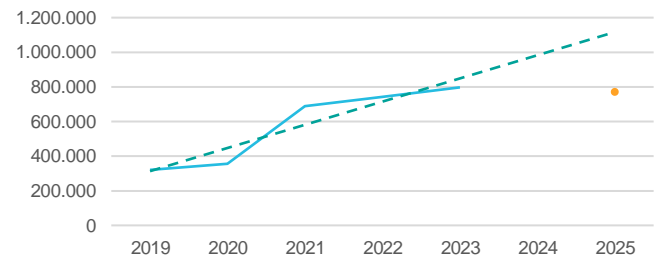
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	347,159	392,765
People: Electricity	771,369	797,746
SI	18	7
MSME	108	74

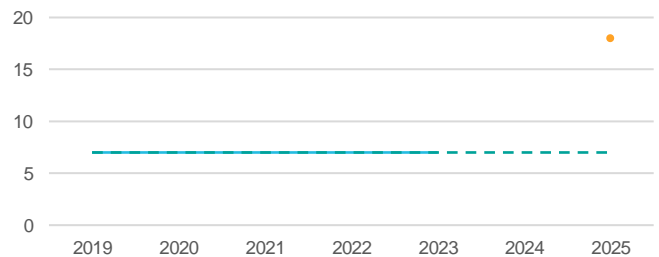
People reached: Access to clean cooking



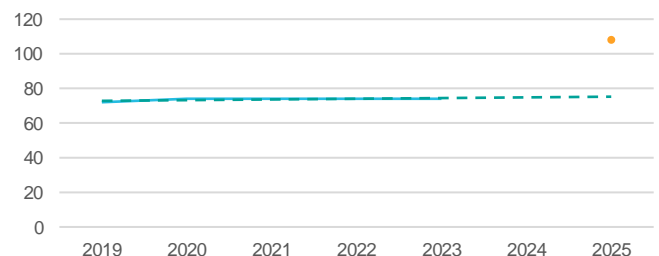
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - - Trend
- Target

“FASER fund instrumental for rural electrification sustainability”



Conferência

5° ANIVERSÁRIO

FASER

Background information

EnDev Mozambique continues to take a holistic and multi-faceted approach to provide demand-driven access to households and SMEs with off-grid electrification and clean cooking technologies. EnDev Mozambique also supports increased energy access through business development support, learning transfer, innovation, and policy advice.

Project progress during monitoring period

In 2023, EnDev's focus remained on accelerating access to energy, especially for the most vulnerable groups. Through the RBF FASER fund (Results-Based Financing Fund for Sustainable Access to Renewable Energy), EnDev has reached many people in rural areas of Mozambique. Of the total people reported in 2023, the majority belong to very vulnerable LNOB groups in very remote areas.

The RBF fund was the main source of access to finance for the private sector in 2023.

After four years of successful implementation of the RBF Fund (FASER), EnDev conducted a survey to assess the impact of incentives and the sustainability of grant funding for rural electrification projects implemented under FASER. In 2023, the FASER fund introduced two funding windows: the social infrastructure window and the productive use of energy (PUE) window. These windows were previously funded by Green People's Energy. This will allow the continuation of the electrification of rural health facilities through decentralised solar systems and the promotion of the PUE technologies, thus contributing to income generation.

In the clean cooking sector, EnDev Mozambique continues to support the Biomass and Energy Certification and Testing Centre (BECT). The BECT provides services in the design, testing, standardisation, and quality assurance of improved cookstoves (ICS). EnDev provided technical

assistance in the management and design of the financial model to ensure the sustainability of BECT.

In 2023, EnDev also focused on access to clean cooking for social infrastructure through the construction and installation of improved institutional stoves in public schools.

Impact of RBF on rural electrification projects

In 2023, EnDev conducted a survey to assess the impact of FASER incentives and the sustainability of grant funding for rural electrification projects. Eleven companies were invited and eight completed the surveys and submitted responses. The companies stated that the FASER fund has been instrumental in enabling them to not only to expand operations and establish affordable pricing structures for marginalised rural communities, but for many, simply to stay in business. Without such incentives, people in these communities would most likely remain without access to energy. Removing the subsidies would have a negative impact by discouraging private-sector investment in rural electrification projects, which in turn would affect the ability of companies to introduce and promote energy technologies in rural areas due to the financial constraints of the communities, possibly leading to business closures. The majority of companies surveyed stated that it's essential to maintain subsidy programmes for a period of at least five years to ensure the long-term viability of energy access companies. Therefore, it is imperative to maintain the provision of subsidies that support the private sector and align with the Mozambican government's goal of ensuring universal energy access by 2030.

Nepal



Country facts

Population	30.5 million
Human Development Index	Rank 143 / Index 0.602
UN Classification	LDC / LLDC
Access clean cooking	35%
Access electricity	90%

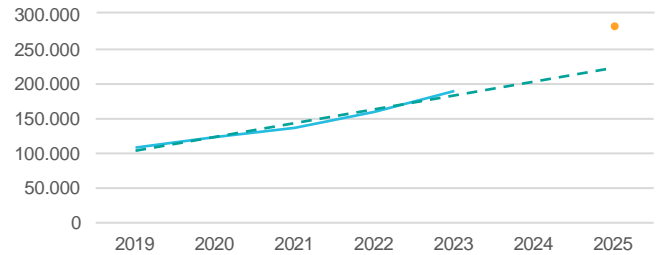
Project facts

Project period	05.2009-12.2024
Budget	EUR 12,417,000
Core funding incl. RBF	EUR 12,417,000
Earmarked	EUR 0,000,000
Average annual turnover of the past three years	EUR 917,198
Implementing Organisation	GIZ, PA, SNV
Lead political partner	Ministry of Energy, Water Resources and Irrigation

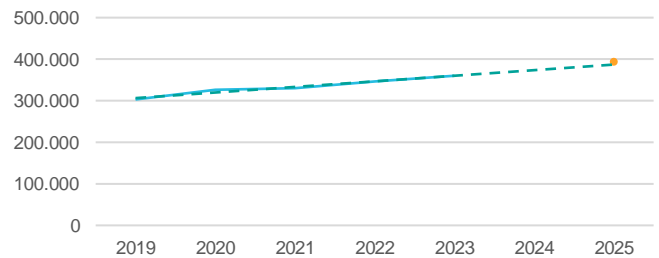
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	280,235	190,174
People: Electricity	393,162	360,173
SI	1,838	1,755
MSME	5,069	4,440

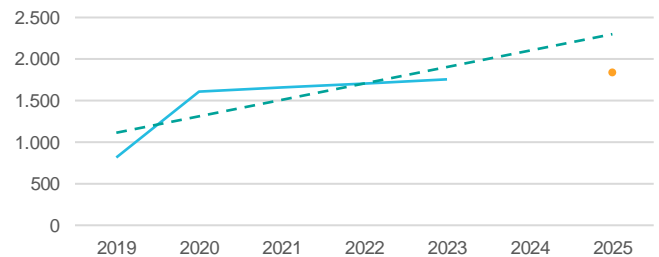
People reached: Access to clean cooking



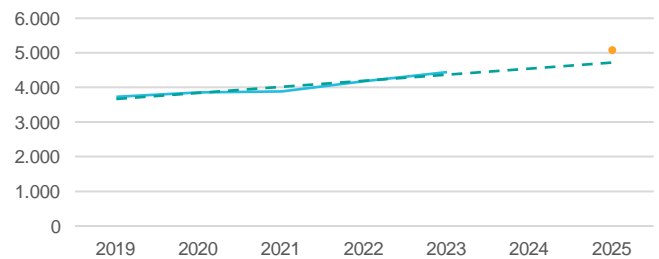
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - - Trend
- Target

“My husband earns enough for our daily needs and to repay our loan.”



Background information

EnDev Nepal facilitates sustainable energy access for rural communities through a multifaceted approach involving: 1) a revolving fund for Community Rural Electrification Entities (CREEs) to enable them to meet project costs for extending the national grid, 2) grid extension support through grants to Local Government Units, 3) grid densification by covering initial connection costs for vulnerable groups and enterprises, adhering to a "leave no one behind" principle. Additionally, EnDev's long track record in hydropower development is exemplified by: 4) the Micro Hydro Debt Fund which aims to mitigate perceived risks for commercial banks and encourages investment in off-grid hydropower projects. EnDev also extends its support beyond the electricity sector by fostering: 5) sustainable markets for electric cookstoves in rural Nepal to enhance clean cooking access.

Project progress during monitoring period

EnDev is implementing on-grid electrification in rural areas with existing grid access by using a revolving fund to enhance the national grid's reliability in the CREE area. This initiative also meets increased demand from electricity-based enterprises for eCooking. Concessional loans have benefited 11 CREEs for system upgrades and 6 for enterprise development and eCooking promotion. To promote entrepreneurship and increase electricity consumption, a Business Plan Development workshop was conducted in 2023. The primary goal was to develop skilled human resources in CREE areas, aiding them in preparing realistic and sustainable business plans for the productive use of electricity.

In last-mile regions, EnDev partnered with the Alternative Energy Promotion Center (AEPCC) and International Centre for Integrated Mountain Development (ICIMOD) to organise workshops at both local and national levels focusing on the water-energy-food nexus and to increase the energy consumption in Micro Hydro Projects (MHP). Representatives from user groups and local government attended to develop business plans for agricultural productivity and market linkages using water-lifting. Proposals generated from this workshop will be screened,

and detailed feasibility studies will follow for implementation of water-lifting in agri-businesses.

Additionally, the off-grid component is undergoing a redesign of the micro hydro debt fund to incorporate solar, wind, biogas, biomass, and energy efficiency projects and to bolster rural enterprises. Advisory, monitoring, and supervision assistance were provided to the AEPCC for the restoration of aging micro hydro systems and the establishment of grid interconnections.

Furthermore, EnDev facilitated the growth of the clean cooking market through stakeholder engagement, experience sharing sessions, and awareness-raising campaigns. Also, various national and provincial level sharing workshops were held to strengthen the market network of cookstove suppliers and advocate for clean cooking integration in the local government energy plans.

Empowering Wheels of Change: A Family's Journey to Economic Independence and Eco-Friendly Transportation

In picturesque Utar Ladaura, Banke, Nepal, Hasta Bahadur Birkatha Magar, a 55-year-old former driver, faced 1.5 years of unemployment. His wife, Sanu Maya, secured a loan from a revolving fund credit facility in Digiya via the Grid Extension Revolving Fund by GIZ/EnDev. With €2,081, they invested in an e-rickshaw, boosting income generation, electricity access in their home, and providing eco-friendly transportation to the community.

Hasta Bahadur's daily trips as e-rickshaw driver increased his income to €8, surpassing less than €1 daily battery charging cost. This entrepreneurial move brought economic independence to the couple, ending reliance on their sons. Sanu Maya proudly shares, "Each day, my husband earns enough, which I am utilizing for our daily needs and to repay our loan." Offering transport services with e-rickshaws positively impacts the environment and reduces dependence on fossil fuels. The Magar family's success inspired other rickshaw drivers, contributing to e-mobility's positive effects on the local economy and environment.

Niger



Country facts

Population	26.2 million
Human Development Index	Rank 189 / Index 0.400
UN Classification	LDC / LLDC
Access clean cooking	3%
Access electricity	19%

Project facts

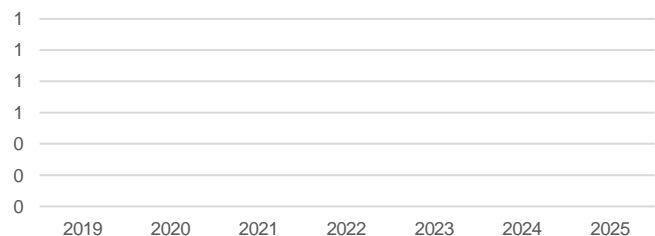
Project period	07.2022-12.2024
Budget	EUR 5,057,000
Core funding incl. RBF	EUR 657,000
Earmarked	EUR 4,400,000
Average annual turnover of the past three years	EUR 144,551
Implementing Organisation	GIZ
Lead political partner	<i>To be determined</i>

Target achievement: Energy Access

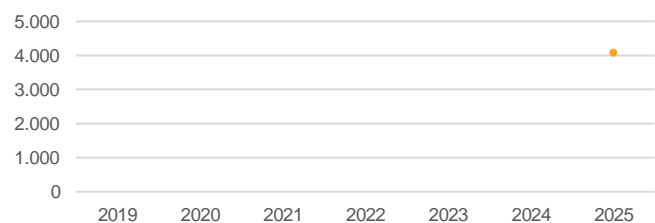
Beneficiaries	Target	Achieved
People: Cooking	0	0
People: Electricity	4,070	0
SI	0	0
MSME	29	0

Note: In Niger EnDev core activities have been suspended until further notice in response to the coup d'état that occurred in July 2023. EnDev is closely monitoring the developments in Niger and remains committed to adapting strategies and approaches as necessary to navigate any challenges that may arise.

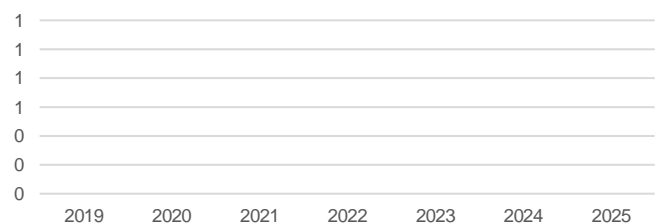
People reached: Access to clean cooking



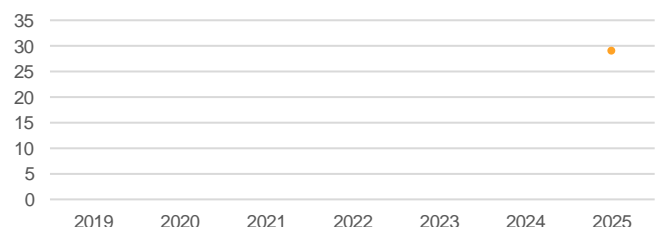
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- Trend
- Target

The priority is to ensure the continuity and effectiveness of the programme while safeguarding the well-being of staff and partners. Progress was made with regards to the demand-side subsidy (DSS) component, see next page.

Demand Side Subsidy Component

Project Facts

Project Period	07.2022-09.2025
Estimated Country Budget	4,400,000 EUR
Political Partner(s)	N/A

Alignment and collaboration with World Bank

It is envisaged that Niger’s DSS pilot will be scaled through the World Bank’s HASKE project. The World Bank seeks to increase access to modern energy services in Niger through grid, mini-grid, and off-grid solutions. Off-grid solutions will be provided through demand-side subsidies as well as through Results-Based Financing to attract solar companies to establish distribution channels in remote areas.

Close collaboration with the World Bank is planned through regular stakeholder coordination meetings throughout the pilot’s duration. EnDev Niger also received valuable input on the DSS concept note from the World Bank. First conceptual discussions have taken place to ensure the DSS mechanism is scalable at national level. Necessary adaptations will be made to fully align with the strategy of the HASKE project.

Furthermore, it is envisioned to create synergies in the implementation of supply and demand side support activities between the two programs. However, it must be noted that the World Bank operations in Niger remain suspended after the military coup in July 2023.

KPI	Target	Achieved
# of people reached (solar technologies)	64,000	N/A

DSS lessons learned

Working in an uncertain political and economic environment requires a high degree of flexibility and adaptability in the design and implementation of DSS mechanisms. The EnDev Niger pilot is designed to respond in an agile manner to any contextual changes. Therefore, the pilot serves as a learning case for EnDev’s work in displacement settings, as well as in fragile country contexts.

By developing a scalable, market-based DSS approach in a highly volatile and fragile context, and without the involvement of central government institutions, EnDev aims to generate valuable learning points for promoting energy access and strengthening the resilience of vulnerable people.

Progress of the DSS component in 2023

The DSS pilot in Niger aims to bridge the affordability gap facing non-electrified, rural populations within a displacement context. By reducing consumer prices, the pilot will facilitate access to off-grid solar (OGS) products classified as Tier 1 by the Multi-Tier Framework.¹ The pilot follows a market-based approach by increasing awareness among the target population, and by strengthening capacities on the supply side. In response to the current political situation, conceptual adaptations in the design of the DSS mechanism were made, most notably by ensuring an implementation approach without involvement of central government bodies and by considering the economic impacts of the coup on the Nigerien OGS market.

On 26 July 2023 a military coup took place in Niger. Subsequent sanctions imposed by the Economic Community of West African States (ECOWAS) and the suspension of the German bilateral cooperation have caused far-reaching impacts on the progress and design of EnDev’s DSS component. In December 2023, EnDev Niger was authorised by both DGIS and BMZ to resume its DSS-related activities under certain conditions.

Despite the challenging conditions, considerable progress has been made in the design and operationalisation of the DSS pilot. The concept note has undergone an external review by the End User Subsidy Lab, preparations for the establishment of a grant agreement with the Fund Manager are in process, and the operations manual for the pilot has been drafted.

The implementation of a baseline study in the targeted intervention zones is in preparation. In addition to serving as the basis for all subsequent monitoring and evaluation of results, the baseline will provide useful information for EnDev to better understand the post-coup implications on Niger’s OGS market and finalize elements of the DSS design.

¹ The DSS pilot in Niger only supports Tier 1 solar products as defined by the [Multi Tier Framework | Tracking progress toward sustainable energy goals \(esmap.org\)](https://www.esmap.org/multi-tier-framework)

Rwanda



Country facts

Population	13.8 million
Human Development Index	Rank 165 / Index 0.534
UN Classification	LDC / LLDC
Access clean cooking	2%
Access electricity	47%

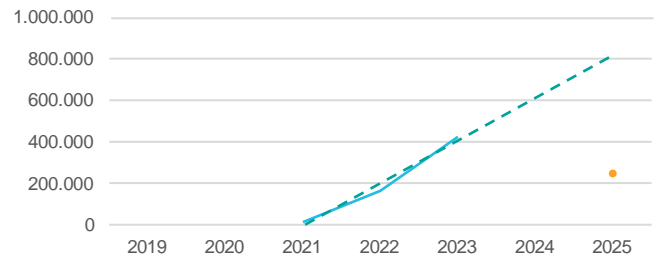
Project facts

Project period	10.2009-12.2024
Budget	EUR 32,468,000
Core funding incl. RBF	EUR 25,093,300
Earmarked	EUR 7,374,700
Average annual turnover of the last three years	EUR 1,636,145
Implementing Organisation	GIZ, AVSI, SNV
Lead political partner	Ministry of Infrastructure (MININFRA)

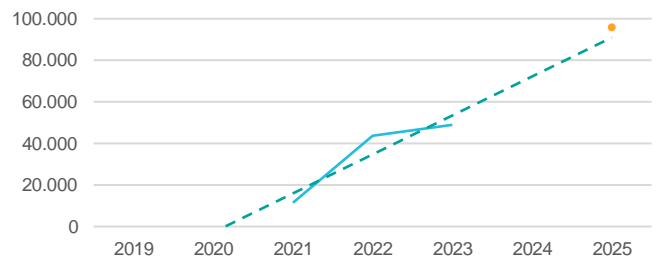
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	246,106	423,447
People: Electricity	95,746	48,946
SI	20	11
MSME	432	71

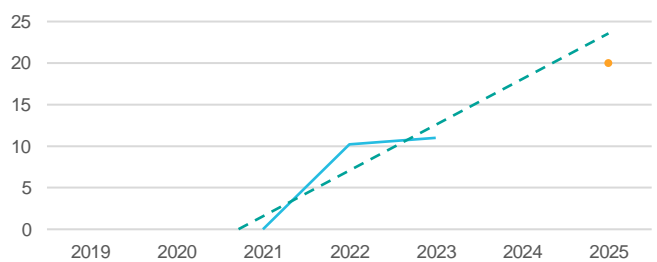
People reached: Access to clean cooking



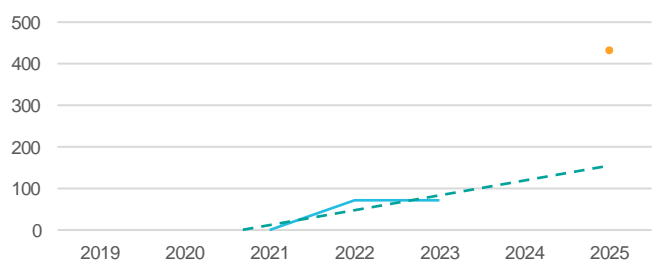
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - Trend
- Target

“No more burnt rice or smoky taste, thanks to this new stove.”



Onesphore cooking rice for 2,500 students on the new Kabuga stove.

Background information

In its National Strategy for Transformation (NST), the Government of Rwanda targeted universal access to electricity by 2024. The target is ambitious, but considerable progress has been made. By the end of 2023 the connectivity rate stood at 75%, of which 54% of households were connected to the grid. Concerning clean cooking, the NST aimed to nearly halve the household use of biomass from 83% to 42%. By the end of 2023, 67% of households continued to use three-stone fires or traditional firewood stoves. The government has consequently issued a ban on stoves lower than Tier 3 from 2024 onwards.

Project progress during monitoring period

For clean cooking, the EU co-funded project, *'Reducing climate impact of cooking in Rwanda through improved cooking energy systems (ReCIC)'* continued support to twelve companies and four cooperatives to increase their production capacities. It also engaged in large-scale community mobilisation and cooking demonstration campaigns in more than ten districts and strengthened the Rwanda Standards Board (RSB) through the provision of high-quality stove testing equipment. In collaboration with the World Bank, ReCIC further supported the upgrading of existing locally produced stoves to Tier 3 in line with the GoR guidelines. Also in 2023, EnDev formalised a new collaboration with Practical Action on *'Results-Based Financing for Refugees' (RBF4R)*, which builds on the work of an ongoing humanitarian energy project financed by Sweden and will benefit vulnerable refugee households.

EnDev launched a tender to support two further mini-grids in Rwanda, yet companies did not apply, as a consequence of uncertainties surrounding the ongoing grid expansion and the role of mini-grids therein. The planned budget has been redirected toward development of a Gender, Grid densification and eCooking pilot. The new activities will also contribute to the EnDev GeCCo/GeCA initiative.

To support the productive use of energy (PUE), EnDev signed a grant agreement with Mercy Corps/ Progress Report 2023

Energy4Impact and the European Cooperative for Rural Development (EUCORD), an agricultural NGO, to support the transition from cash-sales to customer finance models

for solar-powered irrigation. Implementation in 2024 will build on lessons learnt from the Innovation Fund intervention "Cooling as a Service (CaaS)", which was concluded in 2023 with the implementation of two cold storages at marketplaces. Analysing various business cases for financially viable service solutions in the cold chain, the CaaS experience underlines the complexity of PUE interventions and relevance of strong sector coupling.

EnDev's support to grid-connected hydropower is being phased out following the commissioning in 2023 of a hydropower plant in Mwange-Kavumu of 334 kW. Two supported sites are expected online by 2025, while another project is being discontinued due to non-renewal of the power purchase agreement with the national energy utility.

Cooking Up Change at the Kabuga Catholic School

In the heart of Kabuga, a short drive from Rwanda's capital, Kigali, lies the GS Kabuga Catholic School providing primary and secondary education – and daily meals – to more than 2,500 students. Onesphore, the head cook, recalls the days back in 2016 when he cooked for more than 1,500 students on open fires. While the kitchen equipment improved over the years thanks to EU support, the school still used a lot of fuel and struggled with heavy indoor air pollution.

EnDev, through ReCIC, began supporting the school in 2021. However, a first stove – an enlarged model from Malawi – did not meet expectations: the pots cracked due to too much heat and the cooks struggled with excess heat escaping around the pot. ReCIC kept working with the school and an international expert to build on the lessons learnt, with success: the second-generation innovative stove is equipped to handle large pots with ease, not only saving precious firewood but also allowing Onesphore and his team to multi-task efficiently.

Senegal



Country facts

Population	18 million
Human Development Index	Rank 170 / Index 0.511
UN Classification	LDC
Access clean cooking	24%
Access electricity	70%

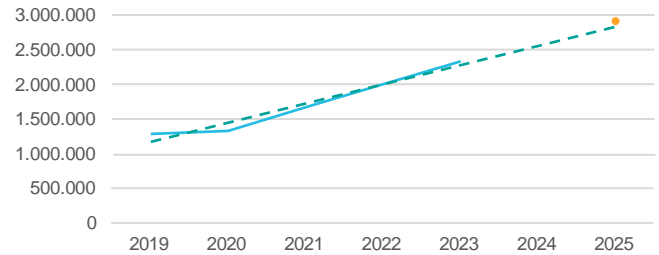
Project facts

Project period	04.2009-12.2024
Budget	EUR 31,371,000
Core funding incl. RBF	EUR 25,001,000
Earmarked	EUR 6,370,000
Average annual turnover of the last three years	EUR 2,403,213
Implementing Organisation	GIZ
Lead political partner	Ministry of Petroleum and Energy

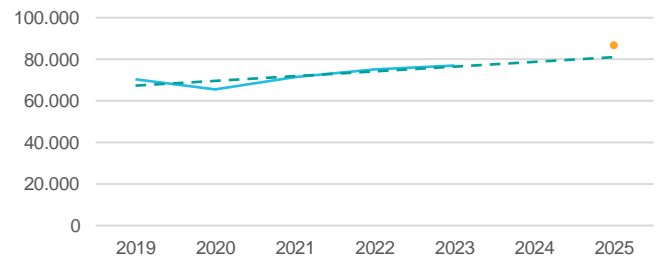
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	2,913,402	2,331,791
People: Electricity	86,768	76,997
SI	1,361	1,296
MSME	1,456	1,025

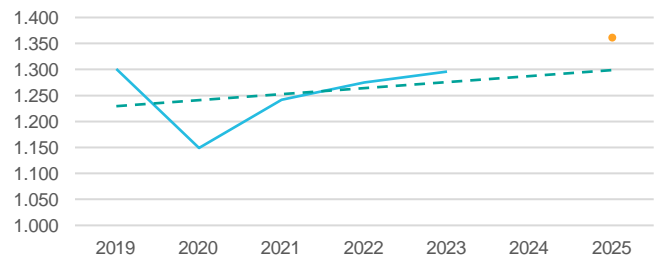
People reached: Access to clean cooking



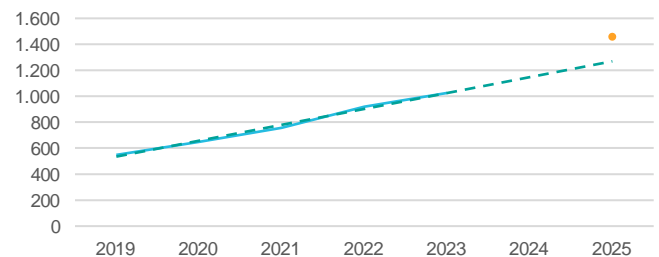
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - Trend
- Target

Female Economic Empowerment: Women Groups Shine as Solar Retailers



Background information

EnDev assists the Government of Senegal to achieve the targets set under the Nationally Determined Contributions to the Paris Agreement (NDCs) and national plan for universal access to electricity. In this capacity, EnDev has played a substantial role by fostering market development for improved cookstoves (ICS) between 2006 and 2020.¹ EnDev's focus regarding cooking energy now lies in 1) supporting sustainable fuel production, 2) offering business development services for women's groups in ICS production, 3) piloting higher-tier cooking solutions, and 4) promoting the productive use of biomass energy in fish processing and traditional bakeries. In rural electrification, EnDev remains an incubator of renewable energy innovations within the off-grid sector in Senegal. Also, EnDev took over activities of the concluded 'Green Peoples Energy Programme,' notably the continuation of successful approaches for promoting sustainable electricity access in social institutions and MSMEs. EnDev further implements the EU-co-financed action "Pro-Accès" supporting off-grid electrification and contributes to the Energising Health initiative equipping health centres with solar appliances. Since 2023 strategies across the promoted technologies are aligned with 'universal access' and the leave no one behind (LNOB) agenda.

Project progress during monitoring period

In 2023, there was sustained backing for ongoing initiatives including the piloting of EnDev's improved mini-grid concept and the promotion of digitization in off-grid electrification, of productive use of energy in mini-grids, and of stand-alone solar systems. For rural electrification, a focus was on the provision of business development support to companies operating in the off-grid solar sector. Specifically, women's groups in remote off-grid villages were supported to facilitate their involvement in the commercialization of PayGo Pico PV products. This has additionally enabled basic electricity access for households classified as the poorest of the poor, including returnees who were displaced

by the prolonged conflict in the southern part of the country. Moreover, a Results-Based Financing mechanism for safe in-house installations in grid-connected and mini-grid-connected villages and the coaching of project developers on access to finance for off-grid renewable energy projects was prepared.

EnDev's energy efficient fish smoker ("Nopalé"), acclaimed by the Ministry of Fisheries as the "best innovation in the sector in the last 20 years," has been successfully implemented at 19 sites, 13 of which were established in cooperation with the Italian NGO ISCOS. This represents the first successful scaling of the Nopalé technology. In line with the programme's LNOB objectives, the smokers are operated by women's cooperatives without access to investment capital. Exploration of further scaling potential is underway through the integration of Nopalé-features into 216 existing kilns. If successful, this endeavour would represent a significant introduction of enhanced technology, marking a substantial stride toward the transformation of the fish smoking sector.

From solar lanterns to fans: first steps towards improving electricity services in rural villages

EnDev has effectively empowered more than 30 women's groups to launch retail ventures and to establish sustainable partnerships with suppliers by providing business development services and initial stock of solar lamps. The project's success is evident, as the revenues generated from over 600 initial product sales have enabled the first groups to order larger and more expensive items in the form of solar-powered fans, marking the commencement of a scaling-up process. This effort not only empowers the women and facilitates their economic transformation, but also enhances access to improved electricity services for rural customers.

¹ Since 2020, this activity is being continued through EnDev's associated project "Promotion of climate friendly cooking: Kenya and Senegal", financed by BMZ and the Green Climate Fund (GCF).

Sierra Leone



Country facts

Population	8.6 million
Human Development Index	Rank 181 / Index 0.477
UN Classification	LDC
Access clean cooking	1%
Access electricity	26%

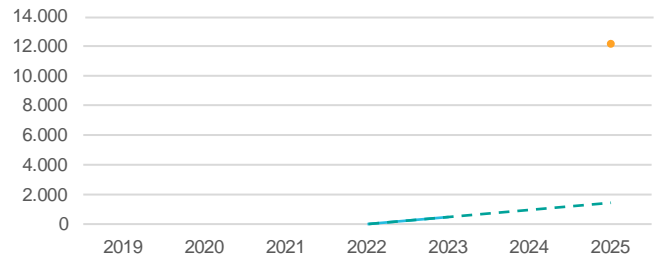
Project facts¹

Project period	05.2012-12.2024
Budget	EUR 7,219,000
Core funding incl. RBF	EUR 3,719,000
Earmarked	EUR 3,500,000
Average annual turnover of the last three years	EUR 495,450
Implementing Organisation	GIZ
Lead political partner	Ministry of Energy

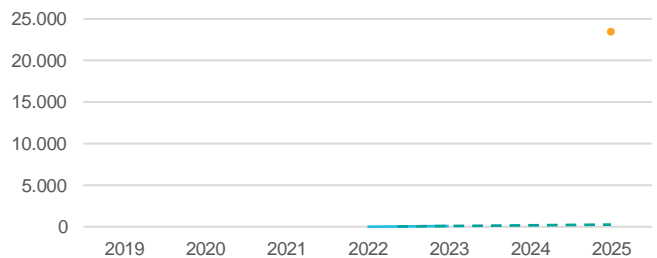
Target achievement: Energy Access

Beneficiaries	Target	Achieved
People: Cooking	12,150	479
People: Electricity	23,260	87
SI	336	18
MSME	68	0

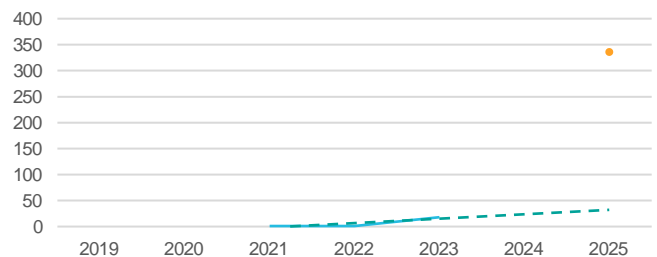
People reached: Access to clean cooking



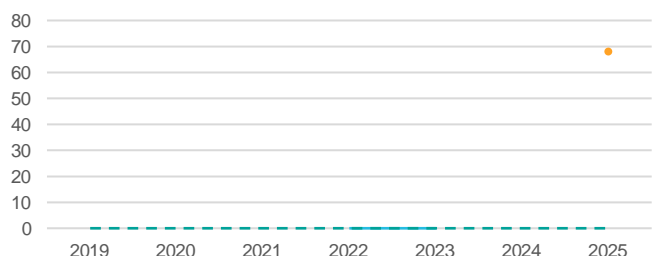
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- Trend
- Target

¹ Formerly, Sierra Leone, Liberia and Guinea were part of a multi-country approach. As of 07/23, Sierra Leone and Liberia are presented separately with a separate budget and individual indicative targets, whereas Guinea ended in 12/2023. Sierra Leone was commissioned by BMZ in December 2023 with a share of EUR 0.5 million and a contribution of the EU-Delegation in Sierra Leone by EUR 3 million.

Supporting Sierra Leone's energy transformation with hands-on capacity development



Background information

Few people have access to electricity in Sierra Leone with access rates of 26% nationwide, and only 6% in rural areas. Subsequently, many households rely on petrol or diesel generators, kerosene, battery lamps, or candles to cover their energy needs. Access to clean cooking remains very low as well, at 1% overall.²

EnDev Sierra Leone works with government partners to create reliable energy access solutions by improving stakeholder engagement, supporting private sector development and digitalisation, and increasing access to renewable energy and clean cooking in the country.

Project progress during monitoring period

Rehabilitation and sustainability of solar systems for social and public institutions remain a persistent need and challenge in Sierra Leone. Consequently, EnDev has worked together with the Renewable Energy Association of Sierra Leone (REASL) to develop a Solar-Installation and Maintenance Strategy (SIMS) as a stepping-stone to a long-lasting sustainability framework. Initially, the project conducted various trainings to capacitate technicians to carry out quality solar design, installation, and commissioning activities. The courses focused, moreover, on conducting troubleshooting, as well as proficient servicing and maintenance of malfunctioning solar systems. Finally, those updated skills of the solar technicians were put to real-life-tests, when EnDev conducted practical training sessions on sites with malfunctioning solar systems. This added a valuable hands-on component to the trainings, as this is often lacking in conventional technical education.

EnDev brought in direct input from the international solar industry as well by inviting experienced trainers to Sierra

Leone, who conducted deep dives into the basics as well as latest features of specific solar components.

Moreover, EnDev engaged directly in the technical rehabilitation of solar systems installed in social institutions, such as a public school's computer lab in Kenema district in Eastern Sierra Leone. At that school, over 1,650 students were supposed to be taught in IT and to utilize digital training platforms. However, the school was left without electricity during system downtime, but with the help of EnDev's technical support, the school's solar system could be restored, and the lab is now reenabled to provide a vital contribution to modern teaching and learning in Sierra Leone.

Turning a solar system malfunction into a training opportunity

The Bo Midwifery School, located in Sierra Leone's Bo district, is home to a 22 kWp photovoltaic (PV) system with battery storage. Found non-functional by the project, this system offered a valuable opportunity for conducting practical training sessions for PV installation professionals from Bo and Kenema districts.

Through a dedicated hands-on maintenance training on this complex PV system, EnDev has equipped technicians with the necessary skills and expertise to conduct PV system maintenance more proficiently in the future. And as an equally important training output, the solar system was fully rehabilitated, enabling the midwifery school to provide enhanced services and a conducive learning environment throughout day and night.

² Access figures from IEA, IRENA, UNSD, World Bank, WHO. 2023. Tracking SDGs: The Energy Progress Report. World Bank, Washington DC.

Tanzania



Country facts

Population	65.5 million
Human Development Index	Rank 160 / Index 0.549
UN Classification	LDC
Access clean cooking	5%
Access electricity	40%

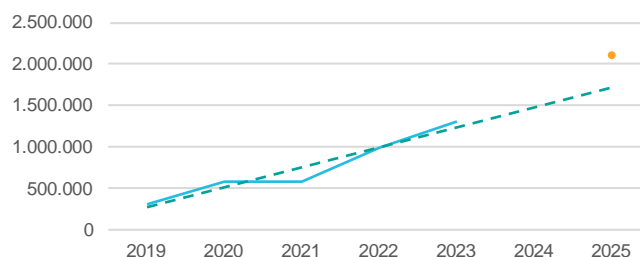
Project facts

Project period	05.2012-12.2024
Budget	EUR 14,337,000
Core funding incl. RBF	EUR 14,337,000
Earmarked	EUR 0,000,000
Average annual turnover of the past three years	EUR 900,260
Implementing Organisation	SNV
Lead political partner	Ministry of Energy

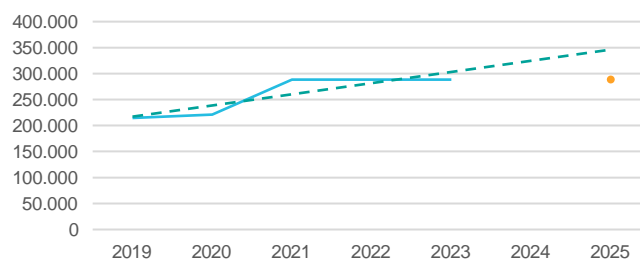
Target achievement: Energy Access

Beneficiaries	Target	Achieved
People: Cooking	2,101,096	1,302,176
People: Electricity	288,377	288,377
SI	0	0
MSME	220	220

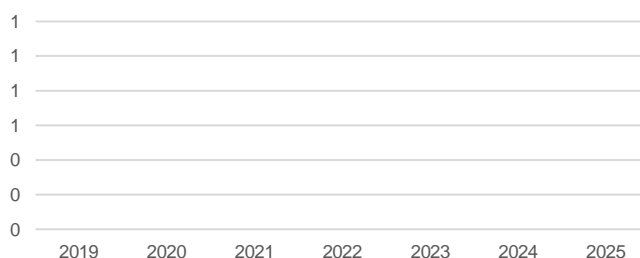
People reached: Access to clean cooking



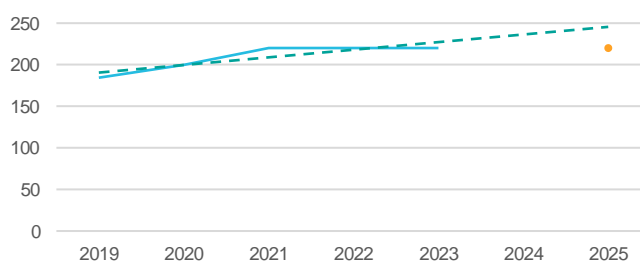
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- - - - Trend
- Target

Utilizing existing community structures to increase access to clean cooking



Woman using an electric pressure cooker in Tanzania
©SNV/John Francis Lesangwa

Background information

EnDev Tanzania, implemented by SNV, supports markets for improved biomass cookstoves (ICS) and eCooking products. EnDev supports the establishment of pre-commercial cookstove producers and the transition of high performers to pioneering commercial enterprises. The project additionally supports increased affordability of eCooking devices, building on existing community structures. In 2023, EnDev Tanzania supported access to over 800 people with eCooking products and over 310,000 with ICS.

When the programme was initiated in 2013, EnDev Tanzania focused on supply-side support to local ICS producers. Since 2020, the programme also engages in demand-side support through behavioural change communication (BCC). In 2022, the project began to support eCooking devices (mainly electric pressure cookers and some rice cookers), focusing on mechanisms to unlock the main barrier to the adoption of eCooking devices in Tanzania, which has been identified as end-user financing.

"Once I realized the how much I was saving on fuel by using my EPC, I started sharing my experience with my neighbours and convinced six of them to buy one as well." – Ferdinanda (EPC user in Morogoro Region)

Project progress during the monitoring period

EnDev Tanzania has continued to utilise our "Establish, Entrench and Evolve" market development strategy through 2023 in which the project: 1) established two new regional markets through providing technical and business development skills training to newly onboarded ICS producers, 2) entrenched market penetration in four markets by refining innovative BCC strategies paired with results-based financing (RBF), and 3) evolved mature markets by introducing market development support for eCooking technologies.

Local government involvement has been proven as a crucial element in entrenching markets. Community Development Officers (CDOs) are present at all major milestones, including the recruitment of female Clean Cooking Advocates and providing ongoing liaison support to the programme. CDOs have been instrumental in allowing our improved cooking awareness-raising and education to reach more women through connections to existing local women's groups.

EnDev's work to support the enabling environment has also materialized in important sector-wide developments, including the Clean Cooking Roadmap being developed by the Vice President's Office. The Tanzania Association of Clean Cooking Stakeholders (TACCS), established with EnDev support in 2022, has continued to grow and is now invited by the government as an important sector stakeholder in ongoing policy discussions.

Savings and Credit Cooperative Societies (SACCOS) Provide Consumer Finance for Electric Pressure Cookers (EPCs)

The EnDev team discovered a limited willingness to pay for an EPC (typically retailing around EUR 75) in target peri-urban areas unless instalment payments are offered. It was with this realization that the project began to engage with SACCOS. In 2023, EnDev launched EPC campaigns with three SACCOS, designing a revolving loan fund approach whereby the first lot of 15 EPCs are provided for free to the SACCOS, who in turn lend them to their members with a 3-6 month payback period. Once the loans are repaid, the SACCOS can use those funds to purchase the next lot of EPCs from a quality EPC supplier introduced to them by EnDev. The approach has been successful and all three SACCOS revolved their fund with a total of over 200 EPCs sold over six months.

Uganda



Country facts

Population	47.2 million
Human Development Index	Rank 166 / Index 0.525
UN Classification	LDC / LLDC
Access clean cooking	1%
Access electricity	42%

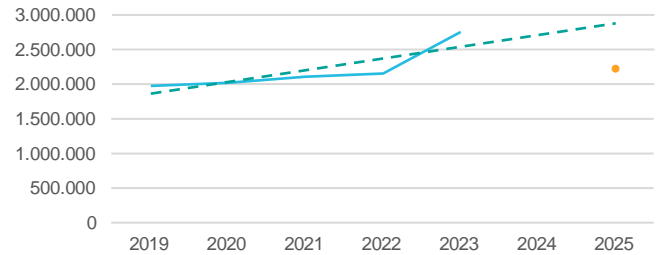
Project facts

Project period	04.2009-12.2024
Budget	EUR 27,255,000
Core funding incl. RBF	EUR 19,589,000
Earmarked	EUR 7,666,000
Average annual turnover of the last three years	EUR 2,627,383
Implementing Organisation	GIZ
Lead political partner	Ministry of Energy and Mineral Development (MEMD)

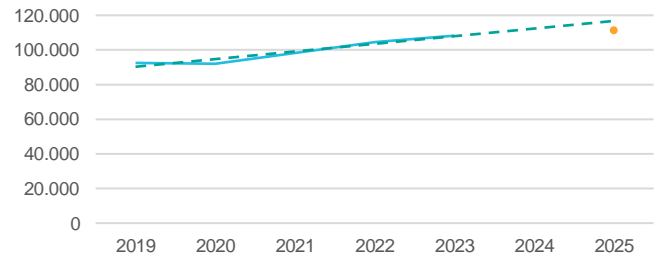
Target achievement: Energy access

Beneficiaries	Target	Achieved
People: Cooking	2,222,092	2,754,531
People: Electricity	111,340	108,231
SI	1,401	1,596
MSME	2,633	2,616

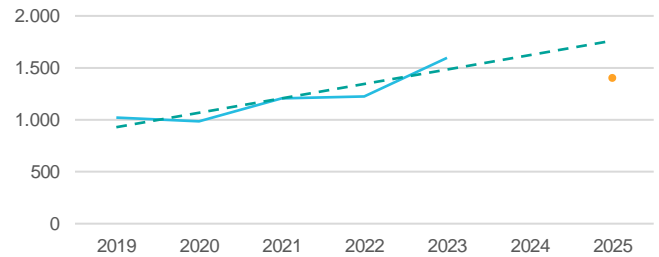
People reached: Access to clean cooking



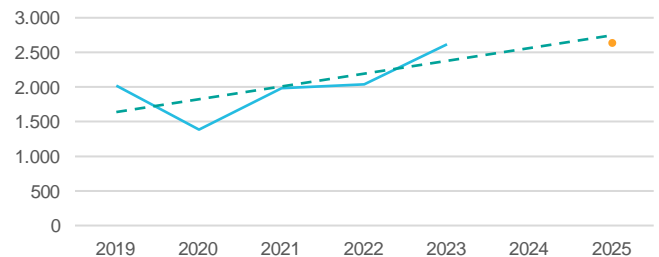
People reached: Access to electricity



SI reached: Access to clean cooking or electricity



MSME reached: Access to clean cooking or electricity



- People, SI, MSMEs reached
- Trend
- Target

Solar empowers businesswoman in refugee settlement



Background information

In Uganda, EnDev works with various partners using a market-based approach to increase energy access and improve framework conditions across the sector. With a specific focus on off-grid electricity and clean cooking solutions, EnDev targets social institutions, MSMEs, and households – including refugees and host communities – while ensuring that no one is left behind.

Project progress during monitoring period

In 2023, EnDev continued promoting electricity access for MSMEs and social institutions. Results-Based Financing mechanisms (RBF) enabled local farmers, hair salons, and schools to acquire solar solutions for their businesses. Additionally, demonstration sites were established at three schools to raise awareness for clean energy solutions. EnDev has also partnered with Equity Bank Uganda Limited to implement the next phase of solar and cooking RBFs. Business Development Support was provided to more than ten solar and cooking companies to increase private sector resilience. The Productive Use of Energy (PUE) by MSMEs was greatly informed by the IKEA Foundation Sustainable Energy for Smallholder Farmers (SEFFA) project implemented in Uganda.

For clean cooking, EnDev promoted improved cooking technologies for households and MSMEs, specifically focusing on food-vending businesses, via RBFs and production infrastructure support. Given the experience of the EnDev Innovation pilot, EnDev supported companies to increase inventory of Higher Tier Cooking (HTC) technologies, conduct marketing and awareness-raising, and make sales of Electric Pressure Cookers to grid-connected households. In collaboration with the Higher Tier Cooking Component project implemented jointly by GIZ and CLASP, EnDev supported key policy development processes including the strategy to scale up eCooking for Uganda.

To improve energy access in refugee settlements and host communities, EnDev worked with four partners via RBFs to incentivize sales of solar lanterns and solar home systems. Similarly, two cookstove companies were supported under an RBF scheme to increase access to improved cookstoves (ICS). The RBF schemes successfully piloted a blended approach, combining supply-side incentives and temporary demand-side subsidies. Gender-related incentives were offered, and awareness campaigns were organised to bridge knowledge gaps on affordable energy solutions such as ICS and solar technologies.

Solar empowers a businesswoman in Imvepi Refugee Settlement

Topista Vicoyo is a hair salon owner in Imvepi Refugee Settlement. In early 2023, EnDev installed solar demonstration sites at four MSMEs to showcase solar powered business opportunities in the settlement: a restaurant, a carpentry workshop, a horticulture farmers' group, and Topista's hair salon benefitted from this intervention.

Topista explains: 'With the electricity from the solar system, I have been able to offer services like hot combing that others cannot offer. The number of my customers increased quickly, and with the additional income I have bought more hair products, electric appliances like blow driers, as well as a fridge and juice blender allowing me to diversify my business. Youth from the refugee and host community that I train in hairdressing can now also practice skills that would not be possible without the electricity.'

Demand Side Subsidy Component

Project Facts

Project Period	07.2022-09.2025
Estimated Country Budget	EUR 4,900,000
Political Partner	Ministry of Energy and Mineral Development (MEMD)

Approach / Progress of the DSS component in 2023

By reducing consumer prices, EnDev aims to facilitate energy access for refugees and host communities as well as other vulnerable rural areas that are not currently reached by commercial markets. The pilot utilises an RBF approach to support solar lanterns and solar home systems classified as Tier 1 by the Multi-Tier Framework, as well as ICS and higher-tier clean cooking (HTCC) technologies.

In 2023, EnDev made significant progress towards establishing a viable implementation structure for the demand-side subsidy (DSS) pilot in Uganda. A concept note underwent an external review by the End User Subsidy Lab, a baseline study was conducted to assess the socioeconomic conditions and energy markets in the target locations, and the operations manual for the pilot was drafted. EnDev contracted the Private Sector Foundation Uganda (PSFU) as the project's fund manager.

A stakeholder consultation workshop was conducted in September 2023 with representatives from the private sector, relevant sector associations, and crucial actors such as FAO, Uganda Credit Capitalization Company (UECCC), and Mercy Corps. The project was further presented in November 2023 during the National Renewable Energy Conference in cooperation with PSFU, MEMD, and the Embassy of the Kingdom of the Netherlands. Feedback provided during these engagements on the project design, digital tools (e.g. the customer eligibility tool by KoboCollect), and the market awareness approach was positive, confirmed the project rationale, and informed preparation for implementation.

Alignment and collaboration with World Bank

EnDev Uganda coordinates closely with the World Bank and UECCC. The World Bank's Electricity Access Scale Up Project (EASP), implemented by UECCC, aims to increase access to clean energy for households, commercial enterprises, industrial parks, and public institutions. One of EASP's components is an RBF providing demand and supply side subsidies nationwide, including the displacement context. In order to foster cooperation, EnDev and UECCC adopted a Memorandum of Understanding and established a regular meeting structure to harmonise, align, and exchange knowledge on project-related aspects as well as share lessons-learned on DSS mechanisms.

KPI	Target	Achieved
# of people reached (total)	400,000	N/A
# of people reached with solar products	40,000	N/A
# of people reached with cooking products	360,000	N/A

DSS lessons learned

The sector has shown keen interest in the DSS approach as a complementary measure to supply-side support, which has previously been deployed to foster market development for solar and clean cooking products. While it remains a novel approach, companies active in the solar and cooking sub-sectors have signalled that DSS will prove an effective tool to improve the affordability of energy products, and thereby facilitate energy access, for refugees and host communities as well as the rural poor in Northern Uganda.

With a view to eventual scale-up and sharing of lessons-learned, it has proven valuable to liaise closely with key actors – such as UECCC and the World Bank – to develop a common modus operandi and ensure a coordinated approach in the Refugee Hosting Districts of Northern Uganda and Kiryandongo.

Abbreviations

ADES	Association pour le Développement de l'Energie Solaire, Switzerland
AVSI	Association of Volunteers in International Services
BDS	Business Development Services
BMZ	German Federal Ministry of Economic Cooperation and Development
CHF	Swiss franc
CO ₂ e	Carbon dioxide equivalents
DFAT	Australian Department of Foreign Affairs and Trade
DGIS	Netherlands Directorate-General for International Cooperation
DSS	Demand-side subsidy
EASP	Electricity Access Scale Up Project
EEC	Energy Enterprise Coach
EnDev	Energising Development
EPC	Electric Pressure Cooker
ESMAP	Energy Sector Management Assistance Program
EU	European Union
EUR	Euro
FCDO	UK Foreign, Commonwealth & Development Office
GCF	Green Climate Fund
GBP	British Pound
GEAPP	Global Energy Alliance for People and Planet
GeCA	Global eCooking Accelerator
GeCCo	Global eCooking Coalition
GEEF	Global Enabling Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GOGLA	Global Off-Grid Lighting Association
HH	Households
HTC	Higher-Tier Cooking
HQ	Headquarter
ICS	Improved Cookstoves
IDP	Internally displaced person
KOFIH	Korea Foundation for International Healthcare

LDC	Least developed countries
LLDC	Landlocked Developing Countries
LME	Last mile entrepreneur
LNOB	Leave no one behind
MAIP	Multi-Annual Indicative Programming
MECS	Modern Energy Cooking Services
MSME	Micro-, small- and medium-scale enterprises
MTF	Multi-Tier Framework
NDC	Nationally Determined Contributions
NGO	Non-governmental organisation
NIS	Nordic International Support Foundation
NOK	Norwegian Krone
OGS	Off-grid solar
PA	Practical Action
PUE	Productive Use of Energy
PV	Photovoltaic
RBF	Results-based financing
RVO	Rijksdienst voor Ondernemend Nederland
SDC / DEZA	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goal
SDD	Solar direct-drive
SEE-CC	Strengthening the Entrepreneurial Ecosystem for Clean Cooking
SEforAll	Sustainable Energy for All
SFV	Smoke-free village
SHS	Solar home systems
SI	Social institution
SIINC	Social impact incentives
SME	Small- and Medium-sized Enterprise
SNV	Stichting Nederlandse Vrijwilligers / Netherlands Development Organisation
UECCC	Uganda Credit Capitalization Company
UNIDO	United Nations Industrial Development Organisation
USAID	United States Agency for International Development
USCA	Unlocking Solar Capital for Africa
USD	United States Dollar
UNHCR	United Nations High Commissioner for Refugees

References

Country facts in the country project statuses were taken from the following sources:

Population: The World Bank (2022): Population
<https://data.worldbank.org/indicator/SP.POP.TOTL>

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Responsible:

A handwritten signature in blue ink, appearing to read "Haack".