ENERGY FOR FOOD SECURITY

WFP
World Food Programme

SAVING LIVES
CHANGING LIVES

2024 Access to Energy Results

In 2024, WFP conducted energy activities in 53 countries.

WFP met the cooking needs of food insecure populations by providing 14,000 improved stoves to households and over 166,000 institutional cookstoves. In total over 0.8 M people were reached (households' members and school children) with cooking interventions.

In addition, energy access was granted to over 0.8 M and 37,000 smallholder farmers benefitted from energy products or services for productive uses such as irrigation and drying[1].

0.8M PEOPLE **Household members and school children reached through cooking interventions**

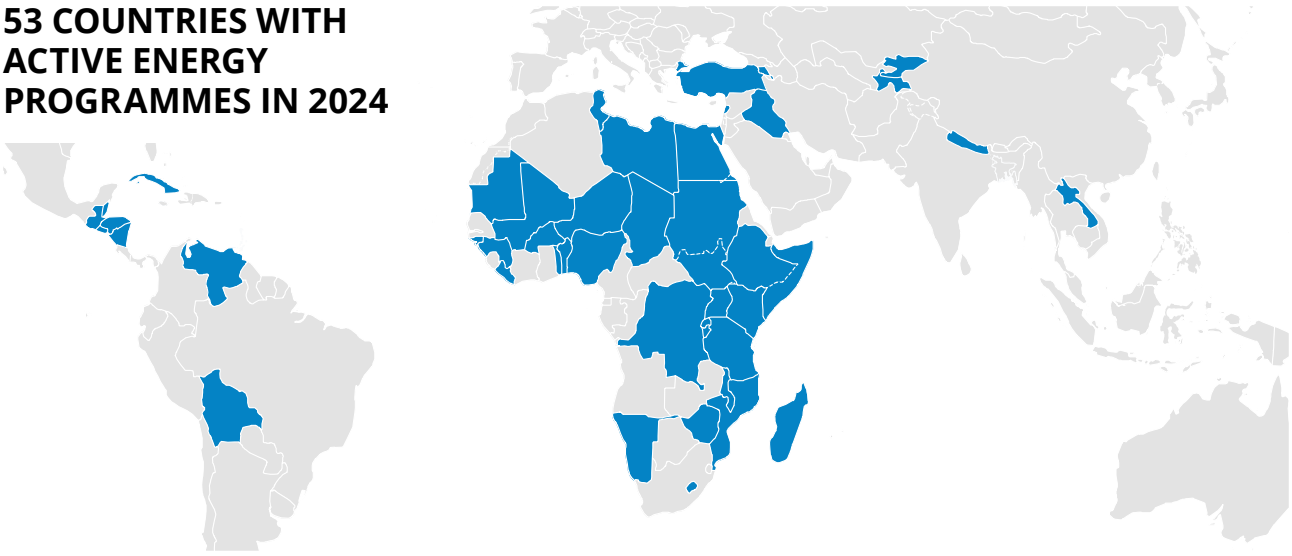
Institutional improved cookstoves provided to schools **166K SCHOOL STOVES**

136K STOVES **Improved cookstoves provided to households**

1 Source: Corporate Reports Framework

September 2025

53 COUNTRIES WITH ACTIVE ENERGY PROGRAMMES IN 2024



Countries with energy activities in 2024 include: Armenia, Benin, Bolivia, Burkina Faso, Burundi, Cambodia, Cameroon, CAR, Chad, Côte d'Ivoire, Cuba, DRC, Egypt, El Salvador, Eswatini, Ethiopia, Guatemala, Guinea, Guinea-Bissau, Honduras, Irak, Kenya, Kyrgyz Republic, Lao, Lebanon, Liberia, Lesotho, Libya, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, Rwanda, Sierra Leone, Somalia, South Sudan, Sri Lanka, Sudan, Tajikistan, Tanzania, Togo, Tunisia, Turkiye, Uganda Venezuela and Zimbabwe.

HOUSEHOLD COOKING

Seventeen countries have promoted improved cookstoves (ICSs) in households in 2024. In some cases, this included supporting manufacturing at the community level (**Burkina Faso, Mozambique, South Sudan, Sudan, Togo**), raising awareness or providing advise to the government (**Guinea Bissau, Kenya, Zimbabwe**) or stoves distribution (**Guatemala, Lesotho, Myanmar, Nicaragua, Türkiye, Uganda**). **Sri Lanka** and **Tajikistan** raised the ambition on technology by introducing clean cooking: Electric Pressure Cookers (EPCs) and solar panels in grid connected households, and solar cookers, respectively. **Tanzania** is implementing a programme reaching 5000 households in humanitarian settings with ICSs and registered the project for carbon accreditation through the services of a consultancy firm.

PLANET FRIENDLY SCHOOLS

WFP is actively implementing the School Meals Coalition's vision for Planet-Friendly Schools, with emphasis on clean energy, sustainable cooking technologies, and broader energy access in schools.

Improving Cooking Efficiency with Biomass Technologies. Most WFP country offices have prioritized Improved Cookstoves (ICSs) deployed in **Cambodia, Central African Republic, Honduras, Liberia, Rwanda,** and **South Sudan**, with **Côte d'Ivoire** also training local manufacturers to support production, **Sierra Leone** procuring certified stoves, **Benin** enhancing energy efficiency of locally made ICSs by integrating Heat Retention Bags (HRBs) and **Uganda** where 65 schools in Karamoja region received ICSs alongside kitchen refurbishments and cooks training.

Expanding Beyond Biomass with Clean Cooking Technologies. In several countries WFP is supporting schools to transition to clean energy technologies: **Chad** and **Mauritania**

distributed HRBs and ICSs, but also introduced gas stoves, which in some cases required kitchen renovations; **Venezuela** built or refurbished 1,397 school kitchens equipped with gas cookers; **Laos** distributed electric rice cookers, while **Sri Lanka** introduced Electric Pressure Cookers (EPCs) in 10 grid-connected schools, supported by additional solar PV capacity; **Nepal** deployed induction stoves in grid-connected schools and added solar PV panels; **Cuba** advanced school solarization, and **El Salvador** continues to monitor three "Kitchen In A Box (KIAB)" systems—refurbished shipping containers equipped with renewable energy, water harvesting, and vegetable gardens.

Enhancing Broader Energy Access in Schools: in **Malawi**, while still the majority of schools (398) received ICSs, a biogas pilot was launched in 10 schools in partnership with Sistema.bio, and 3 schools procured services from the social enterprise DIFFER to install standalone solar PV systems powering EPCs, classroom lighting, irrigation for the school and land that is rented to farmers, and charging services for phones and batteries sold to the community affordabily. The business model is being developed with shared income for the company and the school; WFP **Niger** launched a tender to procure energy services for 30 primary schools, including solar PV systems for eCooking and other energy needs; in **Burundi**, schools addressed both energy and water access by installing ICSs and boreholes, which also benefit surrounding households; **Togo** provided ICSs and installed solar PV systems to irrigate school gardens; in **Armenia**, WFP scaled up its Transformative School Feeding model, integrating solar energy and climate-smart agriculture into school

infrastructure with 36 schools across seven provinces where solar stations, intensive orchards, and berry gardens were set up. These systems reduce energy costs by up to 30%, power irrigation for greenhouses and orchards, and generate income by selling surplus energy to the national utility. Schools also serve as platforms for promoting healthy nutrition, innovative agriculture, local value chains, and green energy. The wholegrain wheat value chain was expanded to Gegharkunik, benefiting 11,500 children in 70+ schools. Solar-powered bakeries and behavior change campaigns supported adoption and acceptance of healthier diets. WFP prioritized women-led bakeries, providing solar stations, baking equipment, and training to enhance income and leadership; solarization and greenhouse development, are underway also in the **Kyrgyz Republic; Kenya, Rwanda and Uganda**, supported by the Novo Nordisk Foundation, worked on sustainable practices for the Home Grown School Feeding programme aimed at sourcing school food locally; in **Rwanda**, WFP facilitated a South-South cooperation exchange with Brazil to explore gas and electricity solutions for school meals; **Benin** collaborated with the Agency for Rural Electrification and Energy Efficiency, the University of Abomey-Calavi, and EnDeV to map energy usage for school meal preparation.

SOLAR IRRIGATION FOR CLIMATE ADAPTATION AND FOOD SECURITY

Climate unpredictability and the growing need to boost agricultural productivity have made solar irrigation a compelling solution across multiple countries. WFP is supporting

communities through climate-adaptive food assistance, integrating solar technologies to enhance resilience, food production, and water access (**Cuba**). In **Bolivia** WFP supported drought-affected communities by constructing three solar-powered water retention ponds and fishponds stocked with 10,000 fish. Technical training accompanied the initiative, benefiting approximately 45,000 people. In **Burkina** solar irrigation systems were installed for 14 gardens (covering 34 hectares) and five fish ponds. In **Cameroon**, solar powered boreholes were drilled to provide drinking water. In **Egypt**, 52 solar-powered pumping stations were installed and shared among smallholder farmers organized in water user associations. **El Salvador** established 40 community gardens each of 2 hectares and shared by 10 families. Water access was ensured through 20 irrigation systems, 15 water harvesting systems, and two photovoltaic pumping systems. In Eswatini boreholes were solarized to support smallholder farmers. **Ethiopia** rehabilitated an irrigation scheme in Dolo Ado, including a 0.6 km canal and a solar-powered pump system, irrigating 100 hectares and benefiting 1,730 people. Diesel-powered systems were replaced with solar across 16 districts, with plans to expand in 2025. Additionally, 120 portable solar irrigation units were distributed with training to ensure proper usage. **Guatemala**, installed 13 solar-powered tilapia ponds with solar aeration reaching targeted 300 households (1,500 individuals). **Guinea** deployed 14 solar water pumps for irrigation. **Iraq** treated wastewater is repurposed for agriculture and aquaculture, enriching soil fertility, supporting fish farming, and generating biogas from organic sludge for clean energy. Solar-powered sprinklers, drip irrigation systems, and improved water infrastructure were also introduced. In **Lesotho** WFP constructed solar-powered boreholes. **Libya** rehabilitated wells, and installed solar pumps for drinking water and irrigation of smallholder plots, along with a desalination plant. **Mali** integrated climate adaptation into food security interventions piloting solar irrigation systems that benefitted over 300

farming households with improved agricultural productivity. As part of investments in soil, water, and energy to build healthy ecosystems and improve rural livelihoods WFP **Niger** installed four solar PV systems in 9.5 hectares supporting 711 farmers with irrigation to harvest fruits and vegetables year-round, improving diets and diversifying income sources. In Mamudo (Yobe State), **Nigeria**, WFP partnered with the state government to install solar-powered irrigation system and water tanks on farms, poultry houses, hatcheries, aquaculture sites, warehouses, and market sheds, benefiting 1,000 smallholder farmers. **Somalia** supported 3,000 farmers with tractors and solar-powered water pumps and upgraded 13 water kiosks and boreholes with solar systems. **Tajikistan** installed 11 solar-powered drip irrigation systems and solar water pumps for community use. In West Nile, **Uganda**, WFP partnered with Omia Agribusiness Development and Tulima Solar to implement solar-powered irrigation. The initiative began with 500 farmers in December 2023 and is set to scale to 5,000 farmers by 2025. WFP **Zimbabwe** installed solar pumping systems to support 24 one-hectare gardens and 36 boreholes across Binga, Hwange, Masvingo, and Chiredzi.

RAPID RURAL TRANSFORMATION

apid Rural Transformation (RRT) sites are integrated hubs powered by renewable energy, designed to catalyze local development by supporting agriculture, education, health, and entrepreneurship. In the **Democratic Republic of Congo**, RRTs powered irrigation from wells and post-harvest machines (mills etc) with a focus on empowering women. In the Ha-Mohlakoana region, **Lesotho**, RRTs were introduced in partnership with the Ministry of Local Government to power small businesses, promote digital literacy, and enable irrigation. In **Madagascar**, Vohitsova and Anahova regions, WFP established two new RRTs bringing the total to six sites, each with a capacity of 24.1 kWp. In **Mozambique**, a fully integrated RRT serves approximately 5,000 people, supporting schools, clinics, and small businesses. In **Namibia** two integrated RRTs were deployed, featuring greenhouses, irrigation systems, and digital hubs to support agricultural productivity and community connectivity.

OTHER ENERGY APPLICATIONS

WFP continues to support climate-resilient food systems and local entrepreneurship by rehabilitating communal assets and introducing renewable energy-powered technologies across multiple countries: in **Benin** communal granaries and solar dryers were rehabilitated to improve food preservation and reduce post-harvest losses; WFP **Guinea** established a milling site to support local food processing; in **Guinea-Bissau**, through the "One SDG Tabanca at a Time" initiative, WFP promoted off-grid green energy solutions and fostered local entrepreneurship; in **Honduras** 28 food preservation units (freezers) and 3 food processing mills were provided to enhance value addition and storage capacity; WFP **Lebanon** developed a solar-powered apple processing facility equipped with 16 machines, in addition, through AFCIA, a venture to introduce solar-powered ovens for baking is set to launch in 2025; **Lesotho** trained 200 area technical officers in constructing baking pits and ovens using locally available materials and distributed incubators and solar dryers to vulnerable groups to support income generation; **Malawi** developed a solar dryer prototype, with plans for scale-up in 2025; **Mozambique**, introduced solar cooling technologies to improve food storage and reduce spoilage; in **Nigeria** WFP delivered training on Zero-Energy Cooling Systems (ZECS) and installed solar PV systems and water tanks on farms, poultry houses, hatcheries, and other agricultural infrastructure; **Sierra Leone** deployed solar-powered food processing units to enhance local production and reduce energy costs.

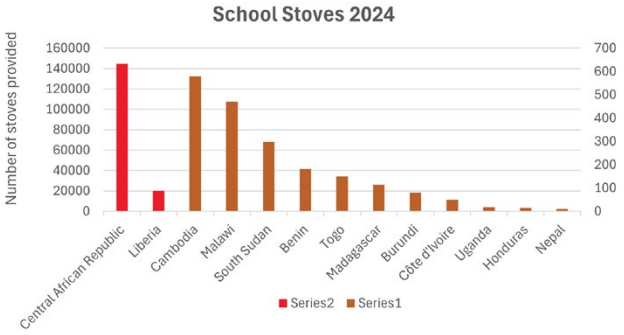
EVIDENCE AND ADVOCACY

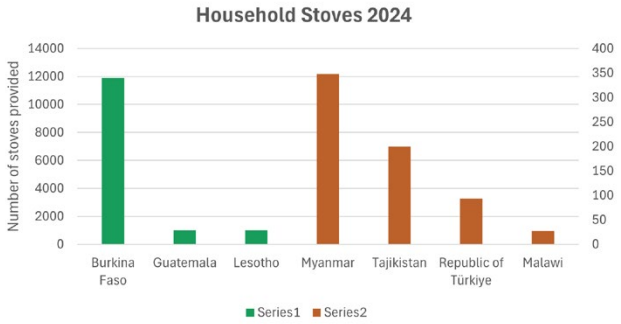
In 2024 WFP has contributed to several external publications:

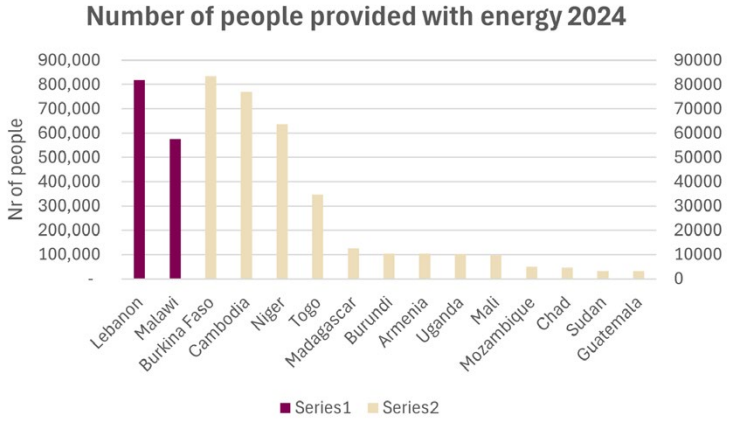
- "The role of electric cooking in providing sustainable school meals in low-income and lower-middle-income countries" led by MECS
- "Planet-friendly school meals: opportunities to improve children's health and leverage change in food systems" led by LSHTM
- "Powering progress: market creation strategies for solar e-cooking technologies in off-grid and displaced communities" led by UNEP

ENERGY IN NUMBERS

The following graphs show the number of institutional and household stoves provided in 2024 globally as well as the number of people reached with energy products or services for cooking and productive uses (food production, processing and preservation).







CLIMATE AND RESILIENCE SERVICE (PPGR)

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Photo page 1: RRT Namibia. WFP/Salufu Nyambe
Photo page 2: Malawi. WFP/Giulio d'Adamo
Photo page 3, top: Malawi. WFP/Patricia Cepeda
Photo page 3, left: WFP/Nepal
Photo page 4: Kenya. WFP/Arete/Edwin Ndeke
Photo page 4: Ethiopia. WFP/Michael Tewelde
Photo page 5: Madagascar. WFP/Chiara Guccione