Shifting to e-cooking in schools

Insights from Lesotho

In 2022, WFP supported the introduction of energy-efficient Electric Pressure Cookers (EPCs) in five Lesotho peri-urban schools in the Electric Pressure Cookers for Schools (EPC4S) project.

The schools ranged in size from 27 to 1,279 students, allowing to understand the opportunities and challenges of using EPCs in schools of varied sizes. The largest school cooked on open fires using wood, the rest used liquid petroleum gas (LPG).

EPCs significantly reduce energy demand due to insulation, pressurisation, and automatic control and are a clean alternative to firewood stoves or gas stoves. In Lesotho, around 54 per cent of 1,452 schools had access to electricity in 2019 with 204 additional schools planned to be electrified under the “Lesotho Renewable Energy and Energy Access Project 2020-2027” through minigrids (World Bank, 2020). All five schools had access to electricity, but none had considered using EPCs before. The pilot project aimed to assess the technical, economic, and socio-cultural feasibility of cooking with EPCs in schools, knowing that this would deliver substantial health, environment, and gender co -benefits.

Cooks were trained to use the new appliances, provided with a cookbook for the school menus and taught how to collect data in cooking diaries (noting food types and time of cooking). Further data were acquired by using electric metres to capture energy use per dish

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Cooking at Lequele Combined school, before the intervention. Firewood smoke negatively affects cooks' health and the environment.

and interviews were conducted with the cooks and school management to understand the user perspective. All schools employed cooks, but at one of the schools the teachers were also involved in the cooking, which was a distraction from their teaching responsibilities. All schools provided lunch, three provided breakfast and one provided dinner as well. That's a heavy cooking responsibility for the cooks.

EVALUATION STUDY BY MECS

An independent study was carried out by Modern Energy Cooking Services (MECS) project of Loughborough University. During the study, three of the schools experienced power cuts. When this happened, they reverted to the fuels they were previously using. Whilst not ideal, schools do not need to wait for 100 percent reliable power infrastructure to be in place before making a transition to electric cooking. All schools that provided meals already had cooking facilities of some sort. These can be kept as a back-up (also known as fuel and appliance stacking) whilst the national power infrastructure is being improved. The two schools without power cuts were able to cook exclusively with the EPCs.

Data analysis performed by the MECS indicated that:

* The introduction of EPCs in schools was compatible with existing power generation infrastructure.
* LPG used up to 4 times and firewood more than 10 times as much energy as an EPC. Consequently, the cost of cooking per student per day using an EPC was approximately one third the cost of using LPG, and one sixth the cost of using wood fuel.
* The introduction of EPCs did not affect what food could be served to the children, but it made cooking the staples like porridge and samp easier and provided a safer environment than other cooking options.
* For the school where cooking was done in the open, the children noticed that the food was no longer contaminated by sand blow into the pots on windy days.
* Thanks to the need to measure ingredients before loading the pot, three schools reported a reduction in food waste, and consequently saving money.
* Not requiring supervision while cooking, EPCs saved time as cooks were able to multitask and those who taught and cooked were able to focus on their teaching as they could set the timer and walk away, with the

> "What I like about the pressure cookers is that they are easy to clean, unlike the steel pots that require a lot of efforts to scrub with steel wool both inside and outside" *reported by a school cook at Leqele Primary school*

food remaining hot until it was needed.

* EPCs were also at least 20% faster than other cooking options (and considerably more compared to firewood) and washing required less time and water (absence of soot deposits and burned patches of food).

> "Compared to cooking with gas, pressure cookers save time"
> *reported by a school cook at Victor Nthenthe school*

These key findings support the pilot's hypothesis that cooking with EPCs in schools brings good value for money in addition to health, environment, and gender co-benefits.

SCALE UP POTENTIAL

Further 1200 schools could be shifted to electric cooking, of which 360 already connected to the grid and 840 off grid that would need solar PV electricity generation. This would provide clean cooking to 480,000 children.

CLIMATE AND DISASTER RISK REDUCTION

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