

CHAPTER FOUR CLEAN COOKING

CLEAN COOKING



4. CLEAN COOKING

KEYS MESSAGES:

- The RISE pilot on clean cooking solutions^a includes 12 countries that constitute 55 percent of the unserved population.
- In all pilot countries, there has been considerable progress in clean cooking planning activity, but to achieve universal access to clean cooking by 2030, more aggressive policy and financing support are needed.
- Most countries are not yielding adequate results in the uptake of modern clean cooking solutions as described under SDG7 for two main reasons:
 - i. There is a wide chasm between policy and outcome for clean cooking. This maybe owing to the fact that uptake of clean cooking is contingent upon and largely driven by consumer preferences. Therefore, having enabling policies, while important, is still insufficient to increase access;
 - ii. The most progress in regulations is focused on improvements in biomass stoves, which are not tracked as a clean cooking option in SDG7, which tracks only primary clean cooking fuels (biogas, LPG, ethanol, electricity, natural gas). The RISE pilot has demonstrated that the standards and definitions of “clean” with respect to cooking solutions vary depending on country context.
- Standards, labeling, and testing for clean cooking fuels and technologies are critical. To ensure cleanliness of cooking solutions for end users, about half of the pilot countries include standards for emissions, efficiency and safety in their policy frameworks.

WHY THE FOUR INDICATORS?

The choice of the four indicators in this pilot covers four distinct facets of the clean cooking policy apparatus:

- i. *Planning indicator*: includes government plans to scale-up access, household-level data on access, budgetary allocation, and institutions responsible for setting strategies, monitoring and tracking progress. These features form the foundation on which clean cooking industry can thrive.
- ii. *Scope of planning indicator*: accounts for policies tailored to gender and vulnerable communities, awareness strategies to drive adoption of clean cooking solutions, and last-mile distribution measures. A broad scope of planning ensures that the planning process is inclusive and reaches all pockets of the population.
- iii. *Standards and labels indicator*: includes efficiency, emissions, and safety of clean cooking solutions and checks whether they are devised through testing and approved by accredited labs. The objective of this indicator is to ensure that solutions that are considered clean are tracked and enforced to be clean.
- iv. *Financial incentives indicator*: tracks financing mechanisms and incentives for both consumers and suppliers of clean cooking solutions. This indicator captures active policies to increase consumer affordability and market competitiveness for clean cooking fuels and/or technologies.

^a Throughout the entirety of this report, any reference to “clean cooking solutions” applies to the combination of stove technologies and fuels that produce lower particulate and carbon emissions levels than the current baseline in a given country. Details about emission levels and efficiency are defined by the ISO Tiers of Performance for the indoor emissions indicator, within the Global Alliance’s Monitoring and Evaluation framework.

<http://cleancookstoves.org/technology-and-fuels/standards/iwa-tiers-of-performance.html>

OVERVIEW OF CLEAN COOKING POLICY FRAMEWORK

According to the Tracking SDG 7 report, access to clean cooking solutions¹², including stoves and fuels, is not currently on track to reach universal access by 2030. A little less than three billion people, or over 40 percent of the world's population, cook with solid fuels, including wood, charcoal, coal, animal dung, and crop waste, using open fires and traditional stoves. These are the primary energy sources for cooking throughout Asia, Sub-Saharan Africa, Latin America, the Caribbean, and Eastern Europe. Although many countries have experienced a rapid scale-up of electrification among households in the US\$500-US\$1,000 per capita income bracket, access to clean cooking solutions takes much longer to develop, and shows increased uptake at household income levels of US\$12,000 per capita¹³.

There are significant climate, public health, economic, and social impacts of cooking and heating with solid fuels and traditional stoves.

Cooking with traditional stoves and solid fuels is a leading cause of indoor air pollution and one of the most significant contributors to climate change in developing countries as it emits global warming gases and particulates, including carbon dioxide, methane, and black carbon. It is one of the largest contributors to disease and early mortality, contributing to more deaths than malaria, TB, and HIV combined. In South Asia, for example, more than half of black carbon comes from the use of inefficient cookstoves.¹⁴ If adopted at scale, clean cooking solutions could effectively reduce black carbon emissions. Research shows that decreasing short-lived climate pollutants in conjunction with controlling long-lived greenhouse gases could help limit global temperature rise to below 2°C, a Paris Agreement goal for avoiding severe impacts of climate change.

The RISE pilot on clean cooking solutions includes 12 countries: China, Ghana, Guatemala, Haiti, India, Indonesia, Kenya, Lao PDR, Madagascar, Nepal, Rwanda, and Uganda.

The countries were selected because they make up over 55 percent of the global population without access to clean cooking solutions and include countries with the highest electricity access deficits as well as those with the lowest clean-cooking access rates. They were also selected to account for different regions globally, varying degrees of dependence on hydrocarbons within households, and various trade barriers that might impede the import of clean cooking solutions. In 10 out of the 12 pilot countries, the governments have at least moderately evolved policy frameworks that can help scale up access to clean cooking (*Figure 4.1*).

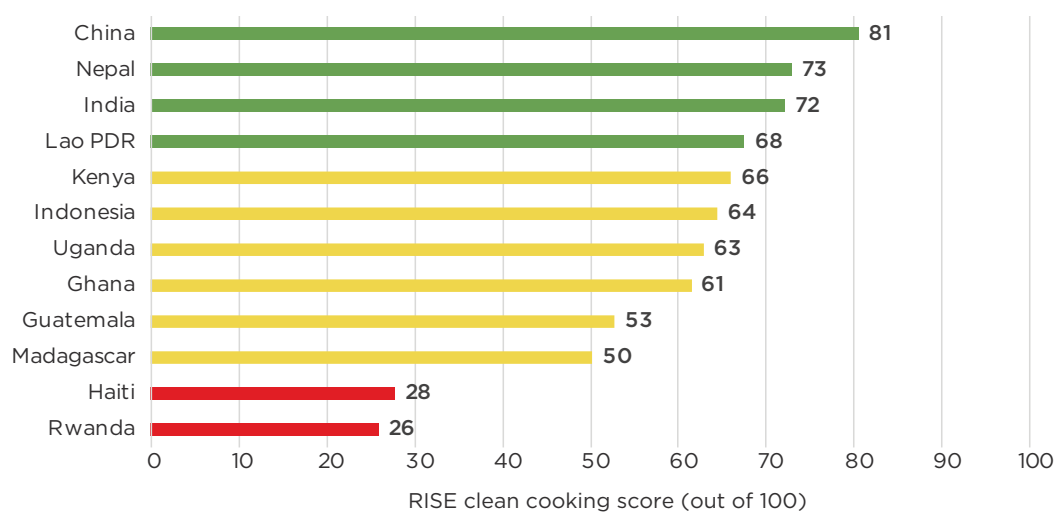
Policy frameworks for clean cooking solutions have been receiving more traction since 2010, but it has not yielded substantial outcomes in terms of clean cooking uptake.

While policymakers in the pilot countries have devoted increasing attention to issues surrounding policies for clean cooking solutions since 2010, only one third of the countries score in the green zone (*Figure 4.2*). Kenya has made the most progress relative to where it was in 2010, followed by Nepal and Lao PDR. Although progress is seen in all the countries, they are at different points in the process of developing a robust clean cooking policy apparatus.

Among the 12 pilot countries, clean cooking planning has seen substantial increase since 2010, and this has been complemented by a robust scope of planning.

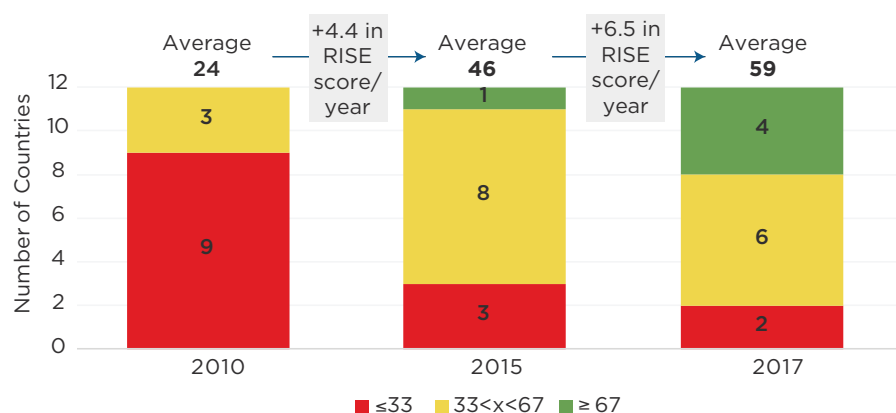
Since 2010, in the RISE pilot countries, there has been a flurry of clean cooking planning activity that is also inclusive, but the countries have been slow in instituting standards and incentives (*Figure 4.3*).

FIGURE 4.1 CLEAN COOKING POLICY FRAMEWORK SCORES FOR THE 12 PILOT COUNTRIES, 2017



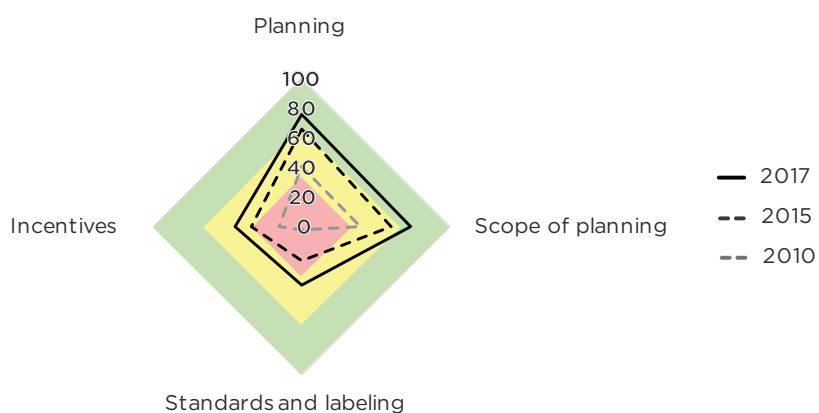
Source: World Bank RISE 2018

FIGURE 4.2 DISTRIBUTION OF COUNTRY SCORES FOR POLICY FRAMEWORKS ON ACCESS TO CLEAN COOKING, 2010-2017



Source: World Bank RISE 2018

FIGURE 4.3 PROGRESS IN CLEAN COOKING POLICY FRAMEWORK, BY PILLAR, 2010 - 2017



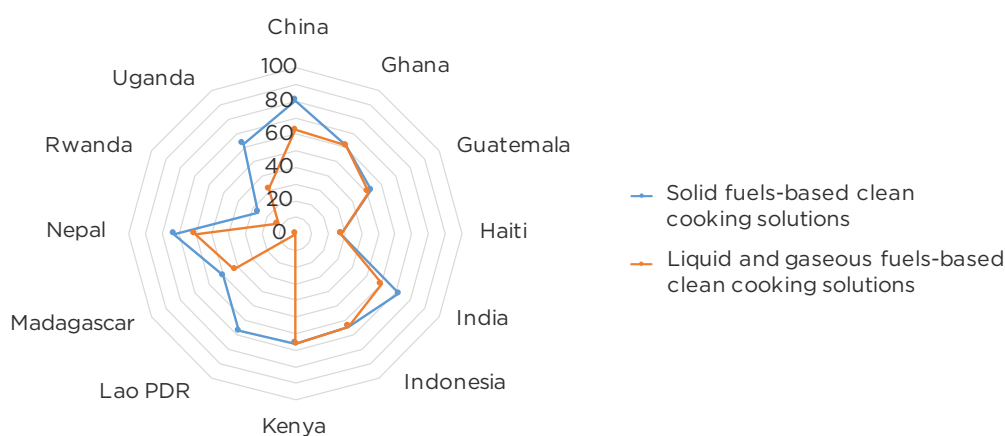
Source: World Bank RISE 2018

THE TUSSLE BETWEEN TRANSITIONAL COOKING SOLUTIONS AND THE CLEANEST OPTIONS

As of 2017, the policy emphasis seems to be more on solid fuels-based solutions rather than electric-powered or liquid/gaseous fuel-based solutions. Among fuel-based cooking options, most pilot countries rely on solid-

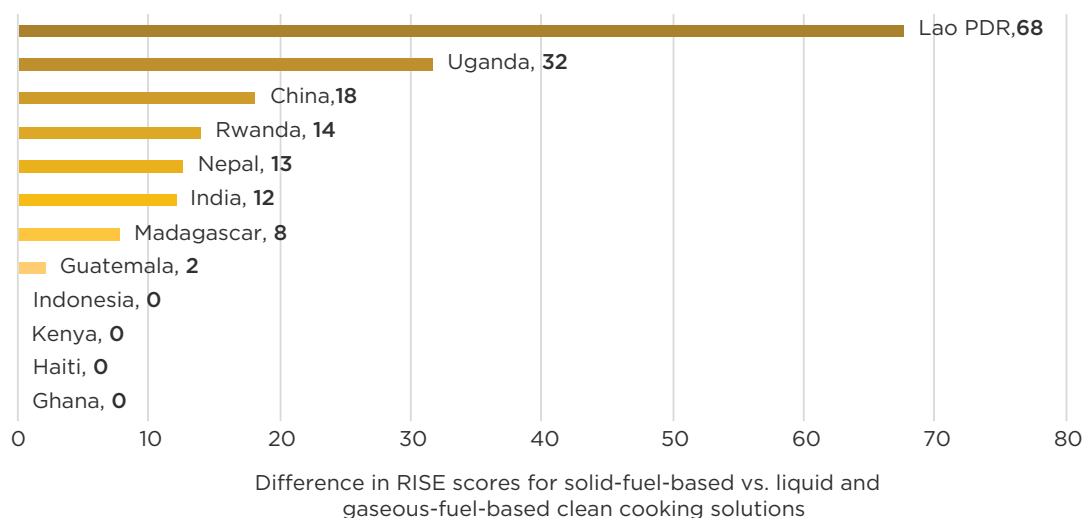
fuel-based cooking solutions, which are often the transitional solutions, rather than liquid or gaseous-fuel-based solutions (*Figure 4.4*). This may be because solid fuels tend to be generally more affordable than liquid and gaseous fuels¹⁵. Moreover, there is not an evident policy focus on electric-powered options for cooking solutions. Ghana, Guatemala, Haiti, Indonesia, and Kenya all place emphasis on both solid and liquid/gaseous fuels in their clean cooking policies (*Figure 4.5*).

FIGURE 4.4 SOLID-FUEL-BASED VS. LIQUID AND GASEOUS-FUEL-BASED CLEAN COOKING SOLUTIONS POLICY, BY COUNTRY, 2017



Source: World Bank RISE 2018

FIGURE 4.5 COUNTRIES RANKED IN ORDER OF DIFFERENCE IN RISE SCORES FOR SOLID-FUEL-BASED VS. LIQUID AND GASEOUS-FUEL-BASED CLEAN COOKING SOLUTIONS



Source: World Bank RISE 2018

While countries work to shift toward cleaner cooking solutions, it is important to have policies that set emissions requirements based on the country context and encourage consumer adoption of cooking solutions that are as clean as possible at the point of use. In 10 of the 12 pilot countries, the governments have policies focused on scaling-up access to at least one type of cooking solution. In 9 out of 10 of the countries the policies are complemented by government efforts to collect data on access to fuel and cooking solutions within households. National data tracking on cooking solutions is publicly available in seven out of the nine countries where it is collected; but only one-third of the pilot countries have data that is gender-disaggregated. RISE also considers the scope of planning, which is captured through indicators like the inclusiveness of the planning process, the use of awareness strategies, and the assessment of last-mile distribution strategies.

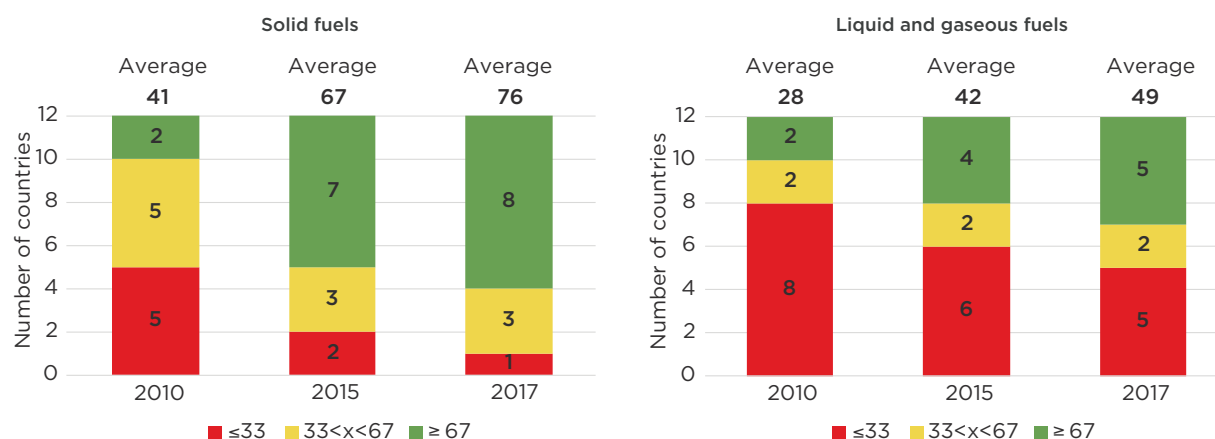
MULTIDIMENSIONALITY OF CLEAN COOKING POLICY MAKING

Clean cooking policymaking and implementation are cross-sectoral issues with multiple institutional players and inter-ministerial

coordination. Data collection for the RISE pilot countries has shown that the responsibility for clean cooking policies and implementation is distributed among many government agencies, which compounds the multidimensionality of clean cooking policy making. Institutional support for clean cooking could be diverse, with specific agencies in charge of distinct aspects of clean cooking, while involving inter-ministerial coordination (*Figure 4.7*). For example, in Lao PDR, the Ministries of Energy and Mines; Health, Education and Sports; and Natural Resources and Environment all work in collaboration on the clean cooking agenda, and there is also a cross-sectoral National Cookstoves Taskforce. This taskforce, established by the Ministry of Energy and Mines and its Institute of Renewable Energy Promotion serves as the coordinating agency.

More than four-fifths of the pilot countries have a government agency dedicated to clean cooking strategy or standards. However, only just over half of the pilot countries have a government agency that is dedicated to tracking access to clean cooking. The Ministry of Energy or equivalent agency takes on many roles in the pilot countries and is sometimes the sole agency responsible for all three roles: strategy setting, monitoring, and enforcement.

FIGURE 4.6 DISTRIBUTION OF COUNTRY SCORES FOR PLANNING CLEAN COOKING SOLUTIONS, 2010–2017



Source: World Bank RISE 2018

FIGURE 4.7 INSTITUTIONS RESPONSIBLE FOR THE VARIOUS FACETS OF CLEAN COOKING, BY COUNTRY, 2017

Countries	Agency responsible for setting / monitoring and enforcement /tracking adoption of clean cooking strategy					
	Ministry of Energy	Ministry of Health	Ministry of Agriculture/ Forestry	Bureau of Standards	Non governmental organization	Other
China		☑	☑ ☑ ☑	☑	☑	☑ ☑
Ghana	☑ ☑					☑
Guatemala	☑			☑		☑
Haiti	☑		☑			
India	☑ ☑ ☑			☑	☑	☑
Indonesia	☑ ☑ ☑			☑	☑	☑
Kenya	☑ ☑			☑	☑	
Lao PDR	☑ ☑	☑ ☑	☑ ☑	☑	☑ ☑	☑ ☑
Madagascar	☑	☑	☑			☑ ☑
Nepal	☑				☑	☑ ☑ ☑
Rwanda				☑	☑	☑
Uganda	☑ ☑ ☑			☑		

☑ Agency responsible for setting clean cooking strategy

☑ Agency responsible for monitoring and enforcement of clean cooking strategy

☑ Agency responsible for tracking adoption of clean cooking strategy

Note: Ministry of Energy includes mines, minerals, and renewables; Other = Other ministries and government institutions.

Source: World Bank, RISE 2018

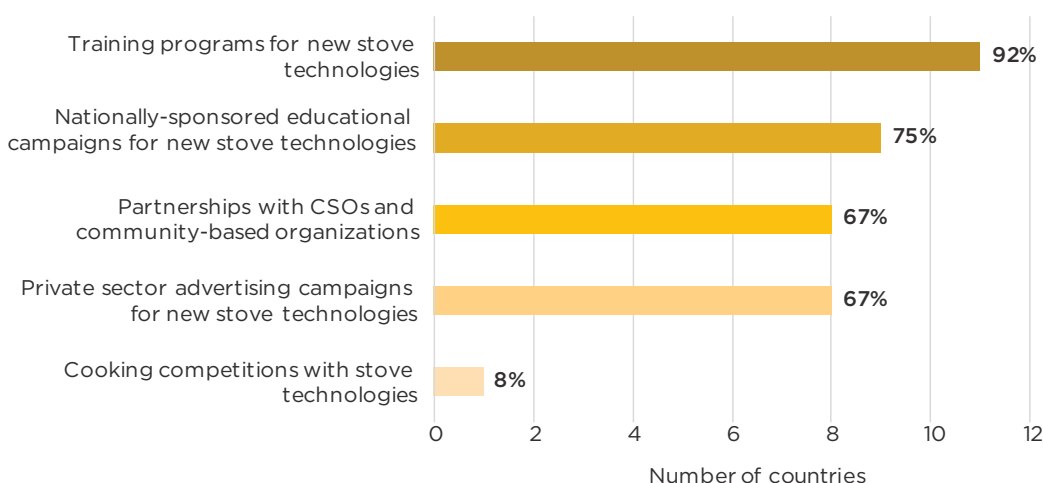
POLICIES IN CLEAN COOKING FOR CONSUMER OUTREACH

All of the RISE pilot countries are conducting some form of campaigns to create awareness about clean and efficient cooking practices to protect health, but awareness is an area that remains vastly underprioritized and underfunded (Figure 4.8). Uptake of clean cooking is dependent on household preferences that are in turn determined by cultural norms, household dynamics, and the availability and affordability of fuels. Therefore, awareness campaigns, often led by community-based

organizations, are a key component of the clean cooking policy framework. A multitude of strategies to create awareness about clean cooking fuels and technologies are in use in the pilot countries, including training programs, cooking competitions, educational campaigns, private sector advertising campaigns, and partnerships with civil society organizations and community-based organizations. Most of the countries adopt two or more of these strategies to drive the adoption of clean cooking technologies.

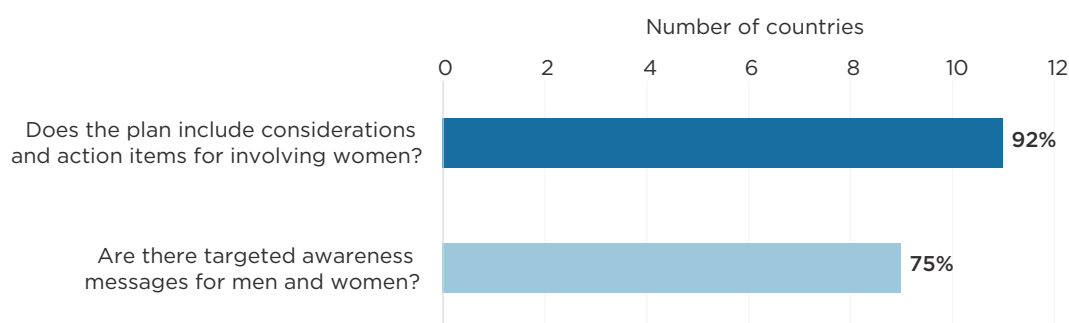
For example, in Ghana, the Ministry of Education, in partnership with an NGO, also launched a project to educate students on the benefits

FIGURE 4.8 SHARE OF PILOT COUNTRIES WITH CLEAN COOKING AWARENESS STRATEGIES, BY STRATEGY, 2017



Source: World Bank RISE 2018

FIGURE 4.9 SHARE OF PILOT COUNTRIES WITH GENDER-BASED CLEAN COOKING AND AWARENESS CAMPAIGNS, 2017



Source: World Bank RISE 2018

of clean fuels and technologies. Education and sensitization are key pillars of success and are outlined in Ghana's national plan. In conjunction with policies, these large-scale awareness campaigns, similar to national health campaigns such as those around HIV, have been effective in creating an enabling environment for clean cooking interventions to thrive.

In 11 out of the 12 RISE pilot countries, gender is taken into consideration in the policy framework for cooking, but the intent does not necessarily translate to a gendered approach. Lack of access to clean fuels leads to health and economic burdens that dispro-

portionately impact women and girls. In many countries, gender roles dictate that women and girls act as the primary procurers and users of cooking fuel, resulting in a gender disparity in exposure to household air pollution and the drudgery of manual fuel collection and cooking practices. In this context, it is important that policies and programs to promote clean cooking be well-informed by gender considerations. A gendered approach is also needed in the dissemination of clean cooking solutions. There is a clear gap between the policy intent and the actual dissemination with respect to gender-focused awareness strategies.

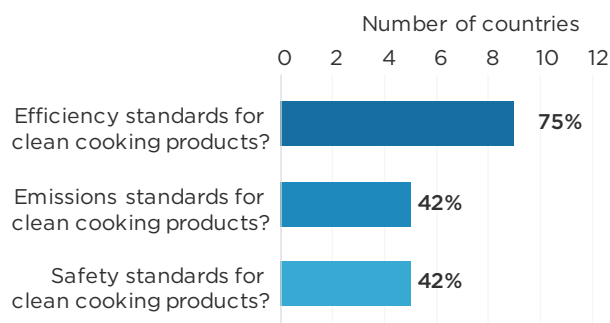
POLICY GAPS IN CLEAN COOKING

About half of the RISE pilot countries have efficiency, emissions, and safety standards for cooking solutions, as well as verification system through field testing, but not all are stringent enough to achieve improvement in cooking outcomes. The International Standards Organization (ISO) recommends testing cooking technologies and fuels in use in the field, in addition to lab testing to verify performance standards. Good practice for setting standards should consider compatibility with the rating framework developed by the ISO, which includes thermal efficiency, emissions,

and safety and durability as performance indicators. Standards and verification should also be supported and enforced by the government at the national and local levels. Three quarters of the pilot countries have efficiency standards, while half of the pilot countries have emissions and safety standards (*Figure 4.10*). Also, half of the pilot countries have a standards verification program, but not all of these countries include field testing (*Figure 4.11*).

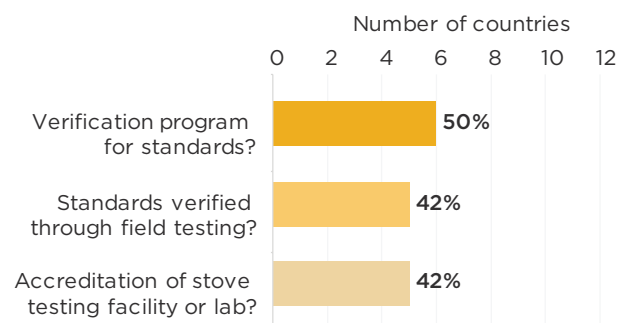
Financial incentive mechanisms for consumers and suppliers of clean cooking solutions are not widespread among the pilot countries, but some good practices have emerged (*Figure 4.12*). Overall, there is slightly great-

FIGURE 4.10 NUMBER OF PILOT COUNTRIES WITH EFFICIENCY, EMISSIONS AND SAFETY STANDARDS FOR CLEAN COOKING, 2017



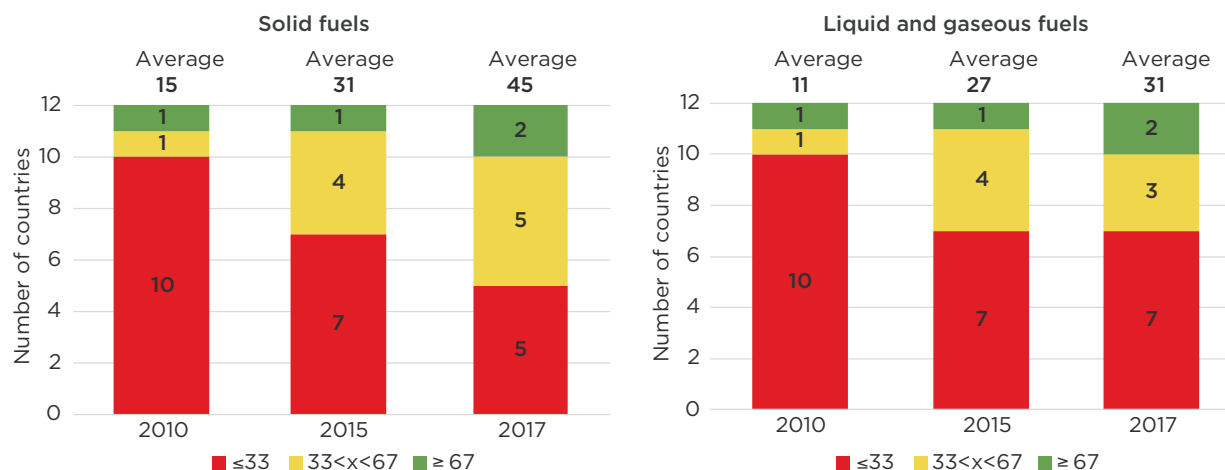
Source: World Bank RISE 2018

FIGURE 4.11 NUMBER OF PILOT COUNTRIES WITH VERIFICATION AND FIELD TESTING OF CLEAN COOKING STANDARDS, 2017



Source: World Bank RISE 2018

FIGURE 4.12 DISTRIBUTION OF COUNTRY SCORES ON INCENTIVES FOR CLEAN COOKING SOLUTIONS, 2010-2017

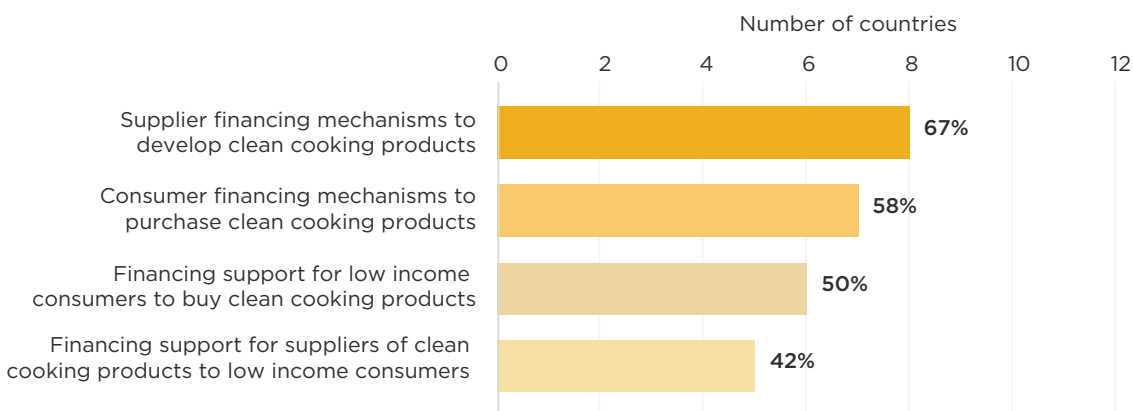


Source: World Bank RISE 2018

er support for consumers of clean cooking solutions than for suppliers (Figure 4.13). For example, the Government of India, in collaboration with oil companies, has launched Give It Up, an ambitious LPG subsidy reform program, to facilitate the expansion of LPG access to low-income rural households, which includes a public campaign directed at urban consumers to voluntarily surrender their subsidy.¹⁶ In Nepal, targeted consumer subsidies for biogas and improved traditional biomass stoves exist in the form of bank transfers for qualified brands, but supply-side subsidies will be necessary to adequately meet the demand for modern solutions. Suppliers of

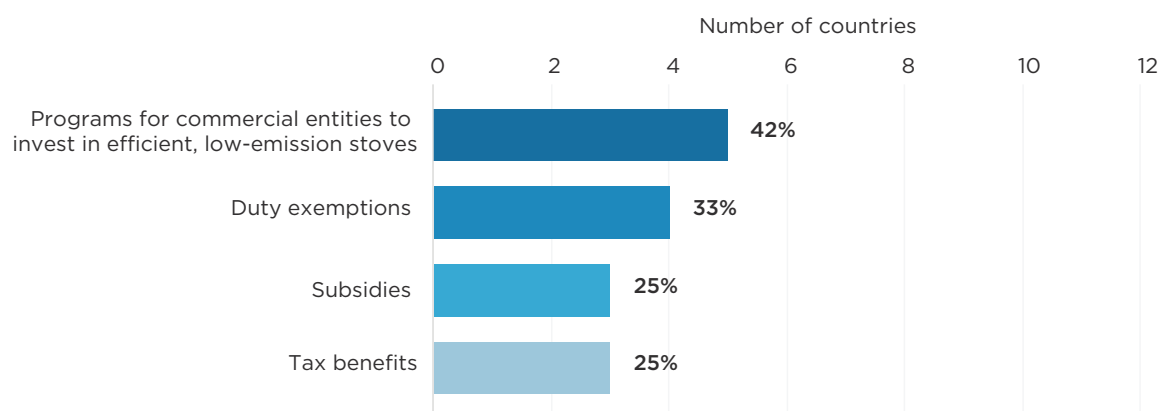
clean cooking solutions are typically provided with financial incentives like tax benefits and duty exemptions in 3 of the 12 pilot countries (Figure 4.14). For example, in Kenya, manufacturers and retailers benefit from well-established carbon financing mechanisms within the country, and multiple Savings and Credit Cooperatives (SACCOS) have been established by Kenyan community leaders to help finance improved cookstoves. In Rwanda, microfinance programs, subsidies for biogas stoves and suppliers, and duty exemptions for stoves above tier 2 are in place, but investment needs to be scaled up.

FIGURE 4.13 FINANCING MECHANISMS FOR CONSUMERS AND SUPPLIERS OF CLEAN COOKING SOLUTIONS, 2017



Source: World Bank RISE 2018

FIGURE 4.14 FINANCIAL INCENTIVES FOR SUPPLIERS OF CLEAN COOKING SOLUTIONS, 2017



Source: World Bank RISE 2018

ENDNOTES

¹² Throughout the entirety of this report, any reference to “clean cooking solutions” will apply to the combination of stove technologies and fuels that have higher efficiency and/or produce lower particulate and carbon emissions levels than the current baseline in a given country. This definition differs from the category of access to clean cooking described in the Tracking SDG7 Report because it also considers improvements in efficiency for cooking solutions that use solid fuels. Details about emission levels and efficiency are defined by the ISO Tiers of Performance for the indoor emissions indicator, within the Global Alliance’s Monitoring and Evaluation framework.

<http://cleancookstoves.org/technology-and-fuels/standards/iwa-tiers-of-performance.html>

¹³ Clean Cooking - SE4ALL

https://www.seforall.org/sites/default/files/Clean_Cooking.pdf

¹⁴ According to the Global Alliance for Clean Cookstoves, black carbon, which results from incomplete combustion, is estimated to contribute to the equivalent of 25 to 50 percent of carbon dioxide warming globally. Residential solid fuel burning accounts for up to 25 percent of global black carbon emissions, over 80 percent of which is from households in developing countries.

<http://cleancookstoves.org/impact-areas/environment/>

¹⁵ Liquid and gaseous fuels included in this distinction are biogas, ethanol, LPG, and natural gas including piped natural gas (PNG).

¹⁶ The campaign has seen over 10.5 million people volunteering to give up their subsidy. The government also has made the subsidy unavailable to households where the primary consumer or his/her spouse has taxable income of more than INR 10,000,000 in the previous financial year. As an add-on to the Give-it-Up campaign, the launch of the Pradhan Mantri Ujjwala Yojna (PMUY) subsidy scheme in May 2016 has provided 57 million cooking gas connections to rural poor women across the country. The PMUY subsidizes the connection cost to provide LPG to below-poverty-line households against the name of the female head of household. Eligible households are identified from the Socio-Economic Caste Census (SECC) 2011. Under this scheme, households get a cylinder and regulator for free, although the price of the stove is recovered (upfront/installments) from the first few refills and the households receive the cylinders at a subsidized cost after the recovery of the stove cost. This scheme has helped increase the share of rural distributorships from since its launch in 2009-10 from 14 percent to over 40 percent (in 2016-17).

