



focus

Your gateway to International Standards

#134

An aerial photograph of a dense green forest. A light-colored paved road curves through the trees, and a blue car is driving on it. The text 'green TECH' is overlaid on a dark rectangular background in the lower half of the image.

green TECH

Turning up the heat on clean cooking solutions

by Ann Brady

Household air pollution still blights the lives of people living in the poorest parts of the world, cutting lives short, damaging the environment and putting huge burdens on healthcare systems. Clean cookstoves and fuels would go a long way to solving many of these challenges. One expert explains why ISO standards are an essential ingredient.

Cooking nutritious and tasty food for your family is at the heart of every home. The heat, the smell, the sizzle – all arouse atavistic pleasures and the kitchen, no matter how big or small, is regarded as the focal point of a home. Our appetite for TV food programmes, cookery books and celebrity chefs is ubiquitous.

In some of the world's poorest regions, however, cooking and preparing family meals can have fatal consequences. Although great progress has been made in reducing global poverty, for billions of people, the new technologies sweeping the globe have largely passed them by.

Toxic emissions

According to the World Health Organization (WHO), about three billion people worldwide cook meals for their families on inefficient and dangerous stoves, using biomass fuels – such as wood, charcoal, dung – on open fires, and on cookstoves that produce dangerous emissions, and in rooms that lack proper ventilation. The toll on women and children, in particular, has been high, with millions dying from lung and heart ailments caused by indoor fumes.

The WHO says household air pollution (HAP) is the noxious combination of smoke, particulate matter and other emissions from this solid fuel combustion. These common cooking practices are resource-intensive and highly dangerous. They are the leading cause of global exposure to HAP.

Clean cooking stoves and fuels would not only improve health and, therefore, livelihoods, they would also be an effective way to protect forests. According to a report in *The Guardian* last year, in Malawi, demand for charcoal, which is widely used for cooking as it burns more quickly and cleanly than firewood, has led to rapid deforestation. Despite a ban on the production, transport and sale of charcoal unless it is sustainably sourced, illegal trade is booming. To counter this, in villages around Malawi, women are being trained to make energy-efficient clay stoves and sell them locally. The report says that these “improved cookstoves”, which burn charcoal or wood more efficiently than traditional cooking fires, are gaining popularity. And another stove, a metal charcoal model designed by US social enterprise Envirofit, is also gaining traction, which the organization says cooks food in half the time and produces fewer toxic emissions.

The adoption and adaptation of national standards is a critical next step, as the standards need to be applied to have real impact.

In a blog published by the World Economic Forum, Ron Bills, the Chief Executive Officer and Chairman of Envirofit, writes: “Until recently, most solutions for fighting HAP were focused on replacing traditional stoves with improved biomass stoves. While this is a good short-term solution, it is best used as a stepping-stone for families until cleaner fuels are available.” He also points out that the need for greater global access to modern energy is one of the United Nations Sustainable Development Goals, a set of 17 goals that pave the way for a fairer, safer and healthier future for mankind. “Their seventh goal is to ‘ensure access to affordable, reliable, sustainable and modern energy for all’.”





About 3 billion people worldwide cook meals for their families on inefficient and dangerous stoves, using biomass fuels.

Progress and advances

Considerable progress has been made in finding solutions and ISO standards have played a significant role and raised the benchmark by setting new clean cooking performance targets. Ranyee Chiang, Chair of technical committee ISO/TC 285, *Clean cookstoves and clean cooking solutions*, and formerly the Director of Standards, Technology and Fuels at the Clean Cooking Alliance, is an expert in cookstove quality and helps to develop and implement standards, regulation and labelling. She explains that advances have been made in technology for cookstoves and fuels, with an increasing number of models that have significantly lower emissions than traditional stoves and open fires.

“The stoves and fuels adopted over recent years,” she says, “have also been trending towards higher-performing technologies, which are a result of our increased focus on testing and standards.” And to ensure that technologies are performing as expected in homes, Chiang says that field tests have been carried out on these new technologies. This also has the added benefit of gathering input on users’ preferences and needs. Like any other consumer product, cookstove and fuel alternatives need to be convenient, easy to use and safe.

These new ISO targets replace the five-tier framework under ISO’s International Workshop Agreement with a new six-tier system that more clearly represents key performances of cookstoves and relates them to relevant health and environmental impacts. The targets are expected to serve as the basis for national policies and programmes on cookstoves, and to incentivize manufacturers and developers to continually improve stove quality and design.

According to Chiang, the three ISO standards published in 2018 for the clean cooking sector have reflected the lessons learned from the 2012 International Workshop Agreement, growing experience with testing, research on the linkages between technology and benefits, and experience in communicating with lay audiences and consumers. “The IWA was important to improve the use of technology testing results, and that has helped to inform and strengthen the new ISO documents,” she says.

Three standards

First to be published was International Standard ISO 19867-1 (laboratory testing) which specifies updated methodology for conducting testing of emissions, efficiency, safety and durability in a way that is both reliable and feasible in low-resource environments. In the same series, ISO/TR 19867-3 (voluntary performance targets) is a technical report that provides an updated framework to communicate test results and potential benefits to users in a simple and standardized way, to ensure that test results will not be misunderstood or misrepresented.

Supporting these documents is another technical report, ISO/TR 21276, which provides the terms and definitions to ensure that the standards community and the broader clean cooking sector have a shared understanding of commonly used terms. Chiang says: “In order to encourage further technology improvements and communicate benefits to consumers, these three documents will be critical. The sector has already begun using them, as well as documenting additional lessons learned.”

Collaboration, as in other fields, is critical to making headway in clean cooking solutions and, here again, standards are pivotal. According to Chiang, the last few years of the International Standards’ progress have been focused on international collaboration. “With these three documents published – and one more, ISO 19869 on field testing, is close – the work will shift to the country level, with governments, businesses, testing centres and non-profits implementing and adapting the standards.” Last year, ISO/TC 285 also shifted from a co-secretariat (ANSI and KEBS) to KEBS alone, which further represents the increasing leadership role for developing countries within ISO.



CLEAN COOKING SOLUTIONS

climate & environment

Clean cookstoves can reduce fuel use by 30% to 60%, resulting in fewer greenhouse gases and black carbon emissions.

women & gender

Clean cookstoves enable women to spend more time with their children and pursue economic and education opportunities that contribute to poverty alleviation.



livelihoods

Clean cookstoves save households time and money to engage in income-generating activities, while clean fuel value chains offer new pathways for local economic empowerment.

health

Clean cookstoves and fuels reduce personal exposure to toxic fumes, lowering the burden of disease associated with household air pollution.

Source: Clean Cooking Alliance
www.cleancookingalliance.org

Behaviour change

One example of progress that Chiang is particularly enthusiastic about is Ghana, which she says links together standards, technology performance and consumer awareness. “The Energy Commission in Ghana, in partnership with the Clean Cooking Alliance, conducted market research on how consumers understand stove emissions, efficiency and the benefits of different technology options. The results of this market research were used to design a label that the Energy Commission has proposed to the Ghana legislature for approval to use in the Ghanaian marketplace.”

Chiang says the Clean Cooking Alliance has supported the standardization progress by bringing stakeholders together and facilitating discussions on International Standards. “The Alliance has also supported capacity building at testing centres, national standards activities, as well as market development, consumer behaviour change, research and investment, with all of these areas working together to accelerate the clean cooking market.”

So what steps are being taken to build on this progress and to ensure that it is sustainable? Chiang says the adoption and adaptation of national standards is a critical next step, as the standards need to be applied to have real impact. “Training laboratory technicians and national governments on the new methods and standards is also very critical and ongoing,” she says. She adds that many of the ideas in the standards documents are new, so they also need to be tested out with the lessons learned incorporated into the next review cycle. Chiang says: “I hope that the clean cooking sector can continue to support testing centres, implement policy tools and publish test results for clear and accurate communication to policymakers, donors and consumers. These actions will ensure that standards are implemented effectively and enable continued improvement of technologies and fuels for cooking.”

As the WHO points out, clean cooking is also integral to ten of the Sustainable Development Goals, including those that focus on health, climate action and gender equality – which, of course, benefits the entire planet. ■



