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*Written by Small World Stories for GAHP*

**No safe haven: how cooking at home can be fatal in Madagascar**

*A just released report in Lancet Planetary Health, Pollution and health: a progress report, found pollution was responsible for 9 million premature deaths worldwide in 2019. Air pollution, including from the burning of charcoal and firewood indoors for heating and cooking, caused nearly three-fourths (74%) of these deaths. In Madagascar, it is estimated that one in ten people die each year from indoor pollution.*

Every month, Voahirana Ramantsiloina from Ampitatafika Atsimondrano, on the outskirts of Madagascar’s capital Antananarivo, takes her 8-year-old son to the doctor to get his lungs pumped.

“He has problems due to the smoke from the charcoal we cook with. When he’s running, when he's playing, he has difficulties breathing,” she says.

“Since he's been small, I’ve had to take him to the doctors to have his lungs treated. At first he was in serious pain and used to cry, but now he's used to it. I feel really bad as a mother, seeing him go through all that.”

Like most people in Madagascar, Voahirana has no choice but to cook with charcoal or firewood. But this everyday act carries an impossibly high price: the risk of serious illness and death.

“The smoke is completely black when we cook with Mimosa charcoal, it’s very dense,” explains Voahirana.

“You can’t breathe if you stay in the same room as the stove, you get headaches and dizziness. You might open some windows or the door, but still it's impossible to breathe properly. Nearly all families are facing the same thing.”

**A household harm**

Rila Albani, at the Ministry of Environment and Forests Madagascar, describes the country as facing an “alarming” threat from indoor pollution, which is fast becoming a national priority.

He says: “Madagascar is one of the most polluted countries in sub-Saharan Africa…there are many research projects that are addressing outdoor pollution. But when it comes to indoor pollution, there's very little data and very little research.”

It is estimated that around [11% of people who die in Madagascar each year](https://gahp.net/wp-content/uploads/2019/07/Madagascar-HPAP_EN.pdf) die from indoor pollution. Yet a staggering [99% of Malagasy households](https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-6627) use charcoal, firewood and crop waste for cooking fuel.

Around [40% of respiratory infections](https://gahp.net/wp-content/uploads/2019/07/Madagascar-HPAP_EN.pdf) in the country are caused by indoor air pollution. This includes pneumonia, which can be fatal, especially for children. Indoor pollution is also associated with heart attacks, strokes, cancer, tuberculosis and cataracts.

Jean Benoit Manhes, Deputy Chief of UNICEF’s Madagascar Country Office, says: “Acute respiratory infections [from pollution] and diarrhoea, which is caused by water pollution, are the two biggest killers of children in Madagascar. Acute respiratory infection can take several forms, including reduced capacity to breath, which basically paves the way for pneumonia or other diseases. It can cause heavy coughs and [lung] irritations, which fragilizes [a child’s health].”

Indoor pollution not only devastates health. The harvesting of wood for fuel is causing mass deforestation; Madagascar is losing its forests by around [40,000 hectares each year](https://gahp.net/wp-content/uploads/2019/07/Madagascar-HPAP_EN.pdf). This, and the pollution that the burning of charcoal and wood generates, are both major contributors to climate change at the global scale.

**Cash and culture**

The widespread use of charcoal and wood is driven by two, deeply rooted factors. Firstly, cooking with these fuels has been passed down from generation to generation and is part of Madagascar’s national identity.

“It is not only an environmental problem or a health issue, it's a socioeconomic issue, and it’s also historical because it has been here for hundreds of years…it is so ingrained in the mindset and the customs of the Malagasy people,” says Amenda Zingelwa, the Global Alliance of Health and Pollution’s (GAHP) national country coordinator in Madagascar.

But the popularity of charcoal and wood is also economically driven: “The [LPG] gas tank that you can buy is about $15 to $20, and that lasts up to three months. But nobody has that kind of money upfront,” explains Amenda. “For less than 0.1 US cent, you can buy charcoal on a day-to-day basis, even on a meal-to-meal basis. And in Madagascar…it is [all about] day-to-day spending, there are no savings.”

Voahirana’s experience echoes this. “If there was a scheme that offered an alternative energy source that was free, or if it was the same price as charcoal, then we would definitely try it,” she says. “We would prefer electricity, but we cannot afford to get our own main switch installed.

“What we really wish for is a choice between electricity, firewood and gas, but we simply don't have that. We just have to use what is available.”

She adds: “Maybe previous generations would have said there’s no way they would change to alternatives for cooking. However, today, there is a shift in mindset. Moving from firewood and charcoal? There is a will to shift. But the problem is access to different types of energy.”

**The need for home-grown solutions**

Tiana Arimina, director of non-governmental organisation (NGO) *Hetsika Fampiraisana Kristiana ho an’ny Firenena* (HFKF or Christian Unity Movement for the Nation), also believes the appetite for change is growing.

“The population is no longer willing to be sick,” he says. “But what are the best options, taking into account the realities of Madagascar?”

Tiana believes that “home-grown solutions” and utilising influential forces in the country, such as churches and mosques, are the key to sustainable change.

Already, there are a number of NGO-run schemes in Madagascar trialling cleaner energy cooking. These include solar power and ‘agro-combustibles’ –things like sugar cane or rice husks, which is something HFKF works on. There are various ethanol schemes, including one run by the First Lady, and initiatives for charcoal stoves that generate less pollution. But the complexities of the country mean no scheme has been taken to scale.

Jean Benoit Manhes at UNICEF explains: “There are a lot of solar initiatives, but for that you require sun and it's not available everywhere. It's very slow to cook a meal with the sun, and you require space…

“There's some initiatives on bio-ethanol, but it is excessively complex to produce, considering the fact that Madagascar is already facing difficulties in ensuring [enough] crops to feed its own population.

“Electricity is nowhere to be seen here in Madagascar, except maybe in some very specific urban areas, so people cannot use electricity to cook [with].

“With gas, you need to have bottles, you need to have equipment to fill those bottles. You have to purchase a stove, which is adapted to those bottles, and then you need to send them to very remote areas. More than 42% of the villages in Madagascar are not accessible all year long, so you need to have a very complex supply chain… and it's very costly for a population that is 82% in extreme poverty.”

**Sounding the alarm**

What many believe is essential in moving Madagascar away from charcoal is increased awareness about the harms of indoor pollution, at all levels.

“There are many people who think…that the only pollution that exists is caused by fuel, by old cars and trucks. This indeed exists, but it is marginal compared to the fact that almost every single Malagasy family uses charcoal inside their house,” says Jean Benoit Manhes. “The first priority is to convince people that this [problem] exists, and we are not there yet.

“UNICEF is also about supporting health centres to provide care to affected children. One positive aspect of the COVID response is that we have massively increased access to oxygen in hospitals. So now the most severe [respiratory] cases can also be treated, which wasn't the case before.”

**A 10-year vision**

In October 2021, the Ministry of Environment began partnering with GAHP, UNICEF and the World Health Organization to develop a 10-year anti-pollution roadmap. This has grown out of the country’s Health and Pollution Action Plan (HPAP), validated in 2018, a program of GAHP, which brings together government ministries, academics, the private sector and civil society to form a working group which chooses a country’s top pollution issues to focus on how to tackle them.

“What's really important is that the roadmap brings together different actors and sectors,” says Rila Albani. “It will provide the framework of how we want to deal with all the priorities related to pollution.

“In Madagascar there really is almost nothing in existence, in the sense that legislation needs to be put in place and institutions need to be created to monitor pollution. Almost everything needs to be built to be able to respond and deal with this.”

Although there is some awareness among the general population about the link between household pollution and poor health, many Madagascans accept coughs and other respiratory problems as inevitable. To combat this, the Madagascan government is planning to run a national awareness campaign on the links between air pollution, health and the environment.

“We are planning a public declaration from the President to make it clear that this is a national priority. That air pollution is contributing to the country's morbidity and mortality rates significantly and that this has to change,” says Rila Albani. “We want to make this a national priority so that all other ministries integrate the fight against pollution within their own sectors and programmes.”

Despite the huge challenges ahead, Rila is confident that a decade will be long enough to make a difference. “It will be possible to make these shifts in 10 years – it must be,” he says simply. “We have to change things.”