

ENERGY SCENARIOS

Clean cooking access may stall under slow post-pandemic recovery and ambitious climate mitigation without explicit focus

Without additional support policies, clean cooking could become unaffordable for about 470 million people by 2030 if a post-pandemic recovery is slow, and about 200 million people by 2030 under ambitious climate mitigation action. Acceleration of clean cooking transitions by tapping into pandemic recovery and climate funds to target the poorest people and regions globally is urgently needed.

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The policy problem

At the current rate, the Sustainable Development Goal (SDG7) target of universal access to clean cooking services by 2030 is unachievable and may remain unattainable for some countries even by 2050. This can also hinder progress on other SDGs, including those on health, gender, inequality, climate and land. Financial strain following the COVID-19 pandemic is pushing people further down the energy ladder and deepening inequities. Emerging evidence also suggests that exposure to household air pollution from dirty cooking can exacerbate public health issues. Understanding how access to clean cooking may change under alternative future scenarios is important to inform strategies for achieving health and climate goals. Although there are several climate mitigation scenarios in the literature, it is not clear how the world might develop in the absence of climate policy and how climate change mitigation might interact with clean cooking access goals. As a result, decision makers do not have clear guidance on integrated policy for climate mitigation, development and clean cooking access.

The findings

We explore clean cooking access until 2050 under alternative future scenarios of socioeconomic and demographic change, COVID-19 recovery and ambitious climate mitigation. We find that the population share with access to clean cooking improves in all scenarios relative to today, but the target of universal access by 2030 is not reached even in our most optimistic growth and low inequality scenario. About 470 million more people could be pushed into cooking-fuel poverty by 2030, exacerbating global inequities, in a slow pandemic recovery scenario that accounts for 2020 and 2021 GDP estimates and assumes a 20-year recovery period, relative to a pessimistic growth scenario that assumes no pandemic shock (Fig. 1). We find that populations in sub-Saharan Africa, developing Asia and Latin America are the worst affected. Cooking poverty strongly correlates with income poverty, particularly in sub-Saharan Africa. Ambitious climate mitigation, without additional policies and financial support, could also make clean cooking unaffordable for

Recommendations for policy

- The world is off track with SDG7. A slow pandemic recovery and ambitious climate mitigation may slow down efforts to extend clean cooking access and make universal access by 2030 more challenging
- Populations in sub-Saharan Africa, developing Asia and Latin America (the regions with the biggest access gaps today) are most vulnerable to being unable to transition to clean cooking in the future
- There is an urgent need to prioritize commitments, investments and coordinated policies to make clean cooking more accessible and affordable in the poorest regions and for the poorest populations
- Transitioning away from solid biomass cooking can reduce growth in future cooking energy demand, with subsequent benefits for air quality, climate and health
- Pledges to COVID-19 recovery funds, international climate finance and the value of losses suffered by those lacking access all dwarf estimates of investment needs for universal clean cooking access

about 200 million people by 2030. A transition to clean cooking can reduce future demand for cooking energy, specifically in regions that currently rely heavily on biomass.

The study

We apply existing models of household cooking choice and demand to assess future transitions worldwide. We account for multiple fuel use (fuel stacking), population heterogeneity, inter- and intraregional

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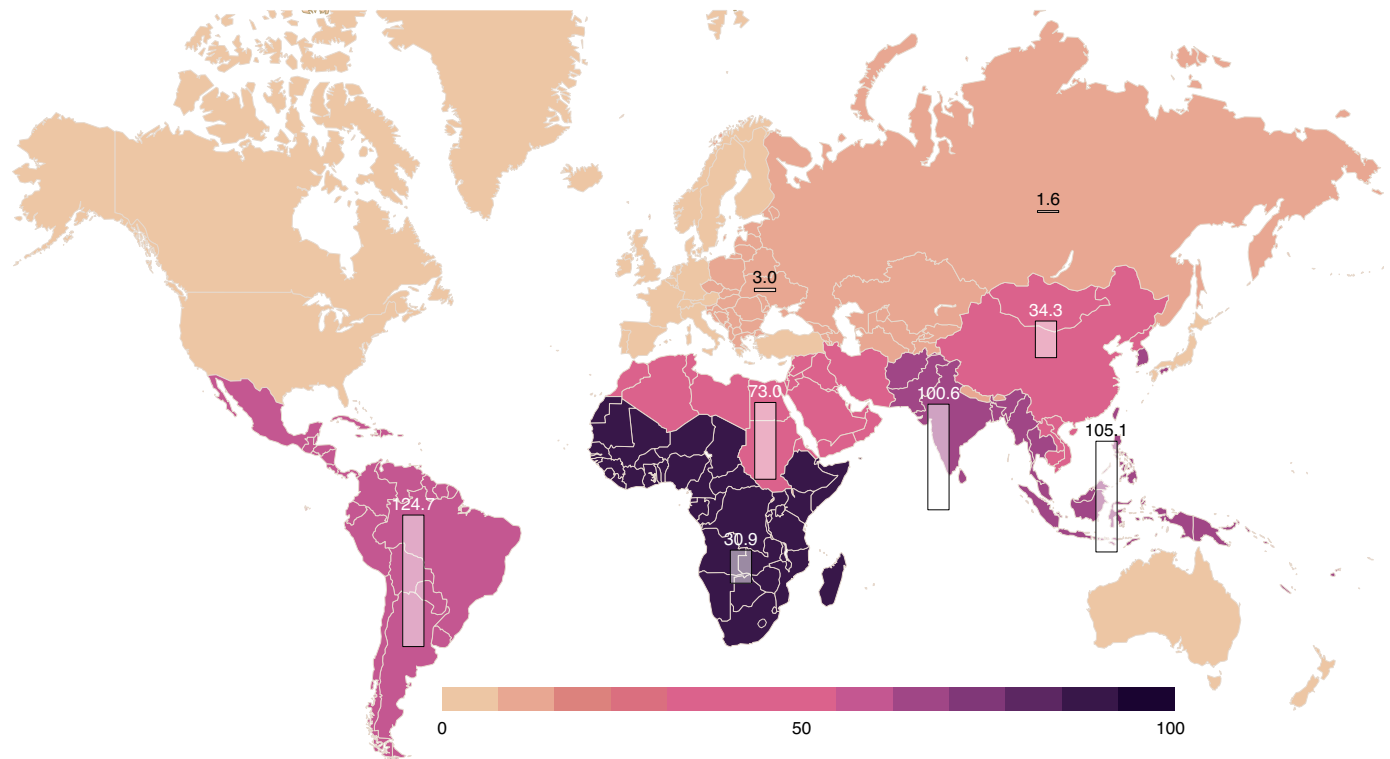


Fig. 1 | Cooking-poor populations predicted under two different scenarios. Percentages of population who are cooking-poor are shown (colour scale) for model regions under the Shared Socioeconomic Pathway 3 (SSP3), a pessimistic reference growth scenario, with bars depicting additional cooking-poor in millions under the slow COVID-19 pandemic recovery scenario relative to SSP3. Regions depicted are sub-Saharan Africa, South Asia, Middle East and North Africa, Latin America and the Caribbean, other Pacific Asia, centrally planned Asia and China, former Soviet Union, North America, Central and Eastern Europe, and Western Europe.

income distributions, and affordability of clean cooking options. In the models, we use data from nationally representative household surveys of select countries for global coverage. We then simulate behaviour, preferences and choices of individual households representing entire distributions of household characteristics and income into the future, by region, to analyse access to clean cooking, and subsequent changes in final cooking energy demand until 2050 under alternative scenarios. We assess how cooking fuel transitions vary by income and urban or rural location across scenarios. We also identify populations most vulnerable to falling into cooking poverty following a slow pandemic recovery or fuel price changes under ambitious climate mitigation policy. □

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Further Reading

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A global assessment of recent progress, the current state of access to clean cooking services, and valuation of losses suffered by those lacking access.

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A new decision-support model aimed at guiding planning of policy interventions to accelerate transitions towards cleaner cooking fuels and technologies, accounting for a wide range of costs and benefits.

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Competing interests

The authors declare no competing interests.