World Health Organization

CHEST
CLEAN HOUSEHOLD ENERGY SOLUTIONS TOOLKIT

Benefits of Action to Reduce Household Air Pollution (BAR-HAP) Tool

MODULE 2

The Benefits of Action to Reduce Household Air Pollution (BAR-HAP) tool can be used to compare the costs and benefits of different interventions to promote cleaner household cooking energy use. Users can determine the costs and benefits associated with five different potential policy interventions (stove subsidies, fuel subsidies, stove financing, behaviour change communication, and technology or fuel bans) and 16 different stove and fuel transitions.

The tool breaks out costs to governments and individuals in terms of monetary and time investments for fuel, stoves, and promotion programs. It also values benefits related to health (including morbidity and mortality), time savings, climate, and the environment. Policy-makers can compare different interventions applied to scenarios with different cooking technology combinations to select solutions that will achieve their desired outcomes in a financially feasible and economically beneficial way.

What is the BAR-HAP tool?

BAR-HAP is a planning tool that allows policy-makers to estimate the costs and benefits of potential strategies for promoting adoption and sustained use of cleaner cooking fuels and technologies. This is a strategic tool for medium-term planning over a period of up to 30 years. BAR-HAP is a downloadable excel file with easy to follow instructions within the tool. It contains default data for all low- and middle-income countries. To conduct an analysis, users must select the country for analysis, determine which cleaner fuels and technologies will be implemented, and select policy option(s) to apply to the scenario. Advanced users have the opportunity to modify the default data. The results can be used to select the strategy that best meets country needs and priorities for implementation.

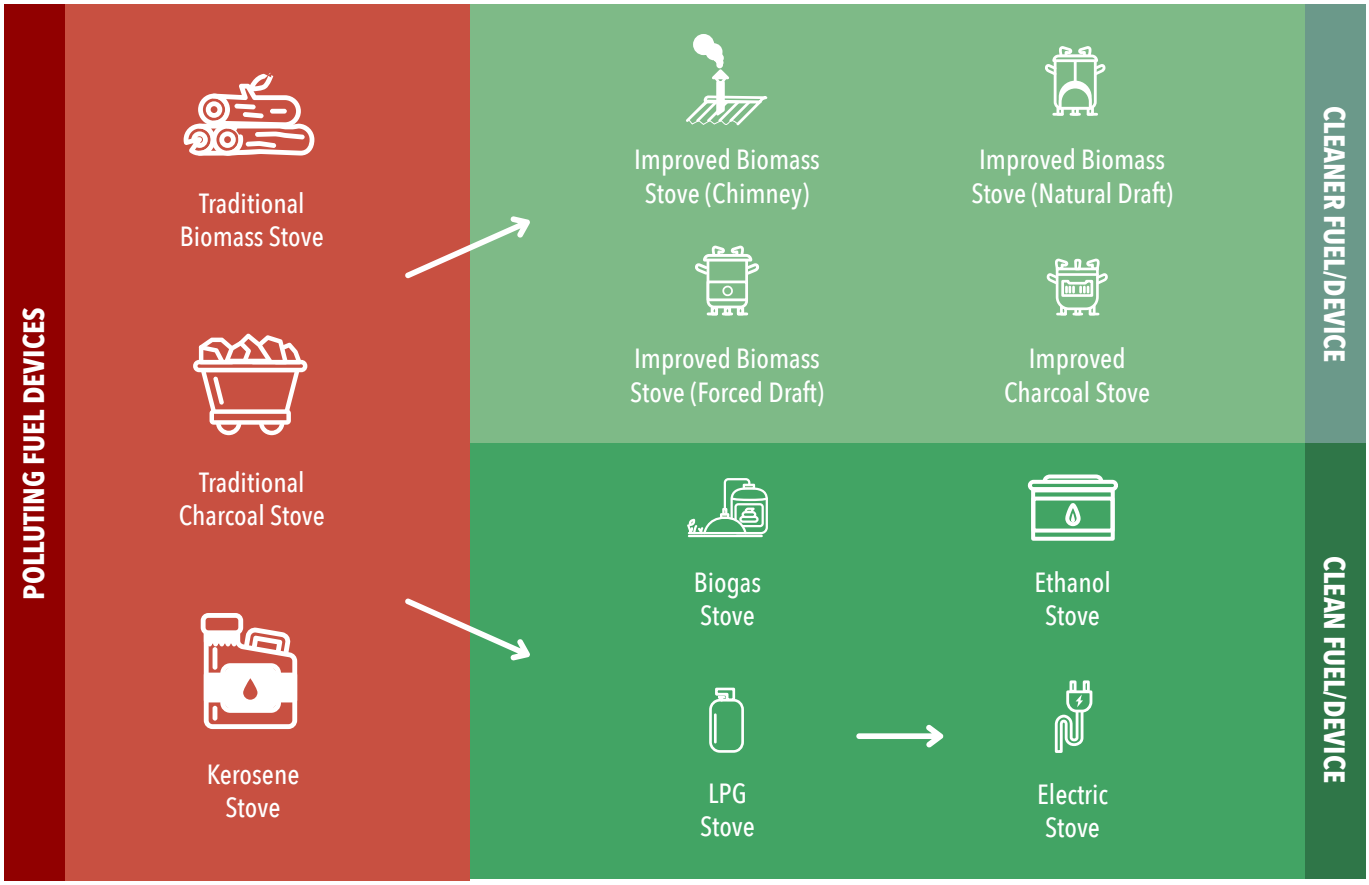
Who should use BAR-HAP?

BAR-HAP is intended for use by governments seeking to design policy interventions to promote transitions to cleaner cooking technologies and fuels, as well as other decision-makers, researchers, and community members.

What scenarios can be evaluated with BAR-HAP?

Cleaner cooking transitions: The BAR-HAP tool can be used to model transitions from polluting to cleaner devices and fuels, as shown in Figure 1. Users can model scenarios in which the entire population transitions from one type of fuel/device to another, or in which different percentages of the population make different transitions (for example 50% of biomass users transition from a traditional biomass stove to an improved biomass stove with a chimney, and 50% transition from a traditional biomass stove to an LPG stove).

Figure 1: Transition to cleaner cooking options in BAR-HAP



Policy interventions:

BAR-HAP includes the following five policy interventions:

- Stove Subsidies: Discounts to users on the purchase of an improved or clean fuel stove, paid for by the government
- Fuel Subsidies: Discounts to users on clean fuel, paid for by the government
- Stove Financing: Consumers pay for an improved or clean fuel stove in installments with or without interest
- Behavior Change Communication: Messaging to encourage adoption of improved or clean fuel stoves
- Technology/Fuel Bans: Prohibition of the use of certain polluting fuels or technologies, with fines for those who continue to use them

Fuel subsidy, financing, and behavior change communication interventions can be modeled individually or in combination with a stove subsidy, paid for by the government. The specific amount covered by the stove or fuel subsidies can also be adjusted to influence household uptake levels, and thereby determine the costs and benefits associated with different levels of subsidization.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How to run an analysis in BAR-HAP

To run a scenario in BAR-HAP, users must specify the country for analysis and the target population (rural, urban, or full country). They must identify the polluting fuels that users will transition away from, and the cleaner fuel or stove type that will be scaled up. In addition, users must select a policy intervention that will be applied, the number of years of scale-up (0-5 years) and the total program length (up to 31 years).

The tool is pre-programmed with all other necessary data. However, the BAR-HAP tool also allows users to modify inputs based on knowledge of the local context to make outputs more relevant to the target location (for example, the amount of stove or fuel subsidy or price). Advanced users with detailed country-specific data can also modify other parameters, such as country-specific demographic and epidemiological data.


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BAR-HAP Results

BAR-HAP produces a comprehensive suite of results, including:

Costs	Benefits
Costs to the government • Stove and/or fuel subsidy costs • Program implementation costs Costs to individual users • Stove and fuel purchase costs • Time costs for obtaining the fuel • Costs and time associated with maintaining the stove • Energy and time costs related to learning how to use the new stove/fuel	• Total value of social net benefits (including net present value and undiscounted value) • Individual health benefits: reductions in morbidity and mortality due to pulmonary, cardiovascular and other diseases • Social health benefits: societal impacts of reduced morbidity and mortality, such as the amount the government would save by not having to treat the illnesses avoided • Cost effectiveness ($/disability adjusted life year (DALY) avoided) • Individual time savings: reduced time spent cooking and collecting fuel • Reductions in climate-forcing pollutants: CO_2,


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