Cooking with cleaner fuels in India: a strategic analysis and assessment

This "Policy Briefs Series" is the culmination of a joint research on healthy cooking fuel options for India, carried out by TERI and AIIMS during 2009–10 with funding support from UNICEF. The findings are based on extensive primary and secondary research that included literature reviews, interviews, focus groups, and field studies in select villages of Haryana state.

The first brief, *Indoor Air Pollution: A Case for Change* presents the health implications of indoor air pollutants derived from less cleaner cooking fuels. Then, *Cooking Fuels in India: Trends and Patterns* tracks the usage and adoption of different fuels in rural and urban homes and also across select states in India. Next in the series, *Choices for Change: Evaluating Cooking Fuels* discusses the advantages and disadvantages of different cooking fuels and their suitability for certain user segments. This brief, *Call for Change: Catalysing a Cleaner Future*! invokes all stakeholders—the governments, funding agencies, industry, and consumer groups—to work in a concerted manner to accelerate adoption of cleaner cooking fuels and secure a cleaner and healthier home.

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POLICY BRIEF

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CALL FOR CHANGE: CATALYSING A CLEANER FUTURE!

In this series of briefs, we have so far discussed usage trends for alternative cooking fuels in India and established the case for adoption of cleaner cooking fuels in Indian kitchens. Presented next is a synthesis of the research findings leading to insights and initiatives that can be potentially applied and supported by all associated stakeholders.

Inclusive strategy: an array of needs, an array of deeds!

India exhibits diverse and heterogeneous scenarios on both sides of the demand-supply equation for cooking fuels. Given the wide disparities in income and education levels, coupled with significant variations in social traditions, customs, and beliefs, the cooking population presents huge diversity in its acceptability, affordability, and awareness levels about alternate cooking fuels. Consequently, there is no clear consensus about the preferred energy choice for cooking, and everything from *biomass* to *piped natural gas* figures in the list of cooking fuels being currently patronized.

Likewise, on the supply side, the pricing and distribution of different cooking fuels vary geographically and across demographic segments. This differential availability and affordability has resulted in fuels like *LPG* gaining more penetration in urban settings, and *biomass* and *biogas* among rural segments.

Based on the above scenarios, this study concludes that it will be more appropriate to develop customized strategies and recommendations for different segments of users within a given geographical region of the country. Theoretically speaking, it would be ideal if the entire nation could transform into using LPG or PNG, but realistically this is unlikely to occur in the near future. What can be more practical and yield immediate and measurable results is, if at a smaller level, each category

of users was influenced to migrate towards a cleaner variety of cooking fuel or an improved technology. Hence, those in rural areas who have traditionally used biomass can be encouraged to use energy-efficient and less-polluting *biomass-based fuel stoves* or persuaded to adopt *biogas,* if it is locally available. In another part of the country, where PNG is within reach of the rural masses, they should be convinced to migrate to PNG. Likewise, rural areas that lie at the fringes of metros can be potential targets for promoting LPG, since these areas are generally characterized by higher household incomes, greater awareness of alternative fuels, and tend to mimic urban trends. From a supply perspective, extending the LPG distribution network to such areas will not be cost-prohibitive, either.

In conclusion, a multifarious, inclusive approach that incorporates the local realities of each population segment, yet embracing the common goal of climbing the clean energy ladder, will serve India well in the long run.

So, what type of initiatives can further this goal, and how can different stakeholders contribute? During the course of this research, we discussed a variety of issues with a cross-section of respondents: subject-matter experts, government administrators from multiple ministries, gas marketing companies' executives, academicians, health professionals, and rural families, among others. *Based on these interactions, we discuss some plausible initiatives and interventions that can potentially advance India's adoption of cleaner cooking fuels.*

Innovating affordability and availability

Many segments that are willing to adopt cleaner cooking fuels find themselves stranded due to the limited accessability and affordability of such fuels.

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For instance, many migrant workers in urban areas and those inhabiting slums are generally unable to obtain LPG connections since they typically lack a verifiable, documented local address. As a result, they buy kerosene or small LPG cylinders in the open market at '*illegal market*' rates that usually are twice the government prescribed rates or resort to more polluting fuel options. It is ironic that those who can least afford clean cooking fuel, end up paying a huge premium for it.

A possible solution could be for the gas companies to establish a distribution mechanism, by which small-sized portable LPG cylinders can be refilled easily at official prices. Existing infrastructure could add this service or the gas companies can draw some marketing lessons from the cellular phone industry where a *'talk-time recharge'* is available around the corner in rural and metro areas alike. Many possibilities like *small cylinder refill depots* or *mobile tankers* exist, but it will take additional business analysis to determine the feasibility of such programmes.

In any case, the challenge remains unchanged: *improve LPG availability in rural and semi-urban areas, and create a solution that delivers the gas to migrant workers and families with low paying capacity and varying needs.* While gas companies grapple for solutions targetting individual consumers, expanding LPG-fired community kitchens can be another option where clean fuel cooking is provided for large social events, as well as for individual families on a pay-per-use basis. Such an option can also prove viable for slum dwellers.

Measuring and tracking progress: clean cooking index

'What gets measured gets done' is an old adage. There is an earnest need to increase awareness about the need for cleaner cooking among the political and administrative hierarchies at both the state and central levels. An unambiguous measurable indicator, for instance, a *Clean Cooking Index* that can track progress and provide a common basis for assessment across states should be established and adopted. A variety of factors and metrics can be incorporated to compute this index.

This *"Clean Cooking Index"* will not only highlight the issue and make it mainstream among the government decision-makers, but will also provide a common language to drive progress across states. It can even be used at the district level to track performance of local functionaries and programmes. From an administrator's perspective, it can also provide a valuable basis for resource allocation to different regions and programmes.

Coming together for coordinated effort

Although the harmful effects of polluting cooking fuels on health is no secret, there needs to be wider political recognition of the issue among policy-makers and administrators alike, which, in turn, will drive greater field initiatives that enhance the adoption of cleaner cooking fuels.

A working group, comprising representatives from different ministries, such as renewable energy, health and welfare, petroleum, and human resource development, should be established as an apex body to champion this cause. This team could coordinate between ministries and track initiatives and projects, direct resources, and provide the policy direction for cooking energy.

Such a group can showcase the potential of concerted efforts, and serve to stimulate local interest and initiatives in this area.

Expanding access: rural stove shops

There is a bona fide need to develop rural infrastructure and resources for increasing availability and support of cleaner cooking fuels. An option may be to establish stove shops at the village or district level that serve as one-stop-shops for sales, repair, and technical support for a variety of cooking fuel technologies, such as improved firewood *chulhas*, solar cookers, biomass-based fuel briquettes, biogas plants/stoves, and so on. These channels can either be new outlets or established ones operating in partnership with fertilizer/ diesel marketing firms, post offices, and/or banks with extensive rural networks.

Boosting awareness and knowledge

Although awareness about the adverse health effects of indoor air pollutants is relatively high among educated city dwellers, the message needs to be reinforced among the less educated, rural residents, who face such pollution on a daily basis. It is ironic that most users have little or no understanding of the linkages between poor health and high pollution caused by biomass fuels, according to a World Bank report.[1] A targetted media campaign for rural areas will raise the knowledge level and encourage people to seek out alternative and cleaner cooking fuel practices.

Since traditional behaviour and practices are slow to change, the knowledge boost should be planned at multiple levels: integrating conceptual learning into the educational curriculum; adding modules in the training of health functionaries; evolving primary health centres as knowledge centres; emphasizing on improved ventilation; making available green cooking energy options; encouraging adoption of energy-efficient cooking methods and utensils to trigger a move towards cooking without smoke. Canvassing for goals, such as *No Smoke in My House!* and *Zero Tolerance For Indoor Pollution* can instill new energy and pride in the drive towards clean cooking fuels.

Multi-pronged policy approach

The Government of India (GoI) recognizes the critical need to improve the energy consumption mix in the country, and has undertaken several policy changes and special programmes, such as the National Project on Biogas Development (NPBD),

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[1] Clean Household Energy for India: Reducing the risk to health 2004, World Bank

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National Programme on Improved Chulhas (NPIC), and more recently, the Rajiv Gandhi Gramin LPG Vitrak Yojana (RGLVY) to alter the prevailing scenario. The government also provides fiscal relief, including tax credits, subsidies, and other incentives to encourage the growth of alternative energy sources.

However, many of these programmes have not been successful. The challenges faced by the Integrated Rural Energy Programme (IREP) and other household energy programmes have been recognized at the policy level. The GoI's Ninth Plan document acknowledges, " *The programmes that are socially oriented like biogas, improved chulhas, and the IREP could not make the expected impact in changing the lifestyle of the people mainly because of the weak institutional set-up, lack of suitable mechanism to maintain and put the non-functional systems back into operation, lack of locally available trained and skilled manpower wherever such systems were installed, and so on."*

Typically, the rural energy programmes are planned as social welfare initiatives at the central level with budget and targets defined for each fiscal year. There is limited assessment of the 'felt need' or 'local aspiration' for these technologies at the local level. Moreover, in pursuit of targets, outreach workers often overlook issues critical to programme sustenance, such as motivation, quality control, maintenance and repair, institutional strengthening, and community mobilization.

Besides the barriers at the programme level, certain other obstacles result from inequities that exist in the social fabric of rural communities. Some of these inequities emerge due to the traditional roles and norms that define the social structure of the rural Indian society.

Increased governmental support is especially needed to enable rural communities move up the fuel ladder and special economic programmes could help cleaner fuels and/or technologies reach the below poverty line (BPL) families. Improved technologies for renewable energy and traditional fuels can prove to be viable solutions in difficult geographical terrains and remote areas. Appropriately targetted biogas plants with strong service support and maintenance could be workable options in communities with livestock.

The conundrum for the policy-makers persists: S*hould poverty and pollution continue to have a strong linkage?* Effective government policies could negate this historical association. The choice of cooking fuels at the user level can be influenced by policies that encourage development of appropriate technologies, promote innovation, and enhance awareness, affordability, and availability of more desirable fuel options.

In conclusion

Clearly, the harmful effects of indoor air pollution stemming from unclean cooking fuels are scientifically proven for health in general and child health in particular. With growing affluence and alertness, India is steadily moving away from biomass and towards cleaner cooking fuels like LPG and PNG. The concerns now centre more on the rate of change, and somewhat less on the direction of change.

Be it legislators, civil administrators, local communities, industry, environment advocates or social activists, any of these groups is unlikely to be able to do it all alone. It will take collective will and consistent work to make a difference.

Meanwhile, the burning question remains: '*When can we bring a breath of fresh air to every Indian kitchen*?'