

Issue 98 | April 26, 2013 | Cookstoves and the Environment

The March 29, 2013 issue of the *WASHplus Weekly* focused on the [health impacts](#) of household air pollution and cookstoves. This issue looks at environmental issues related to cookstoves, with studies from 2012 and 2013. Included are updates from EPA and USAID. Other studies discuss climate change and black carbon, the use of alternative fuels such as biogas, biochar and the effectiveness of improved cookstoves.

ORGANIZATIONAL UPDATES

- **EPA - Study Advances Clean Cookstove Technology.** EPA. [\(Link\)](#)
The results of an EPA study are benefiting global public health and the environment by providing extensive cookstove data on air emissions and energy efficiency. As an international leader in cookstove testing, EPA supports the development of clean sustainable cookstove technology and efforts to establish international testing standards and protocols.
- **Earthspark - Efficient Cookstoves Reduce Deforestation in Haiti, 2013.** Earthspark. [\(Video\)](#)
In this video, Earthspark International works with local Haitian craftsmen to create energy efficient stoves, thereby reducing deforestation created by charcoal usage.
- **Population Reference Bureau - Energy-Saving Stoves and Family Planning Benefit Women and Families in Rural Uganda.** PRB Blog, Jan 2013. R Yavinsky. [\(Link\)](#)
The Health of People and the Environment-Lake Victoria Basin (HoPE-LVB) project is working in Busi Island in Uganda, and its activities include energy saving stoves. This blog entry discusses visits to two families that were provided energy-saving stoves and family planning/environment training and serve as model households for the project.
At the first home, the parents of eight children and grandparents to two proudly showed off their new stoves and store of wood. At the second home, the mother was taught how to construct her own energy-saving stove and she now trains other women in the area.

- **USAID - Clean Cookstoves: Saving Trees and Lives in Tanzania.** Impact Blog, Dec 2012. ([Video](#))

This video features the work of a USAID-funded Building Actors and Leaders for Advancing Community Excellence in Development (BALANCED) project. BALANCED focuses their efforts to combine sustainable livelihood generation, natural resource conservation and empowerment of women through the provision of clean cookstoves.

REPORTS

- **Assessing the Climate Impacts of Cookstove Projects: Issues in Emissions Accounting,** 2013. C Lee. ([Link](#))

This paper evaluates the quantification approaches to three key variables in calculating emission impacts: biomass fuel consumption, fraction of non-renewable biomass, and emission factors for fuel consumption. It draws on a literature review as well as on interviews with technical experts and market actors, and identifies lessons learned and knowledge gaps.

- **Charcoal Production,** 2013. Energypedia.com. ([Link](#))

Charcoal consumption is a very controversial issue, as the transformation process from wood to charcoal results in considerable energy loss, requiring significantly more forest resources to produce the same amount of energy. This has led to many countries such as Kenya, Tanzania and Gambia to impose bans on charcoal.

JOURNAL ARTICLES

- **Applicability of Biogas Technology in Rural Development and Green House Gas Mitigation.** *International Journal of ChemTech Research*, Apr-June 2013. S Sharma. ([Link](#))

Biogas stoves fueled by anaerobic digesters of animal, human and crop waste have been shown in laboratory studies to reduce health damaging air pollution by up to 90%. It is also proving itself a milestone in fighting against global warming by its potential for reducing carbon dioxide (CO₂) and methane.

- **Benefits and Costs of Improved Cookstoves: Assessing the Implications of Variability in Health, Forest and Climate Impacts.** *PLoS ONE* 7(2) 2012. M Jeuland. ([Link](#))

Current attention to improved cook stoves focuses on the "triple benefits" they provide, in improved health and time savings for households, in preservation of forests and associated ecosystem services, and in reducing emissions that contribute to global climate change. Despite the purported economic benefits of such technologies, however, progress in achieving large-scale adoption and use has been remarkably slow.

- **Cleaner Cooking Solutions to Achieve Health, Climate, and Economic Cobenefits.** *Env Sci Technol*, Apr 2013. S Anenberg. ([Abstract](#))

Several recent studies, as well as key emerging national and international efforts, are making progress toward enabling wide-scale household adoption of cleaner and more efficient stoves and fuels. While significant challenges remain, these efforts offer considerable promise to save lives, improve forest sustainability, slow climate change, and empower women around the world.

- **Climate Change Threats to Population Health and Well-Being: The Imperative of Protective Solutions that Will Last.** *Glob Health Action*. 6(10) 2013. T Kjellstrom. ([Link](#))

The observational evidence of the impacts of climate conditions on human health is accumulating. A variety of direct, indirect, and systemically mediated health effects have been identified.

- **Cost and Benefit Analysis of the Installation of Improved Cooking Stoves in Bangladesh: A Case Study in Tangail District.** *Bangladesh Research Publications Journal*, Nov-Dec 2012. M Alam. ([Link](#))

The economic analyses assessed the economic benefits for the households using the improved cooking stoves and the economic benefits derived from the reduction of CO₂ emission due to the use of the improved cooking stoves on a national level.

- **Dispelling Common Misconceptions to Improve Attitudes and Policy Outlook on Charcoal in Developing Countries.** *Energy for Sustainable Development*, Apr 2013. T Mwampamba. ([Abstract](#))

The production, use and trade of charcoal for domestic cooking and heating are characterized by contradictions, stereotyping, and misconceptions. Partial information, over-generalizations, and the tendency to consolidate charcoal with other biomass fuels have contributed to gross misrepresentation of charcoal in terms of its actual impact on forests, its role in improving energy access, and in appropriate interventions.

- **Global Air Quality and Health Co-benefits of Mitigating Near-Term Climate Change through Methane and Black Carbon Emission Controls.** *Environ Health Perspect*, June 2012. S Anenberg. ([Link](#))

In addition to climate benefits, findings indicate that the methane and black carbon emission control measures would have substantial co-benefits for air quality and public health worldwide, potentially reversing trends of increasing air pollution concentrations and mortality.

- **Household Energy Consumption: Community Context and the Fuelwood Transition.** *Social Science Research* 41, 2012. C Link. ([Link](#))

This study examined the influence of community context on change over time in households' use of non-wood fuels. Results reveal that increased exposure to nonfamily organizations in the local community increases the use of alternative fuels.

- **Improved Cooking Stoves and Firewood Consumption: Quasi-Experimental Evidence from the Northern Peruvian Andes.** *Ecological Economics*, May 2013. M Adriansén. ([Abstract](#))

This paper estimates the impact of an improved stove design distributed in the Northern Peruvian Andes on firewood consumption. Improved stove usage appears to reduce firewood consumption by approximately 46% in the study area.

- **Improving Urban Residents' Awareness of the Impact of Household Activities on Climate Change in Lagos State, Nigeria.** *Journal of Sustainable Development*, 6(4) 2013. O Oloke. ([Link](#))

Result of analysis indicate that although most urban residents indicate various level of awareness of occurrence, they are least aware of the contribution of household activities to atmospheric greenhouse gas concentration and that professional property managers rarely sensitize occupants in this direction. The study concludes by suggesting ways to call the attention of urban residents to the impact of household activities on atmospheric greenhouse gases' concentration with a view to reducing emission from this sector in the future.

- **Life Cycle Assessment to Evaluate the Environmental Impact of Biochar Implementation in Conservation Agriculture in Zambia.** *Env Sci Tech*, Dec 2012. M Sparrevik. ([Link](#))

The use of biochar in conservation farming was shown to be beneficial for climate change mitigation purposes. However, when including health impacts from particle emissions originating from biochar production, conservation farming plus biochar from earth-mound kilns generally results in a larger negative effect over the whole life cycle than conservation farming without biochar addition. The results emphasize the necessity of focusing on production impacts in addition to soil effects when evaluating biochar amendment.

- **Pollutant Emissions and Energy Efficiency under Controlled Conditions for Household Biomass Cookstoves and Implications for Metrics Useful in Setting International Test Standards.** *Env Sci Technol*, Aug 2012. J Jetter. ([Link](#))

Realistic metrics and methods for testing household biomass cookstoves are required to develop standards needed by international policy makers, donors, and investors. Application of consistent test practices allows emissions and energy efficiency performance to be benchmarked and enables meaningful comparisons among traditional and advanced stove types.

- **Potential of Low Pressure Agricultural Waste Briquettes: An Alternative Energy Source for Cooking in Nigeria.** *J. Renewable Sustainable Energy*, (5) 2013. A. Kuhe. ([Abstract](#))

The quest for alternative fuel for heating and cooking as a result of depletion of fossil fuel and environmental pollution associated with its burning has necessitated the need to improve on the use of loose agro-waste as an alternative in Nigeria. The results

show that briquettes could be a viable alternative to fuel wood.

- **Towards Sustainable Energy Utilisation: An Analysis of Various Cooking Fuel Options in Malawi.** *Journal of Mechanical Engineering Research, Mar 2013.* L Nkhonjera. ([Link](#))

Recent studies have shown that cooking using other energy sources such as electricity, biogas, ethanol/gelfuel, liquefied petroleum gas, kerosene and jatropa oil is viable. The objective of this study was to find out if the available energy alternatives would be sustainably viable for cooking in Malawi.

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About WASHplus - WASHplus, a five-year project funded through USAID's Bureau for Global Health, creates supportive environments for healthy households and communities by delivering high-impact interventions in water, sanitation, hygiene (WASH) and indoor air pollution (IAP). WASHplus uses proven, at-scale interventions to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under five years of age globally. For information, visit www.washplus.org or email: contact@washplus.org.

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