



Supportive Environments for Healthy Communities

Issue 69 August 31, 2012 | Focus on Biogas for Cookstoves

This issue contains resources and studies that discuss the conversion of human and animal wastes into biogas for use as cookstove fuel. An SNV fact sheet describes the following benefits of using biogas fuel:

- Reduction of workloads, especially those of women and children
- Creation of income opportunities for local companies, masons, and financial institutions
- A decrease in indoor air pollution and associated risks and illnesses
- Improvement in hygiene if a toilet is attached to the biogas plant
- Improvement in sanitation through reduction of smell and organic pollution

Resources in this issue include recent biogas news items, technology reviews, country studies, and videos.

Please let WASHplus know at any time if you have resources to share for future issues of WASHplus Weekly or if you have suggestions for future topics. An [archive](#) of past Weekly issues is available on the WASHplus website.

IN THE NEWS

- **Biogas Expansion Protecting Incomes, Forests in Rural Bangladesh**, *AlertNet*, Feb 2012. [Link](#)

Methane, released from manure, is a potent driver of climate change, and one way of curbing its harmful impact is to capture the greenhouse gas to produce biofuel. Using biofuel for cooking—and in some cases for heating and lighting—can also help prevent deforestation, as there is less need for fuelwood.

- **Clean Biogas Improves Life in Rural Vietnam**, *Christian Science Monitor*, July 2012. [Link](#)

Waste from cattle and other farm animals is producing biogas for cooking for more than 400,000 Vietnamese as well as reducing carbon dioxide emissions.

- **Cows "Drop" a Solution to Punjab's Gas Woes**, *Express Tribune*, Aug 2012. [Link](#)

A report from Pakistan's largest citrus producing area in the Sargodha District reveals the potential of biogas to serve as a renewable alternative to compressed natural gas.

- **Namibia: Biogas a Good Alternative**, *allAfrica*, Mar 2012. [Link](#)

Domestic biogas production is a proven and established technology in many parts of the world, especially Asia. The author advocates that the use of domestic biogas could be the best solution for Namibia, especially in rural areas.

REPORTS/ARTICLES

- **Biogas Fact Sheet**, 2012. SNV. [Full-text, pdf](#)

Across Asia, poor and rural households use traditional sources of fuel, like wood, dried manure, and charcoal to meet their daily energy needs. These fuels are time-consuming to gather, unsafe to use in the domestic environment, and are becoming depleted from overuse. For many households, biogas plants and improved cookstoves provide a safe, inexpensive, and sustainable alternative, improving the standard of living for the poor and preserving the environment.

- **Biogas Systems**, *Sustainable Sanitation Practice*, Oct 2011. [Full-text, pdf](#)

This issue relates the successful results from a study in Kerala, India, of digesters at the household level. A second paper shows the results of a long-term implementation program for biogas systems in Lesotho, and a third paper presents results of a digester constructed in a small village in Morocco.

- **Cheaper Fuel and Higher Health Costs among the Poor in Rural Nepal**, *Ambio*, May 2012. K Pant, Ministry of Agriculture and Cooperatives, Nepal. [Abstract](#)

This study investigates factors affecting the use of dung-briquettes, assesses their impact on human health, and estimates the associated household health costs. Analysis suggests significant impact of dung-briquettes on asthma and eye diseases. Despite the perception of it being a cheap fuel, the annual health cost per household due to burning dung-briquettes (US \$16.94) is 61.3 percent higher than the annual cost of biogas (US \$10.38), a cleaner fuel alternative for rural households.

- **Domestic Biogas in Asia**, 2012. Presentation by David Fulford, Kingdom BioEnergy. [Link](#)

This presentation discusses the accomplishments and lessons learned from SNV's Asia Biogas Program.

- **Dairy Farming and the Stagnated Biogas Use in Rungwe District, Tanzania: An Investigation of the Constraining Factors**, 2012. [Full-text, pdf](#)

Dairy manure biogas digester technology has proven to be technically and economically feasible and successful in many applications. Empirical evidence suggests that each household can save up to US \$724 by replacing wood use with biogas, apart from other positive impacts on the environment. A study by the Institute of Resource

Assessment, University of Dar es Salaam, in 2005, shows a reduction of firewood consumption from 700 to 145m³ for Lomwe Secondary School following the adoption of biogas technology.

- **Ensuring Appropriateness of Biogas Sanitation Systems for Prisons: Analysis from Rwanda, Nepal, and the Philippines**, 2012. M Gauthier, International Committee of the Red Cross. [Full-text, pdf](#)

Biogas sanitation systems are seen as a promising technology for institutional settings of developing countries as they combine effective treatment of human excreta and kitchen waste, while at the same time generating a renewable fuel source for cooking and a nutrient-rich fertilizer. This paper synthesizes the experiences from Rwanda, Nepal, and the Philippines by grouping them into technical, operation and maintenance, economic, environmental, and socio-cultural aspects.

- **Feasibility of a National Programme on Domestic Biogas in Myanmar**, 2012. SNV. [Full-text, pdf](#)

Increasing prices of firewood for cooking is an important reason to engage in biogas production at the household level, especially in the dry zone in central Myanmar. Biogas production at the village level in combination with a generator would satisfy a strong need for the supply of electricity in the rural areas. Other benefits are related to the agricultural value of bio-slurry; improved quality of life for rural households; environmental protection due to reduced firewood use; and generation of employment in rural areas.

- **Household Biogas Digesters: A Review**, *Energies*, Aug 2012. Karthik Rajendran, University of Borås. [Link](#)

This review is a summary of different aspects of the design and operation of small-scale, household, biogas digesters. It explains how biogas and fertilizer obtained at the end of anaerobic digestion could be used for cooking, lighting, and electricity.

- **Prospect and Potential of Biogas Energy and Its Technology: A Sustainable Clean Energy Future of Bangladesh**, 2012. H Ahmed, Khulna University of Engineering & Technology. [Full-text, pdf](#)

This paper investigates the potential of biogas energy and technology for Bangladesh and also explores the research, development, and dissemination of biogas as a suitable clean energy source.

VIDEOS/WEBSITES

- **Clean Cooking Stoves From Biogas**, 2011. [Video](#)

Biogas reactors installed in a village in Nepal are providing clean cooking stoves and improved sanitation. The project is an initiative of local villagers and part of a holistic community development program being implemented by Tevel b'Tsedek (The Earth in Justice), an Israeli NGO.

- **Uganda: Bio-gas Pilot Project Meets Energy and Safety Needs for Rural Families**, 2011. [Video](#)

This biogas program is still limited in scope, and not without its challenges. For instance, many community members were at first suspicious of using cow manure for anything at all, let alone cooking. But as people began to see that the system pumped out clean gas, and that it could run a cookstove for long periods of time, they became more interested.

- **HEDON Biodigester Database**. [Link](#)

This is an inventory of companies and organizations that manufacture biogas digesters.

- **Peace Corps – Improved Stoves Toolkit**. [Link](#)

This website provides manuals and other documents on biogas digesters that have been promoted by volunteers in Nicaragua and Thailand.

Each WASHplus Weekly highlights topics such as Urban WASH, Indoor Air Pollution, Innovation, Household Water Treatment and Storage, Hand Washing, Integration, and more. If you would like to feature your organization's materials in upcoming issues, please send them to Dan Campbell, WASHplus knowledge resources specialist, at dacampbell@fhi360.org.



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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