



In This Issue

- Literature Review of Bio-Briquettes Impacts on Indoor Air Pollution and Climate Change
- Secretary of State Hilary Clinton Announces the Global Alliance for Clean Cookstoves
- Brief for Policymakers on the Green Economy and MDGs launched
- Success Story from ANSAB
- New Resources Available Online

FEATURED ARTICLE

Fighting Indoor Air Pollution and Climate Change with Bio-Briquettes

In the context of the launch of the new Global Alliance for Clean Cookstoves (see first article of the News & Events section for more details), this edition's featured article offers a brief literature review of the potential contribution of bio-briquettes to the reduction of indoor air pollution and carbon emissions.

Traditional Fuels: A Threat to Health and Global Climate

The use of biomass fuels such as firewood is widespread in Nepal and other developing countries (CBS, 2001, Smith, 2002). Exposure to these fuels has been associated to health problems, including acute lower respiratory infection, chronic obstructive pulmonary disease, asthma, lung cancer, cataract, weakening of the immune system, tuberculosis and adverse pregnancy outcomes (Pokhrel et al. 2004, Zhang & Smith 2007, Shrestha, 2009, Pokhrel et al., 2010).

Indeed, indoor air pollution is the fourth leading cause of death in developing countries and was responsible for the deaths of over 1.5



Lightening a briquette to make a barbecue in the restaurant

Production Team

Mausam Khanal, Coordinator of BG-RCNN,
Martin Simard, Communications Advisor at
BG-RCNN and Krishna Bhujel, Natural
Resource Management Expert at IDS.

million people in 2002, predominately women and children because they are the ones spending more times in the kitchens where the biomass fuel is burnt (CBS, 2001, WHO 2002). In Nepal, the families most at risk are living in Kacchi houses with poor ventilation and in high altitude areas where open fires are also used for space heating (Shrestha 2009, SNV, 2003).

Biomass combustion is also a major source of carbon emissions and thus a contributing factor to global climate change. (Hamilton, 2008, EIA, 2008).

Bio-Briquettes: A Promising Alternative

Processing forest waste and agro-biomass byproducts into bio-briquettes significantly is also more healthy than using alternatives. Isobe et al. (2005) for example measured indoor concentrations of SO₂ emitted by coal-biomass briquettes or low-grade coal in the rural area of Chongqing City, China. Although coal-biomass briquettes exposure concentrations exceeded the World Health Organization benchmark for SO₂ indoor air pollution, they concluded that and negative human health effects caused by this acidic gas could be reduced by using coal-biomass briquettes rather than low-grade coal for domestic fuel.

Singh and al. (2009) conducted a similar experiment in Nepal, but added a lime desulfurizing agents (DSA) to the coal-biomass briquettes. They found that adding agents such as such as CaCO₃ and Ca (OH)₂ into the briquettes could reduce the SO₂ emissions by 80-90%, thus minimizing the pollution coming from coal combustion. Although exposure has not been measured by Singh and al., this discovery makes it likely that using DSA would bring SO₂ exposure concentrations in compliance with the World Health Organization standards.

Bio-briquettes also produces less carbon emissions than alternatives. For example, one kg of briquette in an average produces 400gm carbon. To generate equivalent energy

produced by 1kg briquette, 931ml kerosene (630gm Carbon) is required (Jaques, 1992). Therefore 1 kg of briquette saves 230gm carbon.

Similarly, the Department of Environmental and Natural Resources, Philippines (2005) conducted a Heating Value study of different charcoal made from cut trees and found that of 15 species of the most popular woods/fuel wood (firewood) the highest BTU/lb heating value produced measured 9,378. In comparison, they found 24 combinations of biomass material (bio-briquettes) that produced higher heating values, with 16 ranging between 10,000 to 12,273.73 BTU/lb. Cocoshell, wood fines and corn cob fines produced the highest BTU/lb. In other words, producing charcoal briquettes from abandoned biomass can provide higher heating values than regular charcoal and does not require the cutting of trees and the liberation of stored carbon.

A Final Note of Caution

The Glacier Trust recently found that burning a Nepali “beehive” biomass briquette in an unventilated room of 30 cubic meters (say 3 x 4m, 2.5m high) yielded 108 parts of CO₂ per million (PPM) after one hour, which is above the maximum allowable concentration for continuous exposure in any 8 hour period established by the U.S. Occupational Safety and Health Administration. This means that although bio-briquettes produce smaller quantities of smoke and emissions compared to alternatives, they should still be used properly, i.e. in a ventilated room.

Sources:

CBS, *Population census*, Central Bureau of Statistics, 2001.

Department of Environmental and Natural Resources, Philippines, Heating Value Study of Different Charcoal, 2005.

Energy Information Administration (EIA), [Voluntary Reporting of Greenhouse Gases Program](#), Retrieved 21 August 2009.

The Glacier Trust, Fireballs - [Biomass Briquettes or Beehive Briquettes \(BBs\): Potentially serious problems from fumes](#), Retrieved in 25 October 2010.

Liz Hamilton, [Firewood and Woody Biomass and their Role in Greenhouse Gas Reduction](#), Colac, April 2008.

Yugo Isobe, Kimiko Yamada, Qingyue Wang, Kazuhiko Sakamoto, Iwao Uchiyama, Tsuguo Mizoguchi, Yanrong Zhou, [Measurement of Indoor Sulfur Dioxide Emission From Coal-Biomass Briquettes](#), Water, Air, and Soil Pollution (2005) 163: 341–353.

A.P. Jacques, [Canada's Greenhouse Gas Emissions: Estimates](#), Environment Canada (1992), 52.

Amod K. Pokhrel, Michael N. Bates, Sharat C. Verma, Hari S. Joshi, Chandrashekhar T. Sreeramareddy, and Kirk R. Smith, [Tuberculosis and Indoor Biomass and Kerosene Use in Nepal: A Case-Control Study](#), Environmental Health Perspectives, Volume 118, Number 4, April 2010.

Amod K Pokhrel, Kirk R Smith, Asheena Khalakdina, Amar Deuja and Michael N Bates, [Case-control study of indoor cooking smoke exposure and cataract in Nepal and India](#), International Journal of Epidemiology 2005;34:702–708.

Srijan Lal Shrestha, [Categorical Regression Models with Optimal Scaling for Predicting Indoor Air Pollution Concentrations inside Kitchens in Nepalese Households](#), Nepal Journal of Science and Technology 10 (2009) 205-211.

Ramesh Man Singh, Hee-Joon Kim, Mitsushi Kamide and Toran Sharma, [Biobriquettes - an Alternative Fuel for Sustainable Development](#), Nepal Journal of Science and Technology 10 (2009) 121-127.

K.R. Smith, [Indoor air pollution in developing countries: recommendations for research](#), Indoor Air 12:198-207, 2002.

SNV-Nepal, [The Beehive Charcoal Briquette Stove in the Khumbu Region, Nepal](#) 11 March 2003.

Junfeng (Jim) Zhang and Kirk R. Smith, [Household Air Pollution from Coal and Biomass Fuels in China: Measurements, Health Impacts, and Interventions](#), Environ Health Perspect. 2007 June; 115(6): 848–855.

WHO & Nepal Health Research Council, [Situation Analysis Environmental Health in Nepal](#), Nepal Health Research Council, February 2002.

NEWS & EVENTS

New International Partnership for Stoves



"People have cooked over open fires and dirty stoves for all of human history, but the simple fact is they are slowly killing millions of people and polluting the environment," Secretary of State Hilary Clinton said today, as she announced the Global Alliance for Clean Cookstoves, a new public-private partnership led by the United Nations Foundation.

Speaking at the annual Clinton Global Initiative at the Sheraton Towers in New York, Secretary Clinton said the new alliance is "a perfect CGI

model of a public-private partnership that already includes governments such as the United States, Germany, Norway, and Peru, international development organizations and local NGOs, as well as foundations and private companies such as Morgan Stanley and Shell."

"Today we can finally envision a future in which open fires and dirty stoves are replaced by clean, efficient and affordable stoves and fuels all over the world - stoves that still cost as little as \$25," said Clinton. "By upgrading these dirty stoves, millions of lives could be saved and improved. Clean stoves could be as transformative as bed nets or vaccines." Clinton said the initial U.S. financial commitment to the Alliance is \$50.82 million over the next five years. "Our partners have already contributed an additional \$10 million, and we're working to raise more every day with

the goal of reaching at least \$250 million over 10 years," Clinton said.

Former President Bill Clinton said, "If you've ever been in a home where cooking was being done with an unsafe cookstove and you've choked up yourself, I don't have to tell you what a big deal this is."

Alliance partners will develop a business plan to address the prerequisites for large-scale adoption of clean cookstoves, identify target markets, overcome market barriers to production, deployment, and use of clean cookstoves, and implement a strategy emphasizing women's participation and market-based solutions.

Source: [Global Alliance](#), September 21, 2010

Related New York Time article :

http://www.nytimes.com/2010/09/21/science/earth/21stove.html?_r=1&emc=eta1%3C/a%3E%3Cbr

This is among the central conclusions of A Brief for Policymakers on the Green Economy and the Millennium Development Goals (MDGs), launched on September 27 as heads of state and ministers met at the UN Headquarters to review progress to date - five years before the MDG deadline of 2015.

Environmental degradation is making it more difficult for governments to achieve Millennium Development Goals such as improving maternal health, providing safe drinking water and combating hunger and disease.

Conversely some countries and communities are finding that environmental improvements, catalyzed by deliberate policy choices; smart investments and often private sector partnerships can be a big part of the solution, the new study claims.

Achim Steiner, UN Under-Secretary General and Executive Director of the UN Environment Programme (UNEP), said: "There is rapidly growing evidence that accelerating a transition to a low carbon, resource efficient, employment-generating Green Economy may not only be the key to meeting sustainability challenges of the 21st century, but also provide a considerable contribution to meeting other MDGs.

The report - compiled by UNEP's Green Economy team - cites numerous cases where green strategies are paying multiple dividends in respect to the eight MDGs. It notably cites Nepal, where 14,000 Forest User Groups have reversed the deforestation rates of the 1990s through community-based policies which include setting harvesting rules, product prices and the sharing of profits. Between 2000 and 2005, the annual forested area of Nepal increased by 1.3 per cent, soil quality and water supplies are better managed and local employment has risen.

Source: [UNEP](#), September 27, 2010

Complete Report:

<http://www.unep.org/greeneconomy>



GREEN economy

A Brief For Policymakers on the Green Economy and Millennium Development Goals



Prepared for the UN Summit on MDGs
September 2010

Green economy can help reduce poverty, meet MDGs

Investing in clean energy, sustainable transport, forests and environmentally-friendly agriculture is essential, if internationally-agreed goals to reduce poverty are to be achieved.

Bio-Briquettes Success Story in ANSAB's Transforming Local Communities into Enterprises Project

The Transforming Local Communities into Enterprises for Economic Security in Nepal was a 3-year project funded by the Ford Foundation and implemented by the Asia Network for Sustainable Agriculture and Bioresources (ANSAB). To ensure sustainable income generation at the lowest level (DAG subgroups), the project followed a comprehensive value chain approach. It notably worked intensively with national enterprises to plan and organize their supply requirements from the project districts, as well as to design, develop and market the end products in national and international markets.

Many achievements vindicate the emphasis placed on this particular layer of the value chain. HGEPL, a new national company developed from scratch to efficiently market the bio-briquettes supplied by rural community enterprises, for example now stands as the main briquette marketing company in Nepal. Managed by a consortium of 5 community enterprises created by the project, it sold 120,000 briquettes through 51 retail outlets and 7 distributors for a total income of US \$27,027 in 2009 alone.

Source: [Transforming Local Communities into Enterprises for Economic Security in Nepal](#) (Final Narrative Report), July, 2010.



Bio-Briquette Production & Management Trainings held in Tokha, Kathmandu

IDS Nepal organized a 5-day briquette production & management training from September 3 to September 7 2010 in Tokha VDC, Kathmandu. Twenty-seven people from low income households of the participated in the training. Both charcoal and non-charcoal briquettes production processes were taught, along with the process to construct local stoves from mud. The techniques were first demonstrated and the participants then produced the briquettes and stoves themselves under the supervision of the training's experts. The participants formed a management committee for the production and distribution and are now committed to produce more than 5000 briquettes per month.

Regional Workshop on Community Based Bio-briquette Held in Sunsari

A regional dissemination workshop on community based bio-briquette was held in Dahran-8, Sunsari, on October 7, 2010. It was jointly organized by IDS Nepal and the FECOFUN District Chapter of Sunsari, and supported by UNDP/GEF/SGP to promote bio-briquettes in Nepal.

The workshop was conducted in two sessions: the first session included both presentations by experts and interactive discussions, while the second focussed on experiences sharing.

More than 65 people from different media (TV, Radio/FM, newspaper), producer groups, I/NGOs, governmental line agencies and related enterprises and stakeholders attended the workshop.

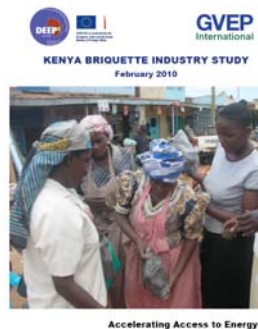


NEW RESOURCES

There are now 84 items in the BG-RCNN's [online resource center](#). Latest additions include:



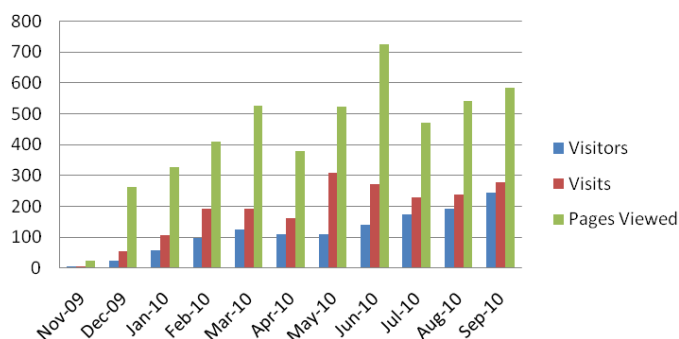
An [Inventory of Innovative Indoor Air Pollution Alleviating Technologies In Nepal](#), by Practical Action.



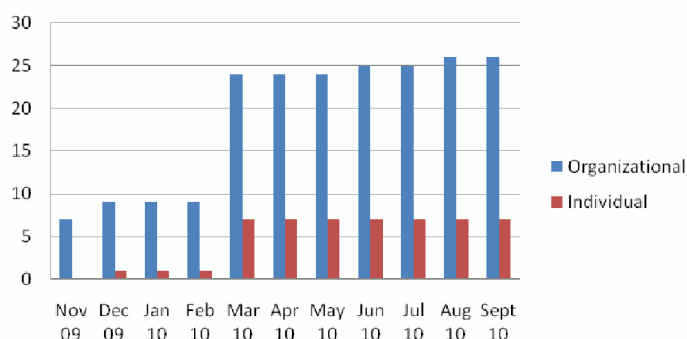
An in-depth [Study of Kenya Briquette Industry](#) by GVEP International

BG-RCNN STATISTICS

Website



Membership



CONTACT US

To submit news, upcoming activities, new resources, to subscribe or unsubscribe, please write to info@bgrcnn.net. You can also reach us at:

Contact Person:
Prakash Koirala
Director IDS Nepal
Tel: 00977-1-4427329
Mobile: 9841292114

Secretariat Hosted By:
IDS Nepal
P.O. Box 6413, Kathmandu, Nepal
Fax: 00977-1-4430225
Tel: 00977-1-4427329
Email: idsnepal@wlink.com.np
Website: <http://www.idsnepal.org>