



THE BANASPATI GUEETHA REPORTER

Issue # 2

Volume # 1

Date: June-July

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FEATURED ARTICLE



Group of women compressing a mix of charred banmara, water and soil into a briquette mould

Bio-Briquettes in Nepal: Lessons Learned So Far

Bio-briquettes production has been actively promoted as an healthier, cheaper and more ecological source of energy in Nepal since

1982. This article attempts to summarize the main lessons learned by the practitioners' community so far.

Efficient Training Required to Ensure Quality & Sustainability

The bio-briquette production process is not highly technical, but needs to be followed

carefully to ensure high quality briquettes for consumers. It has for example been observed that some producers make alterations to the production process, such as adding excessive amounts of binding agent (clay, water or sand) or neglecting proper compaction. Producers may think that by taking such liberties they are saving time and thus increasing their efficiency, but low quality briquettes break easily, are hard to ignite and have poor combustibility. In short, they are not appealing to the consumers, and the groups producing them are likely to see their sales decrease.

Another important aspect is the identification of sustainable harvesting methods for the raw material. Depleting the resource to gain more in the short term can indeed lead to a complete loss of revenue in the long run. Producing high quality briquettes in a sustainable manner is beneficial to all parties involved, particularly the producer groups that are relying on the trade as a means of income generation.



About 100 People Attend a National Seminar on Bio-Briquettes

Follow-up & Monitoring is Key

Once a producer groups is up and running, conducting monitoring activities is essential to ensure that producers needs and concerns continue to be met, that the production process is being adhered to, and that technological improvements are continuously being made. These follow up activities should be done on a regular basis and use an inclusive and

participatory approach. A promising approach in this regard is the establishment of self-monitoring mechanism in which the communities themselves evaluate their progress. This can be done, for example, through the creation of monitoring units within the communities.



Electric Grinders Could Help Producer Groups Scale Up Their Production

External Financial Support & Saving Schemes Can Kick-start Improvements

Although producer groups are generally enthusiastic about bio-briquettes, the main source of discouragement usually lies in the groups' inability to invest in the improvement of their production process. In many of the producer groups, no funds indeed remain for the acquisition of new equipments by the time all the members have received their share of revenues.

Financial support from external organizations alone cannot mitigate all producers concerns, but can definitely aid those producer groups who are aware of the technological improvements that could be made but do not have the financial means to make such changes. Micro-saving schemes can also provide a promising self-generated solution: if producer groups could start saving a small percentage of the total revenue each month, the accumulated funds could be allocated to

the acquisition of new equipment or to other business-enhancing purposes such as training and marketing. Finally, “seed money” schemes can combine the strength of the two options discussed above; in these schemes, donors engage themselves to match money raised by the producer group with donation (for example to donate one dollar for each dollar saved by the community until a certain ceiling).

Attention Must Be Paid to the Entire Value-Chain

The creation and growth of distribution and retailing companies is key to the successful promotion and marketing of bio-briquettes country-wide. The link that they provide between the producer groups and the end consumers is essential, especially because most of the production is made in remote areas. Support for these private companies will strengthen the entire industry and allow the producer groups to develop into genuine profit generating businesses.

Much Remains to Be Done at the Promotional Level

Promoting bio-briquettes within Nepal is crucial at this point in time. Failure to identify demand for the product could result in excess supply

and little demand, just as a failure to promote the production of the briquette amongst local communities could result in the opposite. It is therefore important to promote bio-briquettes to various target groups, including producers, consumers and other interested parties. Highlighting the affordability, income generation potential and other health, social and environmental benefits through the use of media (including television, radio, newspaper, etc.) as well as through literature, seminars and workshops will help to alleviate consumers’ initial scepticism for the novelty bio-briquettes represent for them and to develop a more robust and sustainable market for the product.

Bio-Briquettes Is Not a One-Size-Fits-All Panacea

Although it is of fundamental importance that bio-briquettes be further developed and expanded upon, it is also necessary to recognize the need to promote other alternative energy sources in situations where this product is not a feasible option for producers or consumers. Alternative energy programs supported NGO’s and government bodies in Nepal include biogas, solar panels and micro-hydroelectric dams.

NEWS & EVENTS

Beneficial bio-briquettes

By Sharada Adhikari

“(…) In the beehive briquetting *banmara* is dried and charred in a drum or pit and then crushed. The crushed charcoal is mixed with water and a binding agent, usually soil. The mixture is then compressed into moulds in the shape of a beehive – thus the name. The finished briquette is removed from the mould and set in the sun to dry.

President of Bishankhunarayan Banaspati Gueetha Production and Management Group

“I had to depend on my husband for all my expenses before I got involved in briquetting.”

(BBGPMG), Menuka Bhujel, said, ‘Done manually, it’s simple, inexpensive technology’.

Bio-diversity conservation

An invasive weed, the Eupatorium Adenophorum (*banmara*), is spreading very fast in the forests of Nepal. A perennial herb, *banmara* also interrupts the growth of other plants. ‘Using *banmara* as raw material in briquettes has helped our community forest get

rid of it. *Banmara* also used to cause forest fires, which has been solved to some extent,' revealed Kamal Bista, President of Bishankhunaryan Community Forest Users' Group. (...)

Alternative energy source

People in the rural areas have been using briquettes made from animal dung and biomass (rice straw, jute sticks *et cetera*) for cooking purposes since time immemorial. (...) It was in 1993 that *banmara* was identified as a potential biomass raw material for bio-briquetting. Dr Ramesh Man Singh, who holds an experience of more than 20 in bio-briquetting at NAST and is also the vice chairman of Centre for Energy and Environment Nepal, shared: 'Today beehive briquetting has reached more than 50 districts of Nepal (...) It is a good source of alternative energy. Besides utilisation of problematic biomass, this smoke-free technology has reduced indoor pollution as well.'

“Taxes were imposed on biobriquettes as much as that of noodles and cigarette factories.”

Source of Income

Krishna Maya Bista, one of the member of the BBGPMG, earns Rs. 7,000 per month selling briquettes. 'I had to depend on my husband for all my expenses before I got involved in briquetting. These days, I help my family financially with my own income from briquetting'. (...)

Going Commercial a Challenge

Despite so many benefits, this technology has not gained much success on a commercial scale. Citing the reasons behind this Bista said, '(...) We lack modern tools and techniques to manufacture briquettes on a commercial scale.' (...)

Prakash Koirala, president of IDS Nepal said, 'We had launched this project on a small scale to be used inside the community. We are

unable to go commercial because we lack the required funds.' Ganesh Karki, spokesperson of the Federation of Community Forest Users' Group (FECOFUN) (...) expressed, 'The producers are unable to meet the market demand as they lack marketing strategy as well as funds.'

Giving examples of many briquette companies that had to shut down after being unable to compete in the market, Dr Singh added, 'Taxes were imposed on them as much as that of noodles and cigarette factories.' He pointed out: 'Biomass contributes to nearly 85 per cent in the production energy required in Nepal compared to renewable energy source and petroleum products. (...) Besides the better work performance of NGOs involved in it, the government must spell out clear policies regarding this sector.'"

Source: The Himalayan Times, April 30, 2010

Fuel Briquettes Put Energy in the Peoples' Hands

By Rob Goodier



In Nepal's Kathmandu Valley, people have to gather firewood or buy kerosene to cook and heat their homes. One organization has an alternative: fuel briquettes. Photo credit: Sanu Kaji Shrestha

Fuel for cooking and heating is expensive for many families in the Kathmandu Valley of Nepal. They have to either gather wood from the surrounding forests (which exacerbates the country's deforestation) or pay for costly fuels like liquefied petroleum gas or kerosene.



These briquettes made from organic waste help save money and trees in Nepal and other countries. Photo credit: Sanu Kaji Shrestha

One organization is solving the problem with fuel briquettes made from organic waste. The Nepal-based Foundation for Sustainable Technologies is training people to make the briquettes, empowering them to make a product they can sell and, for the first time, create their own fuel.

It's the cheapest fuel available, says Sanu Kaji Shrestha, founder of FoST. "Anybody can make it, no matter their age," he told E4C in an email. Making their own fuel helps people lower expenses and it instills a sense of self reliance, Shrestha says.

Fuel from sawdust and rice husks

Briquette makers start by scavenging waste from their homes, public places such as parks, farms, and businesses. They look for waste paper, cardboard and sawdust, as well as food scraps and agricultural waste, such as fruit rinds and rice husks. Then they shred, soak, press and dry it. The finished product is a thick, disk-shaped briquette that burns in a variety of

stoves, including mud stoves, and rocket stoves.

Briquettes help save forests

Using briquettes instead of wood saves trees. About one quarter of Nepal is forested, and one quarter of that forest is heavily degraded, according to the UN's Food and Agriculture Organization.

The remaining forestland is under assault. During the 1990s, the forest lost ground at a rate of about 1.8% per year. For comparison, forests cover one third of the United States and the number has not changed significantly in the last century, according to the US National Atlas.

Nepal has worked hard to reverse the damage. Since 2000, some studies have shown that there are more trees, the FAO reports.

Besides Nepal, Shrestha's organization has trained some 500 people to make the briquettes in India, Cambodia, Afghanistan, Uganda and Cyprus.



Shrestha, top left, with people that his Foundation for Sustainable Technology supports. Photo courtesy of Sanu Kaji Shrestha Briquettes from Nepal to Uganda

In Kathmandu, 600-800 people living and working at the Shanti Sewa Griha have learned to make and use the FoST briquettes. Originally a clinic and home for people with leprosy, the griha now provides a range of free services from health care to vocational training to anyone in

need. Using the briquettes has saved the center about \$750 per month in fuel costs, Shrestha says.

A package of sustainable solutions

Shrestha also designs and trains people to manufacture dozens of other sustainable energy and recycled products. They include solar ovens and driers and handicrafts made from junk electronics. He designs most of the gadgets himself, making solar ovens from aluminum sheets and glass, for example, caps from cassette tapes and musical instruments from floppy computer disks. He even uses scrapped CDs as reflectors for his solar ovens.

Charitable donations from Rotary International and individuals cover up to 80% of the cost of FoST's devices. The organization then distributes them to impoverished households. Today, more than 3,000 families use the inventions.

FoST accepts donations on its website. And Shrestha is a new member of E4C.

Source: This article was originally posted on the [website](#) of Engineer for Change. It was kindly forwarded to us by Sanu Kaji Shrestha of FoST.

IDS Nepal Receives a Letter of Felicitation from the Ministry of Environment

On the occasion of the World Environment Day, the Ministry of Environment awarded various individuals and organisations for their contribution to the conservation of the environment. IDS-Nepal received a letter of felicitation, among others for its work on bio-briquettes.

The uniqueness of IDS involvement in the sector was the research and development that it put into making the production process less expensive, more easily manageable and more

community-friendly. It did this by, for example, showing community members how to dig pits close to the forests where they could produce the charcoal instead of using cumbersome and expensive charring drums. IDS also increased the capacity of partner community members to become community-to-community trainers, who are currently teaching the process throughout Nepal.



Students of the *International Seminar 2010* to Support a Bio-Briquettes Project

As mentioned in our first issue, Canadian and Nepalese undergraduate students will team up for the *International Seminar 2010*, which will be held for the first time in Nepal from June 15 to July 16, 2010.

Throughout this seminar, the students will be involved in collaborative community projects, supporting the work of local organizations in sustainable forests and livelihood in Gorkha district. One of these projects will be a bio-briquettes enterprise. Students will also visit Bishankunaryan, BG-RCNN's demonstration center.

The participants will share the outcomes of their projects, experiences, and learning with their home communities, project communities, and their colleges and universities with a series of public engagement activities at the end of the seminar.

The International Seminar 2010 is a project of UNITERRA, a joint initiative of Centre for International Studies and Cooperation (CECI) and World University Service of Canada (WUSC). The projects will be supported by local partners – Federation of Community Forest Users, Nepal (FECOFUN), Asia Network for Sustainable Agriculture and Bioresources (ANSAB), Himalayan Bio Trade (HBTL), and Integrated Development Society (IDS).

BG-RCNN ACTIVITIES

Regional Media Workshop held in Nepalgunj



The BG-RCNN organized a half day workshop in Nepalgunj in collaboration with the FECOFUN district chapter. The workshop was conducted thematically, with presentations from experts being followed by extensive participatory sessions. The objectives were: to promote bio-briquettes in Nepal through media,

organizational collaboration, knowledge transfer and information dissemination; to present the BG-RCNN; and to gather recommendations on how to improve efficiency, use and cost effectiveness of bio-briquette production.

32 people attended the workshop, 25 of which were local journalists or media representatives. Other participants included members of production groups from the western region, local CBOs, NGOs, related enterprises and government line agencies.

Producer Groups Information Sharing Project

Briquetting is practised at the community level throughout Nepal, from city surroundings to remote areas. New producer groups are created each year, while other have to cease their operation for various reasons.

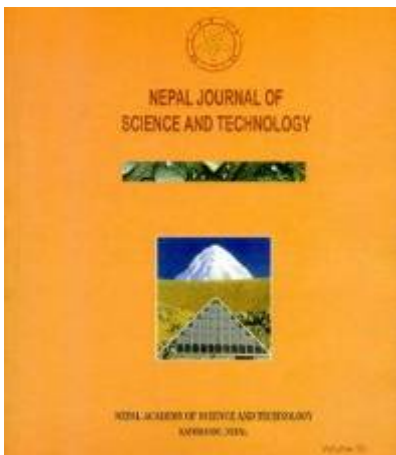
As such, it is very difficult to have a good idea of the bio-briquette production situations in the country: How much people does this industry employ? What portion of their earnings do they gather from this trade? What is the current level of production? Is it increasing or decreasing?

To remedy this situation, the BG-RCNN is initiating an information sharing project to help the different producer groups currently operating in Nepal to better know each other. In a first step, partners of the BG-RCNN will receive a detailed questionnaire about their current operations, needs and business prospects. The project will then be extended to as many producer groups as possible. If you are part of a bio-briquettes producer group and would like to participate to this project, please contact us at info@bgrcnn.net.

BG-RCNN Joins Two International Online Networks

The BG-RCNN is now part of two online resources centre dealing with air pollution and alternative energies: the [Partnership For Clean Indoor Air](#) and the [Hedon Energy Group](#). The former regroups more than 365 organizations that contribute resources and expertise to reduce smoke exposure from cooking and heating practices in households around the world. The latter is an online space where practitioners, policy-makers, funders, and business-owners actively pursuing a cleaner, affordable and more efficient household energy sector unite to share their experiences, learn from one another, and create new knowledge. Both website are full of pertinent information and well worth a visit.

BG-RCNN STATISTICS



Scientific Article on Biobriquettes in the *Nepal Journal of Science and Technology*

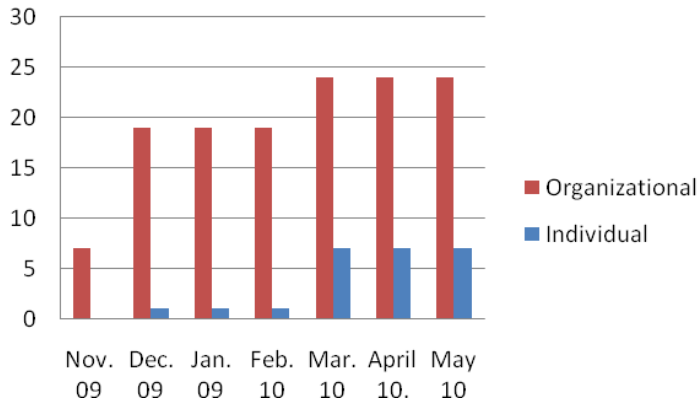
Dr. Ramesh Man Singh from the Nepal Academy of Science and Technology and three colleagues from Nepal and Japan

published an article studying the fuel and combustion properties of bio-briquettes. They found that the introduction of lime based desulfurizing agents (DSA) such as CaCO_3 and $\text{Ca}(\text{OH})_2$ into the briquettes can reduce the SO_2 emissions by 80-90%, thus minimizing the pollution coming from coal combustion.

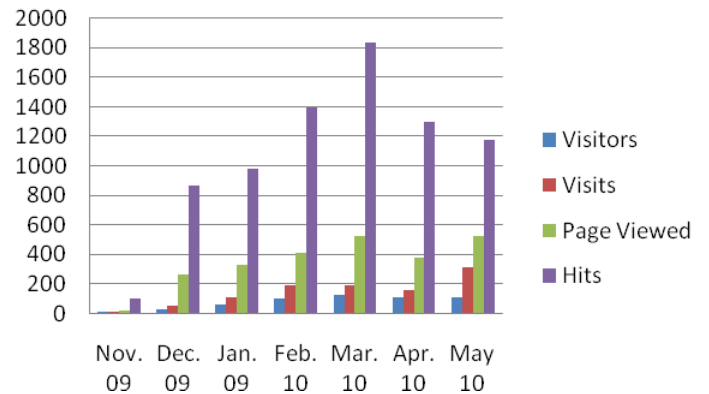
Findings also demonstrate that briquette fuels have better physico-mechanical properties and combustion properties in comparison to coal/lignite. The ignition temperatures of bio-briquettes are lower than coal or lignite, whereas the calorific values are greater than biomass. Hence, the bio-briquettes can be used as an alternative fuel to fuel wood, coal and lignite in the kilns, boilers, combustors and for cooking as well. The full article can be [downloaded online](#) (PDF, 2,27 MO).

BG-RCNN STATISTICS

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