January 2011 News from the International Biochar Initiative

30 January 2011

IBI Update on UNFCCC Negotiations and the Potential Role for Biochar

IBI Executive Director, Debbie Reed

The potential inclusion of biochar as a climate mitigation and adaptation technology within the UNFCCC remains uncertain, but there is continued reason for optimism among biochar's many proponents. Continued significant progress in the biochar field, coupled with mounting efforts to incorporate agricultural mitigation and adaptation opportunities within the UNFCCC negotiations, provide promise that biochar as a soil amendment will one day be recognized as a climate mitigation and adaptation technology.

This update on the UNFCCC process through the COP16 Cancun negotiations will address the current state of the Framework Convention with regards to agriculture, and by extension, opportunities for biochar, as well. It should be noted that, while previous draft language on agricultural sector mitigation opportunities within the Framework referenced the potential for biochar, no mention of biochar is included in current text being deliberated. However, mounting pressure to address global food security issues concurrent with climate mitigation and adaptation have highlighted the need to address terrestrial and biological carbon mitigation opportunities, particularly those within the forestry and agricultural sectors. Food security will be challenged by global population growth, and is likely to be further complicated by increased warming and the resulting impacts to water availability, crop and livestock productivity, and changing disease vectors and patterns. Recognition of these challenges likely will lead to increased investments and a renewed focus on tools and technologies to enhance agricultural adaptation and the resilience of soils, in particular. Biochar is uniquely positioned to aid in these critical overlapping arenas by building soil carbon sinks and mitigating climate change while also enhancing soil quality and resilience to drought and certain diseases, as well. To read the remainder of this update, please see: http://www.biochar-international.org/policy/international.

Thank you to our Supporters

The IBI staff and board would like to extend our sincerest thanks to our supporters and members for making 2010 such a successful year for biochar. We especially thank those in the biochar community who have become IBI members/renewed their IBI membership by supporting IBI financially during our end of the year fundraising campaign. Approximately two-thirds of our membership donations came from renewing members, the remainder are from

new members. If you have not yet renewed your membership/joined IBI, please do so at your earliest convenience.

Biochar Standards Update: Second Draft of Product Definition and Standard Posted

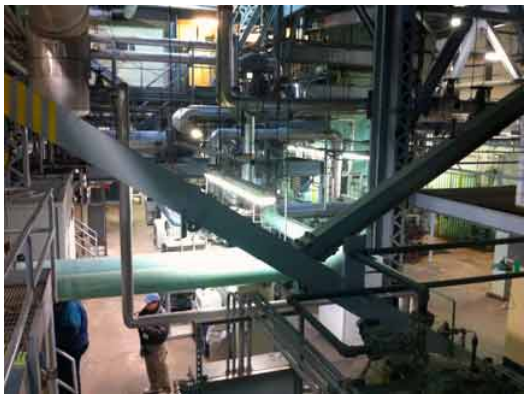
IBI's effort to create globally-developed and accepted standards for biochar characterization and to develop standards pertaining to biochar production and utilization is moving forward. The two working groups have completed the second round of Product Definition and Standard draft review conference calls. The first calls were held December 9 and 15th, and this second round were held the 17 and 20th of January. The draft will now undergo its second re-writing in advance of a third planned conference call series to occur in mid- to late-February. The second draft (please note this is a working draft) is posted on our website at: www.biochar-international.org/characterizationstandard.

Feedback from the calls is becoming more focused on the product standardization approach, feedstock definition, and which chemical and physical properties tests to use to identify biochar worthy of the IBI stamp of approval. The discussions have encountered some common themes such as the accessibility of tests to biochar producers of all operational sizes and world locations (cost and facilities locations), and the applicability of soil-type-specific criteria to create a globally-enforceable product standard.

The end product of this effort will be establishment of biochar standards that have been developed in a global, transparent, scientifically-based process. Our goal in this particular phase of the work is to produce a universally developed "final product" that any of our members or member organizations can utilize as a basis for governmental and third-party certification agencies to develop biochar standards, apart from any use IBI makes of these products. Please feel free to send your comments on progress or the drafts to Keith Driver.

Report: Pacific West Biomass Conference and Trade Show, Seattle WA, United States, January 12-15 2011

By Kelpie Wilson, IBI Communications Editor



Can biochar be produced in bioenergy facilities? What are the associated technological and financial challenges? How much do biomass energy project developers know about biochar? IBI attended the Pacific West Biomass Conference and Trade Show to gather ideas about how biochar might fit into an existing and emerging bioenergy industry. IBI has agreed to be a supporting organization for a series of biomass conferences sponsored by BBI International, publishers of several US bioenergy industry magazines, including Biomass Thermal and Power. As a supporting organization, IBI was able to attend and distribute a basic biochar information flyer to all the participants. IBI has also agreed to be a supporting organization to the 19th European Biomass Conference and Exhibition: From Research to Industry and Markets taking place this June in Berlin, Germany.

The conference began with a field trip to see several facilities, including Seattle Steam, a privately-owned utility that supplies district heat to 200 buildings in downtown Seattle,

including the high rise hotel housing the conference. This biomass facility combusts 250 tons a day of woody biomass that comes off the back end of a municipal greenwaste composting center, ie, the wood chunks that are still intact after 90 days of composting. The plant is impressively small, wedged into about half a city block. The visibly clean smokestack and tiny footprint speak well to the feasibility of integrating biomass district heating systems in dense urban areas. About a third of the footprint is taken up by the fluidized bed boiler, a third by the truck garage and wood storage silo and another third by the baghouse and other pollution controls. Commenting on the size of the baghouse, our tour guide remarked: “burning biomass is easy – it’s cleaning up the emissions that’s hard.” To read the remainder of this report, please see:
http://www.biochar-international.org/Pacificwestbiomass.

Photo: Inside Seattle Steam, courtesy of Kelpie Wilson

Profile: New England Biochar: Designing, Building and Marketing a Biochar Unit

New England Biochar LLC came into being when business partners Peter Hirst and Bob Wells decided that it was time to formalize their working relationship. Up until that point they had spent many days and long nights exploring every different form of char making device or process that they could build in the pursuit of a simple, safe, and reliable way of turning local biomass into charcoal. Originally Bob, a farmer in Massachusetts (United States) was motivated to make as much biochar as he could in order to supercharge the weak and sandy soil of his little organic farm on Cape Cod. Peter wanted charcoal to use in his quest for carbon neutral blacksmithing fuel. Eventually they came to see that the potential benefits of what they were doing were much bigger than they had originally imagined.

Having tried so many different ways of making char, they faced firsthand the potential pitfalls such as air pollution, energy waste, temperature control, feedstock variability, and technology costs--just to name a few. Says Bob, “Who knew that such a seemingly simple process could become so problematic in its details? I would have been very glad to buy a ready made machine that provided an answer to all these challenges but I just couldn’t seem to find one. The mission in my mind became four fold:

1. To make the best possible biochar.
2. To harvest all the available energy from the process to offset fossil fuels.
3. To make the process safe and smoke free.
4. To make the process profitable on a farm or community scale.”

To read the remainder of the story, please see:
http://www.biochar-international.org/Newenglandbiochar

Photo: Adam Retort, courtesy of New England Biochar

Connecting Biochar and Bioenergy

To fully realize the promise of biochar for fighting climate change, we must find ways to use the energy created during biochar production. IBI is working with organizers of bioenergy conferences to encourage more biochar presentations and participation in bioenergy conferences. If you are a biochar researcher or have a biochar project, please consider submitting an abstract to one of these upcoming conferences:

May 2-5, 2011, International Biomass Conference & Expo, St. Louis, United States, sponsor: BBI International

June 6-10, 2011, 19th European Biomass Conference and Exhibition: From Research to Industry and Markets, Berlin, Germany

October 11-13, 2011, Northeast Biomass Conference & Trade Show, Pittsburgh, United States, sponsor: BBI International

November 2-4, 2011, Southeast Biomass Conference & Trade Show, Atlanta, United States, sponsor: BBI International

To submit an abstract to any of the BBI biomass conferences, please contact Tim Portz, Program Director; click here for more information on submitting an abstract to the 19th European Biomass Conference and Exhibition (abstracts due January 31, 2011).

World Bank Study of Biochar Projects in Developing Countries

IBI and Cornell University are working with the World Bank to identify promising biochar systems in developing countries in order to help direct potential funding for biochar projects. In December, IBI sent out a survey to our network requesting information about developing country projects. We received more than 150 responses from 43 countries. The number and quality of projects is very impressive and we thank everyone who contributed project information. As we move into the next phase of performing Life Cycle Analysis for a few case studies, we are joined by a group of experts that will help guide the inquiry. The group includes: Patricia (Pipa) Elias, Forest Science and Policy Consultant, Union of Concerned Scientists; Sasha Lyutse, Policy Analyst at NRDC's Center for Market Innovation; and Christian Witt, Senior Program Officer, Agricultural Development, The Bill & Melinda Gates Foundation, among others.

Biochar Briefs - News Roundup for January 2011

We update the website daily with new articles on biochar. For more information, please see: http://www.biochar-international.org/newsbriefs

Biochar and African Dark Earths, a program of the Steps Centre, investigates a dimension of African farmers' management of soil fertility: the importance of charred carbon in soil systems and landscapes, and its potential contribution to sustainable and equitable land management.

The Australian Government's Carbon Farming Initiative (CFI) is a program to help farmers, forest growers and landholders earn income from reducing agricultural emissions like nitrous oxide and methane through changes to land management practices. CFI is creating a Biochar Capacity Building Program which will provide farmers and land managers with a better understanding of biochar and its role in mitigating greenhouse gas emissions.

Doctor of Forestry and Agronomy José Rodolfo Dantas Granha is leading a research team interested in the topography and the biological characteristics of the Terra Preta from Zona da Mata Rondonia, Brazil. The research scope includes looking at the Terra Preta soils as an agricultural resource. A report on the project has been published in the Journal of the Amazon today.

Cotton producers in the US southwest are looking at biochar as a way to retain potassium to return to soils when cotton gin trash is used to generate energy.

Stoves developed by the Appropriate Rural Technology Institute (ARTI) for use in rural Indian villages are clean enough to use in cities where residents can now enjoy food cooked in traditional ways. One stove, the Sampada Gasifier Stove, leaves behind one-third of the fuel as charcoal.

Gerard Rego, a social entrepreneur and CEO of Bangalore-based VayuGrid has successfully promoted a new business model to help small farmers in India by aggregating investments and building networks. One element of the program is the use of biochar.

Cyclone Power Technologies of Pompano Beach, Florida, US, has made progress with its Chinese licensee, Great Wall Alternative Power Systems Ltd., in developing a biomass power generation system that produces biochar that can be used for environmental remediation. “We see a massive market developing for distributed power in China’s rural areas,” stated Great Wall’s Managing Director, Robert Devine. “The first demand driver will be government-financed projects focused on cleaning up water and soil pollution in rural China. With Cyclone, we can deliver a viable biomass-based solution that combines distributed power and environmentally beneficial byproducts to support these efforts locally and at low cost.”

Biochar produced by Biochar Engineering Corporation in Golden, Colorado has been added to the US Department of Agriculture's (USDA) BioPreferred Online Catalog to help Federal procurement officers identify biobased products that qualify for preferred purchasing. The catalog is also accessible to anyone who wants to search for biobased products. Biochar is listed in the Landscaping and Agriculture category under both the Fertilizers and Compost/Mulch subcategories. BEC’s biochar is 100% biobased, generally sourced from waste wood products at Colorado lumber mills.

New Hope for Old Mines is the title of a feature story on Flux Farm’s Hope Mine Project Reclamation project near Aspen, Colorado (US) that is using biochar to immobilize toxins and revegetate the abandoned Hope Mine, one of an estimated 23,000 abandoned mines in Colorado.

Enginuity Energy’s Ecoremedy biomass gasification system will be starting up this spring, recovering energy and nutrients from poultry litter, manures, spent mushroom substrate and other wastes. Recently, Enginuity constructed a new research and development facility on the Harrisburg Area Community College campus in Harrisburg, Pennsylvania (US).

On February 18, former Vice President and Nobel Laureate Al Gore will speak in Aspen, Colorado at Forests at Risk: Climate Change & the Future of the American West. The symposium is sponsored by For the Forest, an ecology education group that is a partner in projects to reclaim mine tailings with biochar.

IBI Adds New Research Summaries

IBI recently wrote two new research summaries including Biochar in Mixtures and Biochar for Soil Remediation and Land Reclamation (available at IBI Publications: http://www.biochar-international.org/publications/IBI). *Biochar in Mixtures* discusses the various ways in which biochar can help improve soils through addition to soils with manure, as a bulking agent in compost, as an ingredient in Bokashi, and as a medium for fungal inoculants. Although biochar is not a long-term source of nutrients, it can be used to improve soils over the long term--

especially when added as part of a mixture. *Biochar for Soil Remediation and Land Reclamation* highlights biochar's potential ability to facilitate the revegetation of degraded soils through several mechanisms, and sorb a variety of compounds in soil such as heavy metals, pesticides and other organic molecules, and possibly hydrocarbons.

Opportunities in Biochar

Opportunities in Biochar showcases announcements for the public to apply for funding, jobs, publications, conferences, etc. These announcements are also posted on the IBI website in two places: Biochar Updates and the Member Bulletin Board.

Submit an Abstract to the 19th European Biomass Conference and Exhibition: Due January 31, 2011. For more information, please see:
http://www.biochar-international.org/node/2242.

The Journal of Environmental Quality is accepting manuscripts for publication consideration as a special biochar collection with a deadline for manuscript submission as 3/31/2011. For more information, please see:
http://www.biochar-international.org/node/2240.

New job opportunities and PhD postings are updated at:
http://www.biochar-international.org/network/jobs

Upcoming Calendar Events

February 7 – 11: BEF Stove & CHAB Camp; Location Chip Energy in Goodfield, Illinois, United States; more information http://www.biochar-international.org/node/2253.

February 10 – 11: 2011 Biochar Workshop: Opportunities, Risks and Acceptance; Location: Massey University Palmerston North; New Zealand; more information
http://www.biochar.co.nz/workshop2011.html.

March 3: 17th Annual Ecological Landscaping Association (ELA) Conference; Location Springfield, MA, United States; more information
http://www.biochar-international.org/node/2224.

May 2 – 5: International BIOMASS Conference & Expo; Location St. Louis, Missouri, United States; more information www.biomassconference.com.

June 6 – 10: 19th European Biomass Conference and Exhibition: From Research to Industry and Markets; Location Berlin, Germany; more information
www.conference-biomass.com.

See the IBI Calendar page for more events. To add an event to the calendar, send the information to info@biochar-international.org.

Regional Biochar Group Updates

To read more on regional and national biochar groups, please see IBI's website at: www.biochar-international.org/network/communities. This month features updates from the Regional Biochar Group Updates from the South East Asia Biochar Interest Group and Biochar Northeast (United States).

South East Asia Biochar Interest Group

Biochar in slash-and-burn agricultural systems in Northern Laos

SaafConsult will be working with the GTZ/GIZ in the Sayabouri province, Laos, in early 2011 to undertake an assessment of the technical feasibility for biochar applications as a complementary approach for REDD. The work aims to inform the Ministry of Agriculture and Forestry on the current status of implementing biochar as a carbon sequestration method in tropical countries and to assess the potential and technical feasibility for applying biochar in halting shifting cultivation (slash-and-burn) through the sustainable utilization of woody biomass to increase of soil fertility and improve carbon sequestration (slash and char). For more information, please contact Bryan Hugill.

University of Kuala Lumpur, Malaysia Students Study Stoves

UniKL degree students have carried out preliminary studies on heat transfer efficiency, particulate and CO emissions as well as biochar production potential of improved stoves (Paul Anderson's TLUD, Crispin Pendecott's VESTO) and traditional Malaysian cooking stoves. Feedstocks tested include crushed coconut shells and empty fruit bunch (EFB) pellets. Experiments will be repeated this year to verify the findings from 2010. The improved cooking stove test project is also participating in a survey spearheaded by IBI for a World Bank study (mentioned above). Two degree students from the Royal Agriculture University, Cambodia, have been selected to join our team for a period of 6 months.

UniKL is also collaborating with the Malaysian Palm Oil Board (MPOB) to convert solid palm oil mill waste into syngas, biooil and biochar. Experiments are carried out at lab- and field-scale in terms of biochar production and soil trials. AllPowerLabs' Biochar Experimenter Kit (BEK) is currently being set-up at MPOB to produce biochar for field trials in the second half of 2011.

Transforming Human Waste and Other Organic Matter into Highly Fertile Soil via Terra Preta Sanitation and Biochar: The WAND Foundation Experience in the Philippines

With preliminary guidance from Ralf Otterpohl of the Hamburg University of Technology (TUHH) the Water, Agroforestry, Nutrition and Development (WAND) Foundation started a Terra Preta Sanitation and Biochar initiative in Libertad, Misamis Oriental, the Philippines.

The initiative focuses on the implementation of ecological sanitation, small-scale gardening and community-based tree planting and the promotion of farm and non-farm livelihood activities among small, marginal farmers and peri-urban backyard garden enthusiasts. The project started in 2003 and members realized that it is possible to do away with using commercial fertilizer which is expensive and unaffordable for small farmers so they started using recycled human waste instead. Click here to read the remainder of this update.

Photo: Biochar Mix, courtesy of Elmer Savre.

Biochar Northeast, United States

Biochar Northeast will be hosting a members meeting in February 2011 and is pleased to announce a new and returning slate of officers including Barry Hollister of Berkshire Harmony (incoming Board Chair), Dale Hendricks, owner of Green Light Plants, LLC (new President), Touria Eaton from the University of Massachusetts Amherst (incoming Vice President), John McLaughlin, engineer (continuing as Treasurer), and Cathy Rooney, designer of Low Impact Gardens (continuing as Secretary). A website development team led by Cathy Rooney is working on building an innovative and informative website at www.biocharne.org. Biochar

Northeast thanks their sponsors for initial funding support for the website: Anonymous and Organic Mechanic Soil. Stay tuned for the launch.

Recently Published Biochar Research

IBI tracks all published research on biochar and includes it in our online bibliography: www.biochar-international.org/biblio. The following articles were added in the last month. Please visit the website bibliography for more information on any of these articles. Due to copyright, we cannot provide full copies of articles unless we have permission from the publisher. If you have published work that is not included, please email us at: info@biochar-international.org.

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