



News from the International Biochar Initiative

IBI is a non-profit organization supporting researchers, commercial entities, policy makers, farmers & gardeners, development agents and others committed to sustainable biochar production and use.

Help put the Earth **Back in the Black**

March 23, 2012

IBI Guidelines for Specifications of Biochars Update

The IBI process of drafting Guidelines for Specifications of Biochars for Use in Soils is now in its final stages. Begun in Rio de Janeiro at the IBI 2010 International Biochar Conference, the process has involved the international biochar community in creating and reviewing several drafts of the Biochar Guidelines document. The most recent comment period closed on February 10th. Since that time, IBI staff and consultants have been busy evaluating and incorporating the many excellent comments and suggestions that were received.

The schedule for completion of the Biochar Guidelines will be set sometime in the next few weeks. Please watch your email inbox for announcements of the next steps in the Guidelines process and information about how you can participate in the process. Current updates and background information are also posted on the IBI website at <http://www.biochar-international.org/characterizationstandard>.

IBI Welcomes Two New Board Members, Warwick Manfrinato and Sununtar Setboonsarng

IBI is pleased to introduce our two newest board members, Mr. Warwick Manfrinato from São Paulo, Brazil and Ms. Sununtar Setboonsarng from Thailand.

Mr. Manfrinato brings a wealth of experiences and interests to the board including a background in the soil carbon cycle, forests, and land-use dynamics. He has participated in developing methodologies for quantification of carbon stocks for a number of projects both for GHG emissions compensation and carbon credit purposes. He currently leads an environmental consultancy company, [Plant Environmental Intelligence](#), and also holds the post of Executive Director of the [Amazonia in Transformation Program](#), at the Institute for Advanced Studies within the University of São Paulo, Brazil. Since 2003 he has been an invited member to the official Brazilian Delegation to the UNFCCC-COP/MOP and has recently accepted membership on the [Brazilian Panel on Climate Change](#).



Ms. Setboonsarng is Principal Natural Resources and Agriculture Economist at the [Asian Development Bank](#) (ADB). In her current post,

she leads the Greater Mekong Sub-region Regional Cooperation Program on Agriculture. She has extensive country experience in sustainable agriculture and green food development, including microfinance development in a number of countries in the region. From 2003-2008, Ms. Setboonsarng was seconded to ADB Institute in Tokyo where she was a senior research fellow and carried out research on innovative poverty reduction strategies. Prior to joining ADB/ADB/ADB, she worked extensively in rural areas of Asian countries as staff of the Mekong River Commission (MRC), the Asian Institute of Technology, and the East-West Center. Ms. Setboonsarng holds a PhD in Agriculture and Resources Economics (University of Hawaii) an MA in International Development Economics (Yale University), an MS in Agriculture and Resources Economics (University of Hawaii), and a BSc. degree in Botany (Chulalongkorn University).

For more information on these two new board members and the full 2012 IBI board, please see: <http://www.biochar-international.org/board/advisorycommittee>.

New IBI Business Members: Dr. Rick Davies; Energy Farmers Australia; Micromeritics Analytical Services; and the Prasino Group

Dr. Rick Davies is a Monitoring and Evaluation consultant, specializing in the evaluation of development aid programs in Africa and Asia. He is especially interested in experimental uses of biochar in developing countries and is available to provide technical advice on the evaluation of those initiatives, especially their social and economic impact. Dr. Davies has worked with development aid organizations since 1980 and has specialized in evaluation consultancy since 1990. For more information on his work, visit [his own personal website](#) and the [Monitoring and Evaluation NEWS website](#), which he manages. He can be contacted via email rick.davies@gmail.com.



Energy Farmers Australia is a project development company located in Geraldton, Western Australia which is currently working with farmers, holders of waste to energy and bioenergy technology, and other stakeholders on the feasibility of waste to energy and bioenergy stations in rural areas of Australia. We have also partnered with three grower groups in Western Australia and through trial work aim to increase the knowledge base of biochar and demonstrate the benefits of integrating biochar into the farming systems of Australia. For more information visit www.energyfarmers.com.au or contact Euan Beamont at euan@energyfarmers.com.au.



Micromeritics Analytical Services is a contract lab service organization specializing in biochar material characterization services. We specifically provide testing for BET surface area, pore size analysis, CO₂ adsorption, butane adsorption, bulk density, particle density, and particle size analysis on a variety of biochar and carbon related materials. Our parent company is Micromeritics Instrument Corporation. For more information on the company, please see: <http://www.particletesting.com> or email mas@particletesting.com.



The Prasino Group is a network of leading advisors in carbon strategy, management, accounting, and project development. We aim to penetrate markets for biochar by expanding in different regions of the US & Canada; use pilot projects as a low risk, low cost approach to produce biochar to support market development; develop commercial scale operations and feedstock supply lines; and test different types of feedstock, assess the relationship between feedstock, operating parameters and biochar performance in local markets. For more information, please see: www.prasinogroup.com or contact info@prasinogroup.com.



A listing of all current IBI Business Members can be found on our website at: <http://www.biochar-international.org/IBI-business-members>. For more information on this membership or to join, please see: <http://www.biochar-international.org/join>.

Profile: Using Biochar for Water Filtration in Rural South East Asia

Access to clean water can be a crucial issue for many rural communities in developing countries. The largest sources of water pollution are from inadequate treatment of human wastes and poorly managed industrial and agricultural wastes. Specifically, the contamination of water sources by synthetic organic compounds (SOCs) such as pesticides, pharmaceuticals, and fuel compounds is a growing



problem worldwide as these chemicals can bio-accumulate in the human body and cause cancers and other diseases. There are often few low cost, sustainable and appropriate treatment technologies available for SOC removal in rural areas. Activated carbon (AC) is considered the best available technology for the removal of SOC in water in rural areas, however AC manufacturing processes are sophisticated and usually cannot be replicated in these rural areas without large infrastructure investments. The Engineering for Developing Communities Program at the University of Colorado-Boulder (United States) is currently studying low cost approaches to water treatment using biochar as a surrogate for AC.

Josh Kearns, the director of the biochar research consortium with the University, is producing biochar with Top-lit Updraft (TLUD) gasifier stoves and small kilns along the Thailand/Burma border as part of his research. Since 2009, Kearns has been working with water treatment specialists at the University of Colorado-Boulder to test the effectiveness of chars produced from traditional village kilns. To read the remainder of this story, please see: http://www.biochar-international.org/profile/water_filtration.

Photo: Attaching a temperature probe to a TLUD producing biochar; courtesy of Lyse Kong

Profile: Biochar Field Trials in Zambia, Indonesia, Malaysia and Nepal as well as New Biochar Characterization Research from a Team in Norway

The Norwegian Geotechnical Institute (NGI) and the Norwegian University of Life Sciences (UMB) have a truly global research agenda with biochars for use in soils as well as laboratory research on biochar characterization. In the last two years, the team has set up biochar projects in Zambia, Indonesia, Malaysia and Nepal working with farmers to carry out in-depth field trials on the effect of biochars in local soils—especially in poor acidic sandy soils. They are also working with local groups to produce biochars on site with available feedstocks using various production systems. In addition, laboratory work has been and is continuing to be carried out in Norway on nutrient availability, the stability of biochar, and the presence of polyaromatic hydrocarbons (PAHs) and dioxins in biochar.



The team projects are led by Prof. Gerard Cornelissen, Prof. Jan Mulder, Dr. Sarah Hale, Prof. Gijs Breedveld, and Dr Magnus Sparrevik and the postdocs are Dr. Vanja Alling and Dr. Vegard Martinsen. Five PhD students will start in the near future in Norway, Indonesia, Zambia, Nepal and Malaysia to specifically carry on this research. To read the remainder of this story, please see:

http://www.biochar-international.org/profile/Zambia_field_trials_and_research.

Photo: Biochar and fertilizer in planting basins, Mongu, Zambia: photo courtesy of Gerard Cornelissen.

Biochar Briefs: News Roundup for March

We update the website daily with new articles on biochar. For more information, please see:

<http://www.biochar-international.org/newsbriefs>.

Australia

[A restaurant in Melbourne combines a multitude of green innovations that include biochar](#) as a building material. It uses a magnesium oxide board that is impregnated with biochar, allowing the building to store carbon within its walls.

Canada

[Bowen Island is changing the way it handles waste biomass](#) as the Vancouver Metro district phases out land clearing debris burns. Islanders are studying options for processing biomass on the island such as chipping, composting, biochar and biomass to energy.

[A partnership between Western Economic Diversification and the federal government](#) will provide \$1.7 million to Lakeland College in Alberta, Canada to acquire two mobile pyrolysis units. The project will test and evaluate biochar and its potential contributions to agricultural and environmental sciences.

Indonesia

[Prof. Dr. Ralph Otterpoh of Hamburg University in Germany](#) spoke to environmental professionals in Bandung, Indonesia about the use of biochar as a method to conserve soil moisture. The meeting participants discussed cooperative research on soil fertility in the region.

Italy

[Lorenzo Genesio of the Institute of Biometeorology at Italy's National Research Council](#) studies the impact of biochar on albedo. He found that biochar-treated plots were warmer than the control at a soil depth of 5 cm from January to March. From April the treated plots were cooler, indicating that the increased biomass above ground was boosting evapotranspiration. The work is part of the EuroChar project, which aims to assess the impact of large-scale biochar agricultural application.

Maldives

[Mohamed Nasheed, former President of the Republic of Maldives, is a promoter of biochar](#) and other climate mitigation technologies. He calls climate change the biggest threat to his island nation.

Norway

[Norwegian scientists Gerard Cornelissen and Magnus Sparrevik have mixed biochar](#) in the soil in six different corn fields in Zambia, and the results are startling: yields went up fourfold, and greenhouse gas emissions were reduced.

Spain

[The company, Ikerlan, the University of Zaragoza, and Cartif Polytechnic University](#) are all involved in developing new fast pyrolysis systems that produce bio-oil and biochar in the Basque region of Spain.

Taiwan

[Professor Wu Teruo and his students at Da-Yeh University](#) have developed a successful low-temperature pyrolysis system to convert waste biomass into a biocarbon material that can be used as fuel or as biochar soil amendment.

United States

[Investors are taking a look at Cool Planet Biofuels](#) and its unique process for making liquid fuel and biochar from biomass. The company is working on a third generation design that will be ready around September, with a capacity of 400,000 gallons per year.

[Agromin Inc. in Oxnard, California will start testing biochar made from green waste](#). The company will work with local growers who will test combinations of biochar with compost and other products. If the results are favorable, Agromin will install biochar production systems at two of its facilities this year.

[University of Illinois \(Chicago\) researchers Krishna Reddy and Jean Bogner](#) received a \$350,000 research grant from the National Science Foundation to test biochar for use on landfills. They are designing a cheap landfill cover made of layers of biochar and soil, that can trap and hold on to escaping methane long enough for methanotropic bacteria to break it up, producing less-harmful carbon dioxide.

[Piedmont BioProducts plans a commercial refinery in Pittsylvania County](#), Pennsylvania to make bio-oil and biochar from miscanthus, switchgrass, and sawmill waste. The company hopes to engage local farmers to supply feedstock, especially miscanthus.

[The Chesapeake Bay Commission recently released a report](#), "Manure to Energy: Sustainable Solutions for the Chesapeake Bay," after a summit in Baltimore with farmers, entrepreneurs, and policy makers. Digestion may be the best solution for wetter materials like dairy manure, but for the drier poultry manure, pyrolysis and gasification may work better.

[Highlight your work at the upcoming 4th International Biochar Conference in Beijing, China, September 2012](#)

The organizing committee of Biochar: The Road to Richer Food and a Safer Environment, is pleased to announce that they are accepting abstracts for presentations **until March 31, 2012**. The event will be held September 16 – 20, 2012 in Beijing China at the Friendship Hotel. Presentations must focus on the following topics: biochar production and characteristics, biochar and plant/food production, biochar and soil physical processes, biochar and soil chemical processes, biochar and soil biological processes, biochar and environmental quality, biochar and climate change, biochar and policy, and a special theme on biochar producing equipment. For more information, including registration dates, sponsors, and other information, please see the conference website at: <http://www.ibi2012.org/En/Welcome.html>.



[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 for the International Symposium on Reclamation, Restoration and Rehabilitation Towards a Greener Asia; **due March 31, 2012**. For more information, please see: <http://green-asia.blogspot.com>.
- Submit an abstract for the 4th International Biochar Congress Beijing, China 2012; **due March 31, 2012**. For more information, please see: <http://www.biochar-international.org/node/2985>.
- Submit interest for the 1st International Summer School on Biochar in Potsdam, Germany by **April 1, 2012**. For more information, please see: www.atb-potsdam.de/biocharsummerschool2012.

- Registration is now open for the US Biochar Conference; **register by April 2, 2012** for the early-bird discounted rate. The conference organizers received over 110 abstracts, including submissions from across the US and from 14 other countries. For more information, please see: <http://2012.biochar.us.com/registration>.
- Submit an abstract for the Biomass Waste Management as a Source of Renewable Energy, Agriculture Sustainable, and Global Warming Mitigation conference; location East Java, Indonesia; **due May 1, 2012**. For more information, please see: <http://www.biochar-international.org/node/3156>.
- Submit an abstract for the 30th International Activated Carbon Conference, Pittsburgh, PA USA October 4 – 5, 2012. For more information, please see: www.pacslabs.com/conferences/iacc.

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

Upcoming Calendar Events

- April 16 – 19, 2012: International Biomass Conference & Expo including Biochar Panel; location Denver, CO, United States; more information: <http://www.biochar-international.org/node/2690>.
- April 21 – 22, 2012: Hands-on Biochar Workshop; location Byron Bay, NSW Australia; more information: <http://www.biochar-international.org/node/3159>.
- April 22 – 27, 2012: Biochar for Soil Remediation and Global Warming Mitigation at European Geosciences Union General Assembly 2012; location Vienna, Austria; more information: <http://www.biochar-international.org/node/2903>.
- June 18 - 22, 2012: 20th European Biomass Conference and Exhibition; location Milan, Italy; more information: <http://www.biochar-international.org/node/2952>.
- June 26 – 27, 2012: Biomass Waste Management as a Source of Renewable Energy, Agriculture Sustainable, and Global Warming Mitigation; location East Java, Indonesia; more information: <http://www.biochar-international.org/node/3156>.

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

Recently Published Biochar Research

IBI tracks all published research on biochar and includes it in our [online bibliography](#). 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](#).

- B. Dutta, G. S. V. Raghavan & M. Ngadi (2012). Surface Characterization and Classification of Slow and Fast Pyrolyzed Biochar Using Novel Methods of Pycnometry

- and Hyperspectral Imaging. *Journal of Wood Chemistry and Technology*. Volume 32, Issue 2. DOI: 10.1080/02773813.2011.607535.
- Genesio, L., Miglietta F., Lugato E., Baronti S., Pieri M., and Vaccari F. P. (2012). Surface albedo following biochar application in durum wheat. *Journal Environ. Res. Letters*. Volume 7. <http://iopscience.iop.org/1748-9326/7/1/014025/article>.
 - Harel, Yael Meller, Elad Yigal, Rav-David Dalia, Borenstein Menachem, Shulchani Ran, LEW BENI, and Graber Ellen R. (2012). Biochar mediates systemic response of strawberry to foliar fungal pathogens. *Plant and Soil*.
 - Hilber Isabel, Franziska Blum, Jens Leifeld, Hans-Peter Schmidt, and Thomas D. Bucheli (2012). Quantitative determination of PAHs in biochar a prerequisite to assure its quality and safe application. *J. Agric. Food Chem.* DOI: 10.1021/jf205278v.
 - Jindo, K, K Suto, K Matsumoto, C García, T Sonoki, and MA Sanchez-Monedero (2012). Chemical and biochemical characterisation of biochar-blended composts prepared from poultry manure. *Bioresource Technology*. 02/2012.
 - Kastner, James R., Miller Joby, Geller Daniel P., Locklin Jason, Keith Lawrence H., and Johnson Tyson (2012). Catalytic esterification of fatty acids using solid acid catalysts generated from biochar and activated carbon. *Catalysis Today*.
 - Kutnjak, Hrvoje, Bošnjak Krešimir, Perculija Goran, Vranic Marina, Leto Josip, Žgomba Ana, Špiljak Silvija, and Novakovic Mateja (2011). Biochar addition to the soil limits initial development of red clover (*Trifolium pratense* L.). *Proceedings of 47th Croatian and 7th International Symposium on Agriculture*. Opatija, Croatia.
 - Liu, Xiao-yu, Jing-jing Qu, Lian-qing Li, Afeng Zhang, Zheng Jufeng, Jin-wei Zheng, Gen-xing Pan (2012). Can biochar amendment be an ecological engineering technology to depress N₂O emission in rice paddies?—A cross site field experiment from South China. *Ecological Engineering*. Volume 42. Pages 168–173.
 - Oleszczuk, Patryk, Sarah E. Hale, Johannes Lehmann, Gerard Cornelissen (2012). Activated carbon and biochar amendments decrease pore-water concentrations of polycyclic aromatic hydrocarbons (PAHs) in sewage sludge. *Bioresource Technology*.
 - Piccolo, Alessandro Ed. (2012). *Carbon Sequestration in Agricultural Soils. A Multidisciplinary Approach to Innovative Methods*. 307 pages. ISBN 978-3-642-23384-5.
 - Reza, Toufiq M., Lynam Joan G., Vasquez Victor R., and Coronella Charles J. (2012). Pelletization of biochar from hydrothermally carbonized wood. *Environmental Progress & Sustainable Energy*.
 - Robertson, S. J., Rutherford, P. M., López-Gutiérrez, J. C. and Massicotte, H. B. (2012). Biochar enhances seedling growth and alters root symbioses and properties of sub-boreal forest soils. *Canadian Journal of Soil Science*. 92: 329–340.
 - Saranya, K., Kumutha K., and Krishnan P. S. (2011). Influence of biochar and *Azospirillum* application on the growth of maize. *Madras Agricultural Journal*. Volume 98. Number 4/6. p.158-164.
 - Sokchea, H., and Preston TR. (2011). Growth of maize in acid soil amended with biochar, derived from gasifier reactor and gasifier stove, with or without organic fertilizer (biodigester effluent). *Livestock Research for Rural Development*. Volume 23, Number 4.
 - Sovu, Tigabu, M., Savadago, P. & Odén, P.C. (2012). Facilitation of forest landscape restoration on abandoned swidden fallows in Laos using mixed-species planting and biochar application. *Silva Fennica*. 46(1): 39–51. <http://www.metla.fi/silvafennica/full/sf46/sf461039.pdf>
 - Stavi, Ilan, and Lal Rattan (2012). Agroforestry and biochar to offset climate change: a Review. *Biomedical and Life Sciences Agronomy for Sustainable Development*.

- Tammeorg, Priit, Tero Brandstaka, Asko Simojoki and Juha Helenius (2012). Nitrogen mineralization dynamics of meat bone meal and cattle manure as affected by the application of softwood chips biochar in soil. Maataloustieteen Päivät. http://www.smts.fi/Vaihtoehdoja%20vakilannoitteille/Tammeorg_Nitrogen%20mineralization.pdf.
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- XuSheng, He, ZengChao Geng, Diao She, BaoJian Zhang, and HaiYing Gao (2011). Implications of production and agricultural utilization of biochar and its international dynamic. Transactions of the Chinese Society of Agricultural Engineering. Volume 27. Number 2, p.1-7.