



December 2010 News from the International Biochar Initiative

22 December 2010

IBI side event at UNFCCC COP16 in Cancun, Mexico/COP 16 Report

IBI held an official UNFCCC side event in Cancun, Mexico as part of the UNFCCC COP16 deliberations. The event was moderated by Sergio Zelaya-Bonilla of the UN Convention to Combat Desertification (UNCCD), and speakers included Debbie Reed, IBI Executive Director; Johannes Lehmann of Cornell University and IBI Board Chairman; and Thea Whitman, also of Cornell University. IBI's side event was held Friday evening, December 3, 2010 in the Cancun Messe, on the eve of [Agriculture and Rural Development Day \(ARDD\)](#), an all-day event held on Saturday, December 4, 2010. The IBI Side event covered policy, scientific, and demonstration applications related to biochar, and addressed some contemporary issues related to biochar and reflected in the continued progress of agricultural sector mitigation and adaptation opportunities within the context of the UNFCCC, and also discussed at ARDD.

Reed's policy-focused presentation began with a discussion about the relative variability inherent in biochar production and utilization systems, and the need to establish metrics and knowledge systems in order to provide assurances to regulatory and political processes that biochar systems can be effective climate mitigation and adaptation tools and be confident of their intended and actual impacts. In the case of biochar, certain aspects of biochar systems are more relevant to climate change mitigation activities (for instance, recalcitrance of the biochar material, leading to longevity in soils, and to long-term carbon pools), while many others are relevant to climate adaptation (lending resilience to soils, increasing water holding capacity, increasing soil aggregation, etc.). Advances in the science of biochar allow efforts to differentiate and describe individual functional aspects of biochar that are important for certain uses. Some are even creating 'fit-for-purpose' biochars to meet specific needs.

To read the remainder of this report, complete with details from presentations and links to presentations, please see: <http://www.biochar-international.org/cancunsideevent>.

IBI End of the Year Report—2010: Letter from the Executive Director

Dear IBI Supporter,

On behalf of the International Biochar Initiative, I thank you for your support of the organization this last year. It has been a busy time for us and we appreciate the backing of our members—especially since it was the first full year of our membership program.

2010 has been an eventful year for your organization. IBI continues to grow and expand our presence and sphere of influence globally, aided by exponential growth in the number of universities and research associations with biochar programs; published, peer-reviewed data on all aspects of biochar production and utilization; new and more actors in the commercial biochar space; and growing public, media, and policymaker interest in biochar.

While IBI does not itself engage in basic or applied research, we help network and support the growing biochar research and development community and we provide regular updates to the IBI community covering progress in the research space. We have also contributed to a steady improvement in the quality of media coverage of biochar as the research advances and reporters gain knowledge about biochar and about IBI. We continue to be excited and positive about the prospects for sustainable biochar production and utilization systems to deliver beneficial climate mitigation and soil enhancement and ecosystem services globally, and while we see a far greater need for public and private sector investments in biochar, we note progress in government investments, promoted at least in part by progress in the science and growing media and policymaker interest.

[Click here to read the remainder of this letter including planned 2011 IBI activities.](#)

[Click here to join IBI or renew your IBI membership.](#)

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. Dedicated researchers, farmers, engineers and entrepreneurs around the globe are establishing an ever-growing number of projects that are slowly but surely demonstrating the promise of biochar. Thank you all for your great work. We especially thank those in the biochar community who have become IBI members and supported IBI financially. We also thank the IBI Advisory Committee members who worked hard last year reviewing numerous IBI publications, the IBI Biochar Characterization Group, and the working groups for IBI's biochar standards process. A big thanks to all the organizations we have worked with in the last year, including those we have had formal partnerships with, including: EMBRAPA, the United Nations Convention to Combat Climate Change (UNCCD), Forest Trends and the World Bank.

We are particularly grateful to the foundations that have provided critical core support to IBI in 2010: the David and Lucile Packard Foundation and the Blue Moon Fund. The following donors provided generous support to the 3rd International Biochar Conference, IBI 2010, in Rio de Janeiro: EMBRAPA, CAPES, FAPERJ, AnthroTerra, Clean Air Task Force, Black Carbon, CNPq, ALL Power Labs, Biochar Engineering Corporation, CarbonZero, Chip Energy, Pacific Pyrolysis, Richmond Landcare Inc, and the UN Foundation.

IBI is now in the midst of our year-end fundraising campaign, and you will notice an increased number of funding requests from us at this time. Please [join IBI or renew your IBI membership](#) at your earliest convenience. It is critically important that IBI continue to grow our membership and to retain the members who joined us last year. Thanks to each and every one of you who have joined IBI as a member.

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

IBI has just posted a first draft of the Biochar Product Definition and Standard as part of its overall effort to create globally-developed and accepted standards for biochar characterization, and to develop standards pertaining to biochar production and utilization. Our two working groups are beginning their review of this document and we invite you to join the process by

reviewing the document and sending your comments to [Keith Driver](#). Please note that this is a first draft outline and does not reflect any input from working group members at this time.

The working groups will hold meetings once per month and the document will be updated between meetings based on working group comments and suggestions submitted to Mr. Driver. These revised drafts will be posted online. To read the first draft and more about this effort, please go to: www.biochar-international.org/characterizationstandard

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.

Profile: Pioneering Work on Biochar in European Vineyards

Hans-Peter Schmidt is a pioneer in using biochar in vineyards. He first established a biochar trial at experimental vineyard Domaine de Mythopia in Switzerland in 2007. His group's ability to produce biochar has since grown, and this year they provided biochar for about 10 agricultural field trials in Germany, Norway, France, Switzerland, and Austria. Next spring, new trials will be established in at least 8 vineyards in Spain, Italy, France and Germany.



Mr Schmidt directs the Delinat Institute for Ecology and Climate Farming that conducts studies on climate-positive farming with high biodiversity, and biochar is one of its main research subjects. The research foundation's laboratory is located on Domaine de Mythopia, and is developing practical methods and strategies for growing quality wines in ecologically and economically sustainable ways.

To read the remainder of this story, please see: www.biochar-international.org/profiles/vineyard

Photo: Domaine de Mythopia Vineyards; photo courtesy of Hans-Peter Schmidt.

The Many Sides of Biochar: Views from the IBI Community

Biochar – Building Synergies Between Agriculture, Renewable Energy Production, and Carbon Sequestration.

The Many Sides of Biochar is a new feature in the IBI Newsletter presenting ideas and viewpoints from biochar researchers and practitioners. Inaugurating this feature is a thoughtful article from Goodspeed Kopolu, President of the Zambia Biochar Trust and Christoph Steiner, founder of Biochar.org. The authors prepared this piece for the recent COP 16 meeting in Cancun, Mexico. This article originally appeared in Outreach, a multi-stakeholder magazine published daily at COP 16.

Biochar offers one of those rare things in the climate change arena – a real win solution. As referred to under AFOLU – Agriculture, forestry and other land use have a unique potential to sequester carbon. Annual sequestration rates by living biomass amount to approximately 100 to 120 billion tons of carbon from the atmosphere.

Approximately the same amount is released by plant respiration and decay of dead plant material. The 60 billion tons released from decomposing biomass is almost 10 times more carbon than released by fossil fuel burning.

In light of this, it needs to be recognized that humans currently appropriate more than a third of the production of terrestrial ecosystems. This is a lot of carbon in our hands! It is important to consider the difficulties of changing a GHG source into a sink. Such a transformation needs to grapple with multiple considerations and ensure it doesn't compete with food production as is the case with biofuels, soil fertility is not compromised, it is consistent with a changing climate and the change can be quantifiable.

To read the remainder of this article, please go to:
<http://www.biochar-international.org/outreach/biocharsynergies>.

Biochar Briefs - News Roundup for December 2010

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

Carbon-negative Christmas trees? Brad Major of Carbonsync in British Columbia, Canada is offering a biochar Christmas tree service. The company will deliver a tree to a customer's home and then pick it up after the holiday to recycle it into biochar.

Energy Quest, Inc. will build a modular gasifier for agricultural waste in Lee County, Georgia (USA) that the company says will produce 16-18 thousand tons of biochar per year and generate 6 MW of electrical power. Estimated cost of the project is \$12 million USD with a pay out time of less than 4 years.

The New Zealand "Residues to Revenues Conference" will include a full session on biochar, with Dr Jim Jones from the New Zealand Biochar Research Centre at Massey University reporting on New Zealand biochar research, and Adriana Downie of Pacific Pyrolysis in Australia covering commercial biochar developments.

"Refilling the Carbon Sink: Biochar's Potential and Pitfalls," an article by Dave Levitan in Yale University's Environment 360, takes another look at biochar and various controversies surrounding it. The article quotes Johannes Lehmann, Debbie Reed and several other biochar experts and critics.

The South West Victoria Biochar Action Group in Australia has begun a project to investigate dried sewage sludge as a feedstock for biochar and renewable energy. The \$135,000 research project is funded by the Smart Water Fund.

The Bellona Foundation organized a series of workshops during the climate summit in Cancun, Mexico that examined carbon-negative strategies like biochar, among other topics.

Rain gardens are sprouting up everywhere, and biochar can be a valuable component of them according to the USDA (United States Department of Agriculture). USDA scientists are finding that poultry litter biochar is a powerful pollutant magnet that can attract heavy metals such as copper, cadmium and zinc and keep them out of waterways.

Rice University (United States) has created a \$1 million Green Carbon Center to study ways to use carbon-based fuels in a more environmentally friendly manner. A research group headed by Carrie Masiello is working on biochar solutions to the need for low carbon fuels.

Three Tasmanian (Australia) farmers have won \$10,000 scholarships to travel abroad to study on-farm renewable energy systems including biomass gasification and biochar.

Pro-Natura International, in partnership with the Papaye Peasant Movement, JTS Semences, and the French embassy in Haiti, has started a project to increase vegetable production in Haiti by providing local farmers with biochar and other technologies for intensive vegetable production.

Stories in Treehugger, CNET and elsewhere discuss a new report from NRDC (Natural Resources Defense Council) titled **Biochar: Assessing the Promise and Risks to Guide US Policy**. You can read IBI's [response to the NRDC Report on the IBI website](#).

[Click here for the Treehugger story](#)

[Click here for the CNET story](#)

Book Review: Why you should read *The Biochar Solution*

By Kurt Cobb

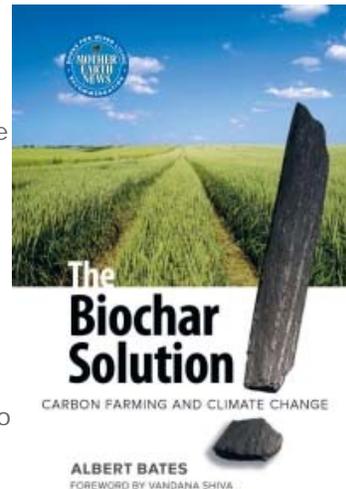
First, you should know that I have an allergy to anything that smacks of geoengineering. And the use of biochar--charred organic matter that can improve soil fertility--to address climate change by interring carbon in farmland on a mass scale strikes me as one of the largest geoengineering projects ever conceived. I always ask, "What will the unintended consequences be? Can we be sure that those consequences won't simply present a new set of problems, possibly catastrophic ones?"

Fortunately, Albert Bates, author of *The Biochar Solution*, takes these questions seriously and offers a measured endorsement of biochar as one of an array of strategies for responding to climate change. Even in the forward Vandana Shiva warns that "[b]y shifting our concern from growing the green mantle of the earth to making charcoal, biochar solutions risk repeating the mistakes of industrial agriculture."

With this kind of qualified endorsement, why should we read further? The answer is straightforward: Because intelligently and broadly applied and ethically managed, the production of biochar and its incorporation in the soil has the potential to lower carbon dioxide levels in the atmosphere, not on a millennial time line, but within a few decades. We have the possibility of reversing climate change. It's worth exploring this possibility because some of the most prominent climate scientists in the world believe we have already passed beyond the level of greenhouse gases in the atmosphere that will, if not reduced, move the world into new and much warmer climate.

To read the remainder of this article, please go to:

<http://resourceinsights.blogspot.com/2010/12/why-you-should-read-biochar-solution.html>.



Opportunities in Biochar

Opportunities in Biochar is a new section of the newsletter to showcase 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 (on the front page) and the Member Bulletin Board.

Illinois Sustainable Technology Center Request for Proposals for FY 2012

The Illinois Sustainable Technology Center (ISTC), a division of the Institute of Natural Resource Sustainability at the University of Illinois at Urbana-Champaign (United States), promotes sustainability through resource conservation, pollution prevention, and research efforts. For more information, please see:

<http://www.biochar-international.org/node/2178>.

PAB (Pesquisa Agropecuária Brasileira) Journal has extended the deadline for receiving papers for its Special Issue on Biochar to January 30, 2011. For more information, please see:

<http://www.biochar-international.org/node/2177>.

The International Biomass Conference & Expo (St. Louis, United States) announces a call for papers; abstracts are due 7 January 2011. For more information, please see:

<http://www.biochar-international.org/node/2172>.

New job opportunities and PhD postings are updated at:

<http://www.biochar-international.org/network/jobs>

Upcoming Calendar Events

January 10 – 12: Pacific West Biomass Conference and Expo; Location: Seattle Washington, United States; more information:

<http://pacificwest.biomassconference.com/ema/DisplayPage.aspx?pageId=About>.

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>.

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, UB International, and the Pioneer Valley Biochar Initiative (United States).

South East Asia Biochar Interest Group

Ecodana biochar project in West Kalimantan, Indonesia

Ecodana is partnering with Yayasan Dian Tama (YDT), a local Indonesian non-profit, to empower women by training them in sustainable agricultural techniques, including how to create biochar, to increase the fertility of the soil and reduce their dependence on costly chemical fertilizer. They will also train women in marketing so they can sell their products and make a profit. [Ecodana](#) is a San Francisco based social enterprise whose mission is to improve the lives of people in rural areas around the world by facilitating funding for sustainable projects in their communities.

Cambodia Workshop on Biochar Production & Uses Report (Monday 22nd – Tuesday 23rd November 2010)

The workshop was a huge success, with 29 delegates attending the meeting, and 19 staying for the field trip the second day. This meeting discussed the current state of biochar production and use in Cambodia, and explored the potential for development of new technologies – both large and small scale, with a particular focus on gasification cook stoves. Issues for consideration to policy makers, and prototype guidelines for sustainable biochar deployment as an agricultural soil amendment were also discussed. This meeting is part of the

'Enabling Bio-innovations for Poverty Alleviation in Asia Project', funded through [IDRC-CRDI](#). [Click here for a meeting report](#).

Biochar Research Collaborations in Indonesia

Prof. Agus Prasetya and Prof. Moh. Fahrurrozi from the chemical engineering department at Gadjah Mada University, Yogyakarta, Java are seeking collaboration partners for biochar research projects in Indonesia. Their research interests are broad, including all aspects of biochar production, renewable energy, stove project implementation, carbon sequestration, agriculture utilization and rural development. They will be working with [Eko Sb Setyawa](#) from Chemmeco Inc. Universitas Gadjah Mada (UGM) is the oldest and the largest state university in Indonesia.

UB International

In an effort to advance the discussion of the potential of thinly distributed feedstock (TDF) in climate change mitigation (CCM) beyond the cook stove level and, more importantly, in contributing that potential within the time frame set by atmospheric physics, UB International has initiated a discussion of the topic on Greater Democracy (Dec. 11).

<http://www.greaterdemocracy.org>.

UBI invites others who have thought through the problem and developed conceptual approaches to put them forward for discussion—in the interest of mutual improvement and elucidating the various circumstances where different elements may work best. UBI invites all interested to comment on the various concepts in entirety or on specific elements, pro and con. The group is most interested in focused discussion of the concept elements and their integration.

UBI also announces the start of a new initiative in Hawaii; for more information, please see:

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

Pioneer Valley Biochar Initiative (PVBI) (United States)

An endowment is being established at the University of Massachusetts, Amherst for the purpose of encouraging efforts in promoting renewable energy, sustainability, and agricultural applications, with emphasis on biochar. There will probably be matching University funding; donations from alumni, industry, and friends of the University will be encouraged.

In addition, a weekly seminar series will start at the University in January as a University course which students may elect but which will be open to outside attendees. A field day will be held on the spring to allow for "hands on" experience with biochar equipment.

Furthermore, the use of webinars to facilitate communication among biochar groups throughout the country (and the world) is being explored. The first of these was an open meeting of the Pioneer Valley Biochar Initiative and occurred successfully on Nov. 23, and a second is planned for Jan. 4. These permit audio and visual contact among participants using the internet.

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.

Luke Beesley and Marta Marmiroli (2010). The immobilisation and retention of soluble arsenic, cadmium and zinc by biochar. Environmental Pollution.

Stephen Brick (2010). NRDC Issue Paper Biochar: Assessing the Promise and Risks to Guide U.S. Policy. November 2010.

Brown, T. R., Wright, M. M. and Brown, R. C. (2010). Estimating profitability of two biochar production scenarios: slow pyrolysis vs fast pyrolysis. *Biofuels, Bioproducts and Biorefining*. doi: 10.1002/bbb.254

Amanda M. Liesch, Sharon L. Weyers, Julia W. Gaskin, and K. C. Das, (2010). Impact of Two Different Biochars on Earthworm Growth and Survival. *Annals of Environmental Science*, 4, 1-9.

Liping Lou, Binbin Wu, Lina Wang, Ling Luo, Xinhua Xu, Jiaai Hou, Bei Xun, Baolan Hu and Yingxu Chen (2010). Sorption and ecotoxicity of pentachlorophenol polluted sediment amended with rice-straw derived biochar.

Maraseni, Tek Narayan and Chen, Guangnan and Guangren, Qian (2010). Towards a faster and broader application of biochar: appropriate marketing mechanisms. *International Journal of Environmental Studies*, 67 (6). pp. 851-860.

McGreevy, Steven R. and Shibata, Akira (2010). A Rural Revitalization Scheme in Japan Utilizing Biochar and Eco-Branding: The Carbon Minus Project, Kameoka City. *Annals of Environmental Science: Vol. 4, Article 2*.

J.R. Olarietaa, R. Padròa, G. Masipa, R. Rodríguez-Ochoaa and E. Tellob (2010). 'Formiguers', a historical system of soil fertilization (and biochar production?). *Agriculture, Ecosystems & Environment*.

Silber, A., Levkovich, I., Graber, E.R. (2010). pH-dependant mineral release and surface properties of cornstraw biochar: agronomic implications. *Environmental Science and Technology*.

Tomlinson, T. (2010), Highlighting Progress on Biochar Research, Projects, and Technology, *Eos Trans. AGU*, 91(46).

Williams, Morgan M. and James C. Arnott, (2010). A Comparison of Variable Economic Costs Associated with Two Proposed Biochar Application Methods. *Annals of Environmental Science*, 4, 23-30.

Yuan, J.-H. and Xu, R.-K. (2010). The amelioration effects of low temperature biochar generated from nine crop residues on an acidic Ultisol. *Soil Use and Management*.

Zhang, Wei (2010). Fate and Transport of Phosphorus, Colloids, and Biochar in Soils. Cornell University Library, Theses and Dissertations.