Highlights from this Month’s News

In this month’s edition, look for news, ideas and trends like these:

- Forests for building concrete jungles
- Fighting fire with fire
- Interior decorating ideas
- Serious Carbon farming

Welcome to New Corporate Members:

**SUSTAINING MEMBER**

**Integrity Industrial Services Ltd.**
Campbell River, BC
Reforestation, tree planting, silviculture, covering coastal BC, brushing and weeding, vegetation management.

**ORGANIZATION MEMBERS**

**Wood Group USA**
Aberdeen, Scotland, UK
www.woodplc.com
Wood provides performance-driven solutions throughout the asset life cycle, from concept to decommissioning across a broad range of industrial markets, including the upstream, midstream and downstream oil & gas, power & process, environment and infrastructure, clean energy, mining, nuclear, and general industrial sectors.
Celebrating Our Renewing Corporate Members:

**SUSTAINING MEMBERS**

**Aries Clean Energy**
Franklin, Tennessee
https://ariescleanenergy.com/

Aries Clean Energy provides a multi-patented technology that can handle your waste in a turnkey gasification solution. This approach provides proven environmental benefits, while simplifying your overall waste handling process.

Our solutions also turn your waste into a fuel gas that can be used to produce electricity for a variety of thermal processes. In addition, the overall emissions from your waste are reduced, thereby supporting your organization’s emissions reduction goals.

**Johannes Lehmann**
Ithaca, NY
Cornell University
https://scs.cals.cornell.edu/people/johannes-lehmann/

**BUSINESS MEMBERS**

**Sonnenerde - Kulturerden Gmbh**
Riedlingsdorf, Austria
https://sonnenerde.at
The best earth under the sun.

**America Sequesters CO2, LLC**
Clarence Center, NY
http://biocharlie.com

Promoting the many benefits of making and using biochar. Manufacturer and seller of the "BioCharlie" allowing people to make biochar easily in their own fireplace, wood stove or fire pit.
Pure Life Carbon Inc.
Calgary, AB
http://purelifecarbon.com
Pure Life Carbon Inc. is a wholly owned subsidiary of Pure Life Global Inc. and was established with the objective of being an industry-leading producer of premium carbon-based technologies. Pure Life Carbon will have a heavy focus on R&D, environmental impacts, and the displacement of outdated products.

Northern Calamian Farming Inc.
Farm in Coron, Palawan, Philippines

ORGANIZATION MEMBERS

Australia New Zealand Biochar Initiative
Tyagarah, NSW, Australia
https://www.anzbi.org
The Australian and New Zealand Biochar Initiative Inc. is a collaborative group of scientists, engineers, growers and other stakeholders interested in advancing the understanding and application of biochar materials and getting viable biochar projects in the ground. Collectively our aim is to collaborate on research programs, promote and advocate the adoption of biochar investigation and use, and communicate the opportunities presented by biochar to policy makers, land managers, the public, industry and fellow scientists.

Husk Ventures SL
Barcelona, Spain
www.huskventures.com
We are a social enterprise with a mission to improve smallholders’ livelihoods by converting rice husk into biochar to build soil fertility, improve yields and sink carbon.
Cities account for 75% of global CO₂ emissions, yet biochar did not receive much attention in the urban environment until the Stockholm Biochar Project showed what a difference it could make in biomass recycling, tree survival, and stormwater management. That model is being copied in many cities worldwide. City dwellers are becoming increasingly aware of the urgency of threats from global warming. With that awareness comes the opportunity for biochar to play an even greater role in urban areas.

In fact, the greatest potential for biochar to sequester carbon is in the built environment (well explained in Burn: Using Fire to Cool the Earth by Albert Bates and Kathleen Draper). One reason unnatural climate “solutions” have received undue attention is that biochar has not been heavily promoted as embodied carbon in buildings and infrastructure. Urbanites, i.e. most people, who constantly inhabit the built environment have been largely ignorant of the growing body of biochar knowledge because it has been mainly focused on agriculture to which they give little attention.

There are many ways biochar can be integrated into infrastructure. Mixed into building materials, roads, and hardscapes the volume of biochar and other pyrolysates could far exceed the amounts used in other applications. These additives will be prized not only for directly sequestering carbon, but also for their contributions to the material properties of concrete and asphalt. Even before those cases become commonplace, we are likely to see biochar widely used in wastewater treatment. The spent biochar from water treatment can continue to sequester carbon when used in secondary applications such as soils, landfill caps, or construction materials. Aside from concrete, which taxes our depleting sand resources, some other new means of embodying carbon in large buildings (as well as car bodies and shipping containers) are mass timber and densified wood†. For these solutions to scale, we will eventually need much more feedstock.

A big part of the answer to that need may come in the form of ecoforestry. The Trillion Trees initiative made big news at this month’s World Economic Forum (WEF). It is designed to support the UN Decade on Ecosystem Restoration 2021-2030, led by UNEP and FAO. According to their website, the WEF’s 1t.org offers a platform for leading governments, businesses, civil society and ecopreneurs committed to seeing that one trillion newly planted trees are added to the biosphere in the next decade. They will use a new digital platform, Uplink, to enable millions of grassroots reforestation champions by networking resources, opportunities and high-level leaders in science, technology, business, policy and finance.

Biochar can not only help trees thrive, but also greatly reduce the excessive nitrous oxide emissions of sapling fertilization. Carbo Culture has made cities a major focus area and is sharing their tree planting guide. Carbon Gold has been at the forefront of biochar-assisted silviculture. Their pioneering work, along with that of other experts such as Canadian company, Integrity Industrial Services, Ltd., offers the Trillion Trees community a way to draw down more carbon than they had ever expected, on top of more than doubling the survival rate of saplings and aiding the transition to a circular economy.

†The Ithaka Institute for Carbon Intelligence is planning a workshop on this technology in the coming months absent co-author Nikolaus Foidl who, we are sad to report, has passed on.
Regional Briefs

**North America**

**Microsoft** is negating its emissions partly through soil carbon sequestration as well as budgeting $1 billion for new technologies.

**Starbucks** has also voiced their aspiration to store more carbon than they emit, pledging to “invest in innovative and regenerative agricultural practices, reforestation, forest conservation and water replenishment in our supply chain,” among other means. An [IBI White Paper](#) on coffee cultivation and processing offers suggestions.

**All Power Labs** expects to be producing new [containerized Combined Heat and Biochar (CHAB)](#) units with a 1 tonne-per-hr biomass capacity in the third quarter of next year. The company, which grew out of efforts to make the Burning Man festival more eco-friendly, is seeking to spark a revolution in user-friendly power generation similar to the PC revolution that originated in the Bay Area 50 years ago. Yet, with growing understanding of biochar, they have come to see it as having a greater ecological impact than the renewable power aspect.

More than 100 people in [northern California](#) were taught how to fight fire with fire using simple flame-cap biochar kilns, safer than open burning, especially in today’s hotter world.

The “world’s most innovative carbon farm” is being created by the University of California, Davis’ [OneClimate Initiative](#).

The University of Florida has teamed with the [University of Arkansas, Pine Bluff](#) to research biochar for soil and water applications.

**Europe**

One bright side of Brexit could be a more eco-centric UK. Farmers would be subsidized for sequestering carbon in their soil as well as other environmental actions if the proposed new direction is passed with England’s agricultural budget. Pilot projects will receive progressively more of the budget starting in 2021.

The UK’s National Trust plans to use biochar in the ancient and heavily compacted Hatfield Forest.

**Australia and the Pacific**

The [Norwegian Geotechnical Institute (NGI)](#) has published a nicely illustrated report that covers its work since 2012 under the leadership of Dr. Sarah Hale to investigate the potential of biochar to sequester carbon and improve soil quality and therefore livelihoods. A multinational consortium backed the project and the Biochar for Sustainable Soils (B4SS) work in Indonesia benefitted from NGI’s on-the-ground involvement. The report summarizes ten technical papers showing the effects of biochar on the...
degraded acidic soils of the Indonesian uplands, as well as remediation of several pollutants and life-cycle economic analysis.

Biochar has become a centerpiece of the show *I’m A Celebrity ... Get Me Out Of Here!*

**Africa**

A workshop was conducted in Tamale, Ghana to review the progress on their biochar demonstration project, gather farmer feedback, and discuss future steps. Government, academic, and NGO supporters are in favor of furthering the work.

**News You Can Use**

IBI member Norm Baker likes to point out to [organic growers](#) that their production could be improved 30% by adding biochar to their portfolios. In nearby British Columbia, another organic grower has shared some [tips](#) on ways to charge biochar.

Having trouble dreaming up ways to use biochar pigmented paint? [Black is the new off-white](#).

**Biochar-related opportunities, jobs, and education**

IBI Members can receive a $250 discount off the registration fee for the [International Biomass Conference and Expo](#) being held in Nashville, Tennessee, February 3 – 5, 2020. Contact [Brian Schorr](#) for the discount code. Early Bird Registration ends January 8.
Calendar

**3rd Annual Biochar Workshop**
Feb 27-28th, 2020 Oroville, California
Butte College
sifeher@scdinstitute.org, feherst@butte.edu

**ICBSEE 2020**
March 5 – 7, 2020, Rourkela, Odisha, India.
2nd International Conference on Bioprocess for Sustainable Environment and Energy
http://www.icbsee.com/

**PYRO 2020**
May 10 - 15, 2020 Ghent, Belgium
23rd International Conference on Analytical and Applied Pyrolysis.

**CIGR 2020**
June 14 – 18, 2020 Quebec City, Canada. Special Session: Biochar in Agriculture: Engineering and Environmental Prospects.
https://www.cigr2020.ca/en/program/special-sessions

**Eurosoil 2020**
August 24 -28, 2020 Geneva
European Confederation of Soil Science Societies
One session will cover: Biochar based fertilisers: interactions with plants and soils. Deadline for contributions is February 20, 2020.
https://eurosoil2020.com/

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New Research

Here are some of the papers authored by IBI members out of over 300 articles included in the latest monthly list available on your IBI Member homepage. The full list contains topical emphasis, selected excerpts from abstracts, and are grouped by subject to make it easy for you to find articles of interest. You can automatically receive the full research paper list by e-mail every month by joining IBI. If you have not already done so, joining is an easy way to up your biochar game.
Wonderwood:

From the Abstract: This article discusses redefining industrial production with regards to minimizing energy consumption as well as maximizing the carbon content of all products. The use of materials like densified wood and biochar are durable carbon sinks.

Make it Real:

Easy ways to stop smoking:

From the Abstract: Cradle-to-gate approach for three method of biochar production (i.e. Biochar Solutions Incorporated (BSI), Oregon Kiln, and Air-curtain Burner) shows that net CO₂eq production is reduced 2 to 40 times when compared with slash burning. The comparison is also done on the basis of quality of feedstock, biomass collection methods, different production sites, and various sources of power used in the production of biochar.

Drug interdiction:

From the Abstract: “The 450 °C ball milled hickory chips (HC) biochar and bamboo (BB) biochar exhibited the best removal efficiency for sulfamethoxazole (SMX) (83.3%) and sulfapyridine (SPY) (89.6%), respectively ... In laboratory water solutions, the Langmuir maximum adsorption capacities of SMX and SPY reached 100.3 mg/g and 57.9 mg/g, respectively ...”

True Carbon Farming:

From the Abstract: "Biochar-amended plots accumulated more C (14.07 Mg soil C/ha) than non-biochar amended plots (2.25 Mg soil C/ha) in the 0 to 30 cm soil depth. The total increase in C stocks in the biochar-amended plots was nearly twice (14.07 Mg soil C/ha) the amount of C added with biochar 6 yr earlier (7.25 Mg biochar C/ha), suggesting a negative priming effect of biochar on formation and/or mineralization of native soil organic C... aggregation and available water is also improved."

www.biochar-international.org info@biochar-international.org

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Work with IBI!

IBI offers the following options for collaboration with scientific projects. Select the package best for your organization and complete the accompanying payment form.

☐ Silver Package 1

a) IBI is posting a project description on its website with contact details, links, photos; the website can be updated once per year.
b) IBI is sending out a project update in the monthly newsletter twice per year of the project
c) Publications published by the project are guaranteed to be listed in the monthly IBI publications update.
d) In-depth discussion of one publication per year by a member of the IBI Scientific Committee, sent out in the monthly IBI publication update and posted on the project site of IBI.

Costs: $1,000 per project year, payable at the beginning of the project year

☐ Gold Package 2

a) Includes all services of Package 1.
b) Webinar on project plans, progress or outcomes with a topic appropriate for IBI audience (one-hour webinar with about 50-100 participants worldwide), moderated by IBI, advertised globally, with Q&A session). Webinar is archived on the IBI website and can be seen by IBI members (add $1,000 for open access).

Costs: $4,000 per project year, payable at the beginning of the project year

☐ Platinum Package 3

a) Includes all services of Packages 1 and 2.
b) IBI excursion to your project at a time when it is attractive to a diverse audience ranging from scientists to industry representatives and policy makers, typically 40 attendees, who will pay for their own travel and a registration fee (see https://biochar-international.org/event/ibi-biochar-study-tour-finland/ for an example of previous excursions).

Costs: $15,000 per project year, payable at the beginning of the project year

Packages can vary for each project year (i.e., a project may opt for Package 1 in year 1 and 2 of their project and for Package 2 in year 3). Please inquire for additional options and combination of services not mentioned above.

IBI will provide a letter of commitment that can be included in your proposal to a donor. If the proposal is approved and funded, IBI can work with purchase orders or contracts, as is easiest for the project.
International Biochar Initiative

Please provide your name and current billing address:

Collaboration Options (Prices in U.S. Dollars)

- □ Platinum: $15,000
- □ Gold: $4,000
- □ Optional open webinar access (+$1,000)
- □ Silver: $1,000

Total amount enclosed: $_____

☐ check in U.S. dollars  ☐ cash in U.S. dollars  ☐ MC/Visa number: ____________________________

Exp. Date: _________  3-Digit Security Code: _________  Name on Card: ____________________________

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Thank you for your support!