IBI Biochar Sustainability Guidelines

Prepared for US Biochar Conference 2012
July 29–August 1
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Introduction

- The International Biochar Initiative is launching an open, public process to create international guidelines for the sustainable production and use of biochar.
- The process began in June 2012 and is projected for completion by the end of March 2013.

The IBI Mission

The mission of the IBI is to promote the development of biochar systems that follow Cradle-to-Cradle* sustainability guidelines. In pursuit of this we shall:

- Support the generation, review and dissemination of information on all aspects of biochar
- Develop sustainability guidelines and monitor and evaluate biochar projects and systems against these guidelines

Goals of the IBI Sustainability Guidelines

In order to fulfill its mission, IBI has committed to creating *Biochar Sustainability Guidelines* for biochar users, producers, markets and regulators to assist in monitoring and evaluating the sustainability of existing or proposed biochar systems.

*Cradle-to-Cradle Design

- The goal of Cradle-to-Cradle design is to incorporate a system or technology into the regenerative cycles of nature to mimic the metabolic systems of nature.
- One way that biochar systems can accomplish this is by using biomass wastes as feedstocks and returning the biochar product to soils, resulting in increased capacity to grow biomass.

Goals of the IBI Sustainability Guidelines

The IBI *Biochar Sustainability Guidelines* are intended to be a practical tool for sustainability evaluation that is adaptable to many different regions, feedstocks, technologies, environments and communities.

Scope of the IBI Sustainability Guidelines

"Options for implementation of a sustainability framework vary from good practice guidelines, through voluntary certification, to regulation."*

**From: Cowie et al (2012) Is sustainability certification for biochar the answer to environmental risks? Pesq. agropec. bras, Brasilia, v.47, n.5*

Scope of the IBI Sustainability Guidelines

- The *Biochar Sustainability Guidelines* will be good practice guidelines, providing self-reporting checklists with good, better, and best practices.
- The *Biochar Sustainability Guidelines* will be international in scope.
- We will draw upon a large body of sustainability assessments and evaluations from related areas such as climate, bioenergy, forestry and agriculture.

IBI Sustainability Guidelines Process

The process will involve the public and stakeholders throughout by using:

- Online surveys
- Webinar presentations
- Document posting online for comment
- Periodic reviews by the IBI Advisory Committee
- Additionally, selected sustainability experts have been invited to review documents concurrent with the Advisory Committee review
- IBI expects that the final document produced by this process will be revisited and updated over time as new information and results become available

IBI Sustainability Guidelines Process

- The process is formed around producing 4 interim documents merged into a 5th and final document.
- This stepwise process provides stakeholders with a fully transparent view of IBI's process for constructing the *Biochar Sustainability Guidelines* and allows for timely input from experts and stakeholders.

IBI Sustainability Guidelines Process

The four interim documents are:

1. ***Biochar Sustainability Principles*** – sustainability goals that we commit to achieve.
2. ***Compendium of Preferred Sustainability Assessment Methodologies*** – a toolbox of resources useful for monitoring and evaluating the sustainability of biochar systems.
3. ***Biochar System Case Studies*** – case studies of biochar systems at different scales.
4. ***Biochar System Typology with Sustainability Checklists*** – typology of biochar systems at different scales and operating in different environments that includes sustainability checklists appropriate to each system type.

Tasks and Timeline

Task 1. July – September 2012 (3 months)

Draft *Biochar Sustainability Principles* and submit to IBI Advisory Committee for review. Incorporate revisions and post for public review (August). Hold free, public webinars (September) to collect feedback and ideas. Incorporate revisions and publish.

Tasks and Timeline

Task 2. July – November 2012 (five months)

Investigate methodologies and tools. Open public survey (August) to collect information and recommendations for preferred sustainability assessment methodologies and tools (such as Life Cycle Assessment tools). Create *Compendium of Preferred Sustainability Assessment Methodologies* to submit to Advisory Committee for review. Incorporate revisions and publish.

Tasks and Timeline

Task 3. August – October 2012 (3 months)

Draft *Biochar System Case Studies*. Submit to Advisory Committee for review and recommendations. Post online for comments (October). Finalize and publish.

Tasks and Timeline

Task 4. Nov 2012 – Jan 2013 (3 months)

Draft *Biochar System Typology with Sustainability Checklists*. Submit to Advisory Committee for review; incorporate revisions and post for public review (January). Hold free, public webinars (January) to collect feedback and ideas. Incorporate revisions and publish.

Tasks and Timeline

Task 5. February – March 2012 (two months)

Merge Principles, Checklists and Methodologies into draft *Biochar Sustainability Guidelines*. Submit to Advisory Committee for review. Incorporate revisions and post for public comment. Hold free, public webinars (Feb/Mar) to collect feedback and ideas. Incorporate revisions and publish.

Tasks and Timeline

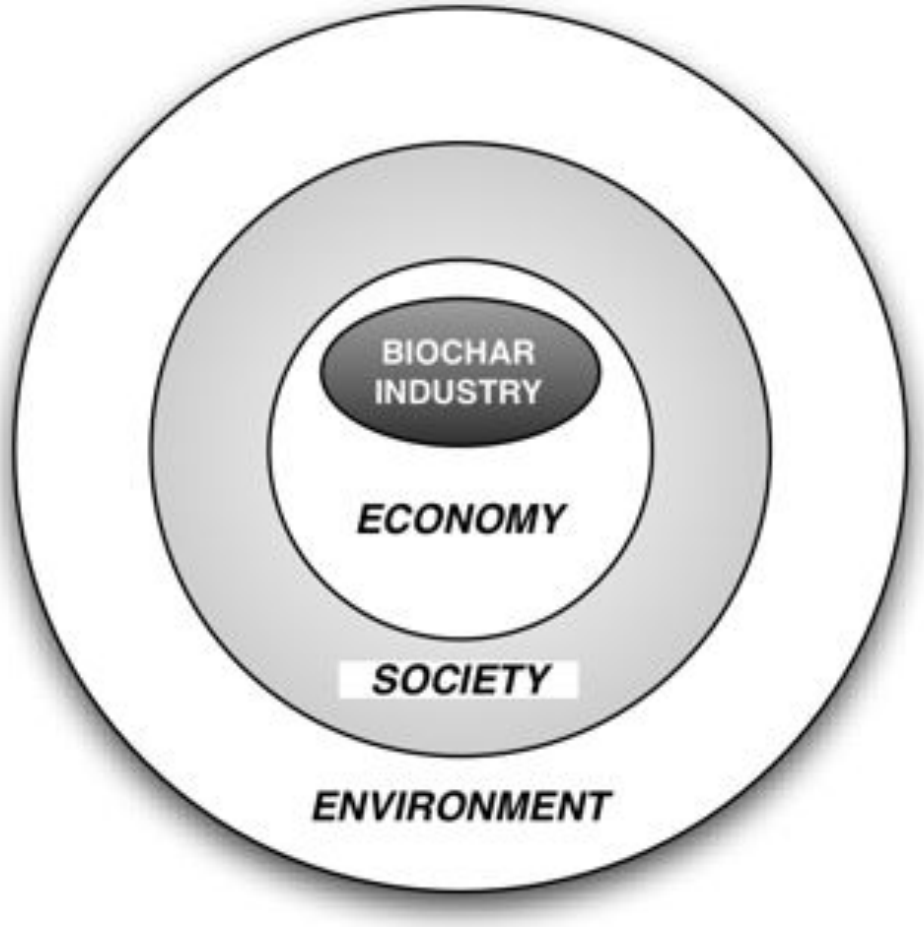
Task 1. Sustainability Principles

- Identify a sustainability framework to organize sustainability principles around.
- The Triple Bottom Line – recently re-confirmed as a valuable framework at Rio +20 meetings.

Task 1. Sustainability Principles

The Triple Bottom Line of Sustainable Systems –
concentric circle view emphasizes:

1. economic activities are dependent upon social capital
2. the larger socio-economic system depends on natural capital created by the environment



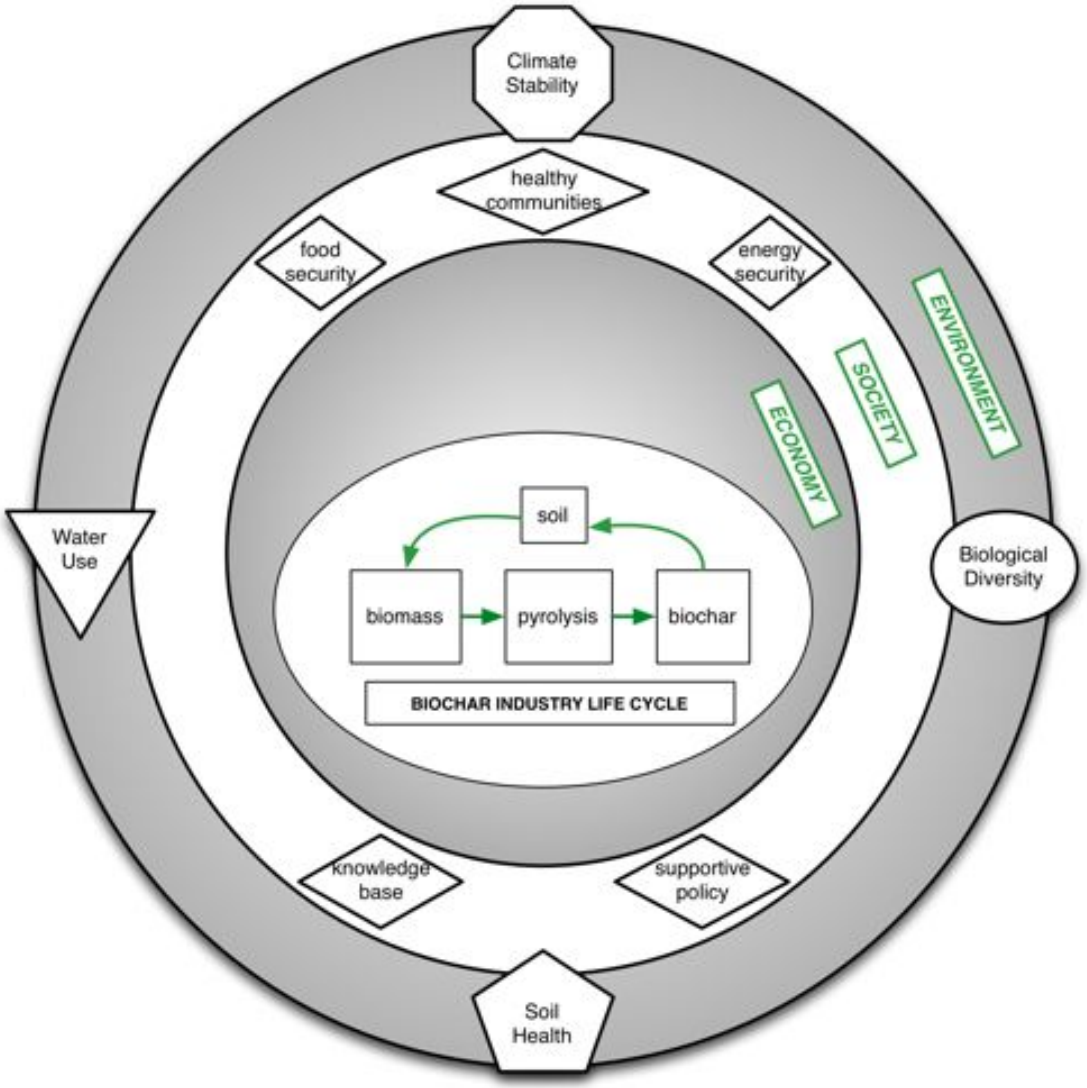
Task 1. Sustainability Principles

We can expand the Triple Bottom Line framework to include economic, social, and environment aspects most relevant to biochar:

- Environmental – soil health, climate stability, water use, biological diversity
- Societal – community health and security, food and energy security, the biochar knowledge base, supportive public policy
- Economic – the cradle-to-cradle potential of biochar systems

Task 1. Sustainability Principles

Biochar System Sustainability Framework based on the Triple Bottom Line



Task 1. Sustainability Principles

Promote the optimization of:

1. Soil Health – through long-term stewardship.
2. Climate Stability – through careful monitoring of the net carbon footprint of our activities.
3. Water Use – through making agricultural production at all scales cleaner and more efficient.
4. Biological Diversity – through the use of sustainably produced feedstocks only.

Task 1. Sustainability Principles

Promote the optimization of:

5. Waste Avoidance – through better use of biomass waste.
6. Food Security – through improving soils and conserving agricultural land.
7. Energy Security – through energy efficiency and utilizing excess energy from biochar production.
8. Community Health – through respecting and investing in our communities.

Task 1. Sustainability Principles

Promote the optimization of:

9. Biochar Knowledge Societies – through sharing scientific knowledge that fosters continuing innovation.
10. Biochar Production – through access to safe and effective biochar production equipment.
11. Biochar Quality – through providing well-characterized biochar that is safe for use in soils.
12. The Biochar Industry – through a focus on long-term economic vitality.

Task 2. Sustainability Assessment Methodologies

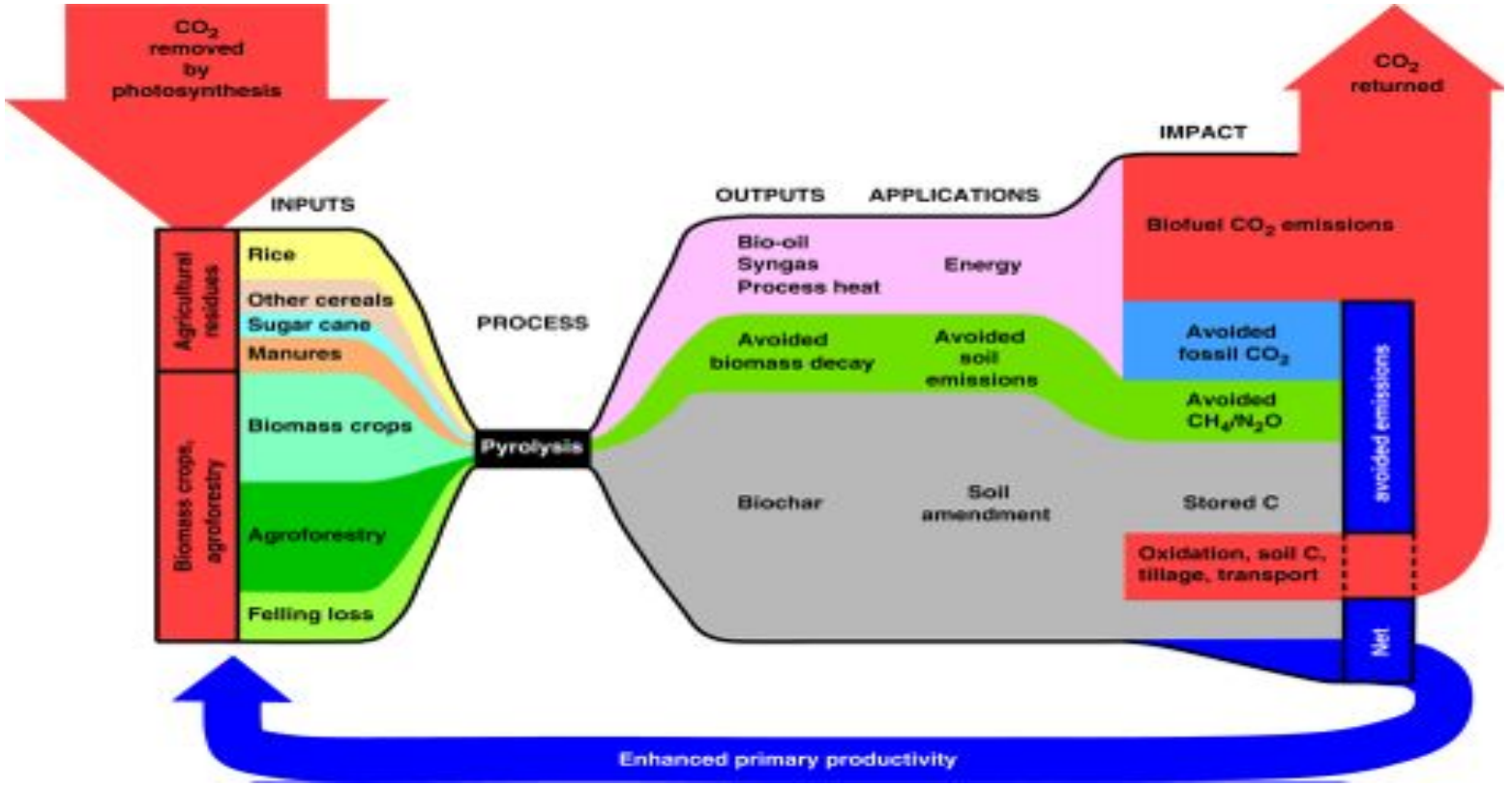
- A public survey (beginning in late August) will collect information and recommendations for preferred sustainability assessment methodologies and tools (such as Life Cycle Assessment tools)
- There is a bewildering array of tools, schemes, reports and directives that could be relevant
- Crowd-sourcing will help identify the best

Task 2. Sustainability Assessment Methodologies

Sustainability schemes for bioenergy of relevance to biochar. *	
Scheme	**Comment**
Global Bioenergy Partnership (GBEP)	GBEP has developed 24 indicators covering environmental, social and economic impacts of bioenergy, for national-level reporting. The next phase (2012) will involve capacity-building and testing of indicators.
Round Table on Sustainable Biofuels (RSB)	Provides agreed principles and criteria for sustainable biofuel production, developed from global stakeholder discussion intended as a basis for certification. Version 1 is currently undergoing pilot testing in a number of countries including a case study in Australia.
International Standards Organization (ISO) **ISO 13065 Sustainability criteria for bioenergy**	Chaired by Germany and Brazil. Commenced in early 2010, due for release in 2014. Will develop sustainability indicators to assess environmental, social and economic impacts of bioenergy for application by industry
Bioenergy and Food Security Criteria and Indicators (BEFSCI)	Aims to develop criteria and indicators reflecting the four dimensions of food security (production, access, nutritional function and stability). Intended to inform other initiatives (RSB, GBEP), as well as reporting process on food security under the EU Renewable Energy Directive, CEN and ISO.

* Adapted from Table 1. in *Cowie et al (2012) Is sustainability certification for biochar the answer to environmental risks? Pesq. agropec. bras, Brasilia, v.47, n.5*

Task 3. Biochar System Case Studies



Overview of the sustainable biochar concept.

From: Sustainable biochar to mitigate global climate change, Dominic Woolf, James E. Amonette, F. Alayne Street-Perrott, Johannes Lehmann & Stephen Joseph, Nature Communications 1, Article number:56, doi:10.1038/ncomms1053

Conclusion

- We need your help with this effort
- Your input, comments and questions are welcome at any time
- Documents are now online at http://www.biochar-international.org/sustainability
- Send all comments, links and documents for consideration to:

SustainableBiochar@gmail.com

Thank You!