



Sustainability Standards: ISO Project Committee 248 “Sustainability Criteria for Bioenergy”

**2013 CRC LCA of Transport Fuels Workshop
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Keith L. Kline

Oak Ridge National Laboratory

In collaboration with Maggie Davis and other ORNL staff, Chuck Corr and other US TAG team members, other ISO PC248 members. Based on US Technical Advisory Group to ISO 13065, contributions to PC-248 Work Groups 1-4. All views expressed are those of the author and do not represent any organization.

<http://www.ornl.gov/sci/ees/cbes/>



Outline

- Why standards? Why ISO?
- What: mandate, boundaries
- Status
 - Science-based versus reporting
 - LCA for GHG accounting
 - Indirect effects
- Issues
- Next steps
- Discussion: How can standards and LCA best promote more sustainable outcomes?

Why bother?

Why sustainable bioenergy?

Ethical and scientific considerations

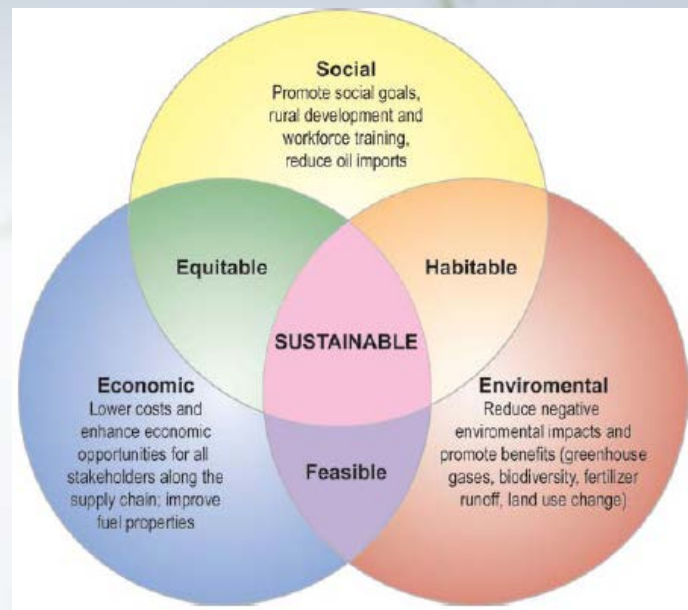
- Conserve resources for future generations
- Effective alternatives to fossil fuels needed sooner or later
- Improve LU efficiency (e.g., over 400 million Ha and billions of tons of biomass burn *each year*)
- Sustainable development goals
 - “Living within our means”
 - Integrated land-use planning
 - More sustainable rural livelihoods
- Climate change and adaptation
 - Incentives to manage landscapes for multiple benefits including CC mitigation and higher resilience



Goals of cooperation on standards:

- Share recent research and help guide efforts toward science-based approaches
- Develop consensus on common terms and methods
- Improve communication and build confidence among parties
- Accelerate growth of export markets for clean energy products and technologies
- Enable informed decisions that support continual improvements in energy systems

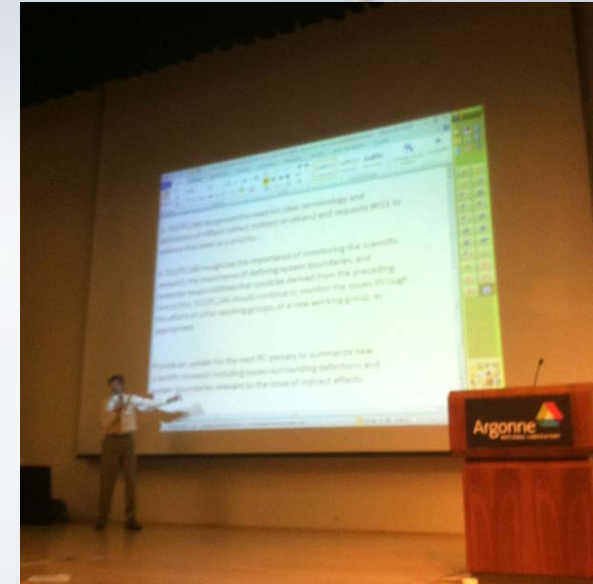
Standards do not determine sustainability or ensure a product or process is “sustainable”



Slide adapted from KL Kline presentation for DOE EERE webinar, “Global Solutions for Global Challenges: International Collaborations to Advance Bioenergy Research” December 2012.

For example:

- Key barriers to trade and acceptance of bioenergy are related to concerns such as LUC and food security that cannot be effectively addressed in the absence of consensus on:
 - definitions
 - criteria and methods
 - modeling land-use and more sustainable production systems
- An effective ISO Standard could reduce transaction costs and accelerate bioenergy trade
- Even if an ISO Standard is not approved, stakeholder participation can help improve understanding of -
 - sustainable bioenergy production
 - conceptual relationships required for more reliable modeling
 - approaches to address contentious issues



What is a standard?

- A standard is a document that
 - Provides requirements, specifications
 - Sets forth guidelines
 - Can be used to ensure consistent and appropriate
 - Materials,
 - Products
 - Processes
 - Services
- ISO has published over 19,500 International Standards

Why develop standards?

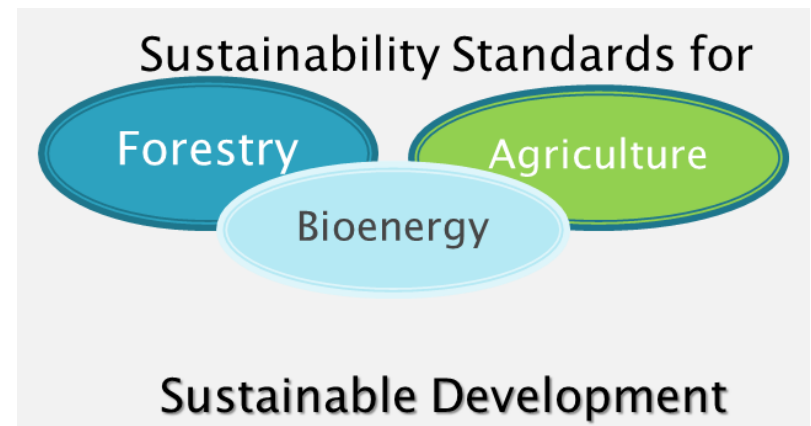
- Help ensure products and services are 'fit for purpose'
- Reduce costs by minimizing waste and errors and increasing productivity
- Facilitate free and fair global trade
 - Access to new markets
 - Level the playing field for new entrants

Source: adapted from www.ios.org



Why ISO?

- Potential global reach and impacts
 - Founded 1947
 - 163 member countries
- Rio 1992: Series of Environmental Standards (ISO 14000)
 - 250,000 users
 - Applied in 155 countries
- Social Responsibility (ISO 26000, 2006)
- ISO 14064:2006 and ISO 14065:2007 standards
 - Provide an internationally agreed framework for measuring GHGs
 - So that “ a tonne of carbon is always a tonne of carbon ”
- Rio+20 ISO commitment to foster Sustainable Development
 - Economy +
 - Environment +
 - Social Responsibility +
 - Millennium Development Goals



What: mandate, boundaries

PC-248 Mandate

Standardization in the field of sustainability criteria for production, supply chain and application of bioenergy.

This includes terminology and aspects related to the sustainability (e.g. environmental, social and economic) of bioenergy

Work Groups in ISO/PC 248 Sustainability Criteria for Bioenergy”

WG 1 (NL) – Cross-cutting Issues

(incl terminology, traceability, comparability etc.)

WG 2 (US) – Green House Gases

(methodology; references ISO 14040, ISO 14044 LCA, ISO 14067 Carbon footprint)

WG 3 (SW+BR) – Principles, Criteria, Indicatorss

(environmental, economic and social aspects)

WG 4 (CA+AR+US) – Indirect Effects

ISO 1365 “Sustainability Criteria for Bioenergy”

- Proposed by Germany and Brazil (DIN/ABNT)
- Initial scope was biofuels but expanded to ‘bioenergy’ in 1st meeting (2009)
- 31 Participating national bodies
- 11 Additional “observer” national bodies
- 8 External Liaison Organizations
- 12 Internal ISO liaisons
- Reviewing comments on 2nd Committee Draft
- Target publication date mid-2015

Rules and guidance for development of the standard (Resolution 07/2010)

1. Principles, criteria and indicators shall be relevant to all economic operators.
2. We identify, where necessary develop, criteria and methodologies, not set threshold values or limits.
3. We use a science-based approach which translates in measurable results.
4. Principles, criteria and indicators should facilitate comparison among energy options, whenever possible.
5. Showing compliance with principles, criteria and indicators shall not be an undue administrative burden for society or the economic operator.
6. The standard development process shall ensure that flexibility and transparency are built into all sections of the standard.
7. Principles, criteria and indicators should be applicable across all forms of bioenergy.

Further guidance for development of the standard (Resolution 01/2011)

“Clarification on scope of ISO/PC 248

ISO/PC 248 agrees that ISO 13065 will be a process standard that provides sustainability principles, criteria and measurable indicators.

Compliance with ISO 13065 provides objective information for assessing sustainability but does not determine sustainability per se.”

Status

PC-248 process

- Iterative process
- Based on “consensus”
- US TAG substantive contributions made to 3 iterations thus far
 - Contributions to over 100 webinars in past 24 months
 - Prepared and submitted over 200 comments
- More iterations to come



US TAG: emphasize science-based approach

Expertise applied to draft criteria, methods and guidelines for GHG quantification



Scientific approach defined, promoted

- ✓ *Systematic methodology based on evidence*
- ✓ *Measurable, reproducible, verifiable*
- ✓ Clarify accounting for fossil and biogenic carbon
- ✓ Methods for detection of soil carbon change
- ✓ Life-cycle assessment methods

GHG Methodology

Built/improved upon TS 14067

**TECHNICAL
SPECIFICATION**

**ISO/TS
14067**

First edition
2013-05-15

**Greenhouse gases — Carbon footprint
of products — Requirements and
guidelines for quantification and
communication**

Specifies principles, requirements and guidelines for the quantification of the carbon footprint of a product (CFP), based on ISO 14040 and ISO 14044, and on environmental labels and declarations ISO 14020, ISO 14024 and ISO 14025 for communications

Indirect effects

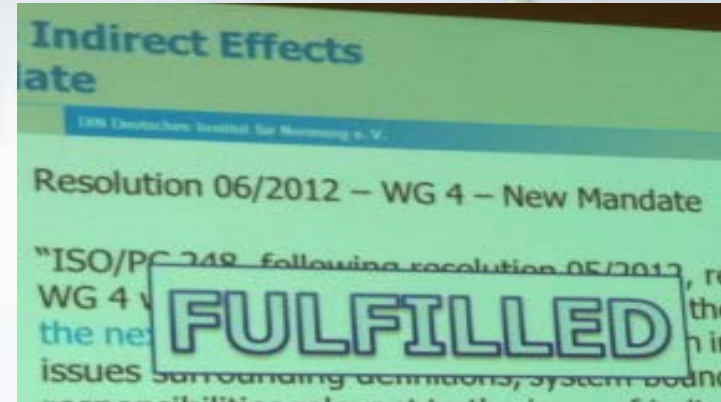
“State of the science on indirect effects” (WG 4):

Indirect land-use change and food security

- ILUC concerns; barrier to WG3 progress
- PC-248 required reports quickly

Literature review

- 80+ publications reviewed
- Lit review supported conclusions (WG4 report):
 - The science on indirect effects is nascent and evolving
 - Model results inconsistent, contradictory
 - WG report notes that state of science makes modeled ILUC incompatible with an International Standard designed for replicable results
 - Highly contentious



*The Standard considers the **measurable** effects that are under the control of the economic operator and **caused by** the process being analyzed**

To proceed to next stage:

Draft International Standard (DIS)

- Requires 2/3 favorable vote from PC
- Compromise and consensus to resolve contentious issues
- Consistent adherence to guidance and scope
- Avoid rehashing issues previously resolved
 - Challenges given time constraints, composition of PC and organization of Work Groups
- Proposals to clarify purpose/scope: not fully achieved
- Proposal for restructured standard: too big to tackle given time limits and committee/group composition

Issues

US Tech Advisory Group

“WARNING: the application of this standard is likely to decrease the sustainability of the process or products by adding cost, time burden and energy expenditures without making an improvement to the sustainability of the process under consideration.”

Some Committee Draft (CD2) language considered vague, over-emphasis on documentation requirements without science-based relevance to sustainability.

Issues: purpose and use of ISO 13065

US TAG letter expressed concerns regarding:

- Lack of clarity regarding intended use and common sense of purpose
- Three different approaches evident in draft:
 - Information requirements (documentation)
 - Performance requirements and best practices (management)
 - Reference for terminology and assessment methods (definitions, measurement methods)
- Document structure
- Subjective and ambiguous language
- Need for more relevant, science-based indicators
- Demands on biofuels: potential to distort energy markets

Scope/Purpose issues discussed Oct 2013

A proposed clarification, consistent with prior guidance:

ISO 13065 is a 'process standard.' What process exactly are we assessing? By providing sustainability principles, criteria and indicators, ISO 13065 is defining a process for assessing the relative sustainability of bioenergy across specific indicators, not the sustainability of the bioenergy production process.

Following the process specified in ISO 13065 will permit consistent assessment using specific criteria and indicators that are relevant to sustainability for a bioenergy production process.

However, the plenary was unable to reach consensus and a majority preferred a reporting paradigm (similar to current certification standards)

Plenary response to proposed clarification:

ISO 13065 will not prescribe specific methodologies for indicators (GHGs are apparently the exception).

ISO 13065 will describe:

- Information to be provided on sustainability aspects (Criteria and Indicators)
- How information is documented
 - E.g., “Yes/No” indicators
 - Requirements to describe procedures taken to... identify, assess and address potential effects
 - Focus is on “economic operator” scale
- Information provided is related to the bioenergy supply chain process

Next Steps

Path forward defined in Oct 2013 Plenary

- 836 comments on CD2 require review, revisions
- Target: distribute new version by April 2014
- Pre-enquiry: “up or down” vote to move to Draft International Standard (DIS) stage
 - No comments to be submitted with this vote
- If vote fails, shift to process for ISO Technical Specification (TS)
 - TS requires simple majority for approval
 - TS represents a prospective standard for provisional application in the field
 - Comments invited from users
 - Must be reviewed within 3 years
 - Review: could agree to extend, convert to DIS, or withdraw.

Challenges and Technical Needs

Sustainability assessment requires:

- accurate representations based on clear, consistent **definitions** for variables and conditions of concern: land attributes, management practices, baseline trends, change dynamics
- **causal analysis** that can be validated at multiple scales
- adequate empirical **data** to test models and hypotheses
- multi-disciplinary, multi-institutional **learning** and problem-solving mechanisms
- effective incentives for compliance and **continual improvement**
- ***lower transaction costs and higher value-added***

Discussion: Can standards and LCA promote more sustainable outcomes?

- Science-based assessment tools
- Generate comparable, quantitative results
- Provide useful information to guide users toward continual improvement
- LCA methods adapted to additional aspects of sustainability
 - Social
 - Economic
 - Other environmental (biodiversity...)

“Can certification ensure sustainability?”

No, because nothing can **ensure** sustainability and...

1. There are too many opportunities for substitution in biomass markets
2. Transaction costs for certification, monitoring and verification are too high relative to value of products
3. *Uncertainty*: is there political will and sufficient market premium to justify certification?
4. “Setting a bar” does not necessarily improve anything (e.g., wastes)
5. Even well-designed schemes can be too easily “gamed” and it only takes a few well-publicized cases to undermine credibility

Project site before PES:

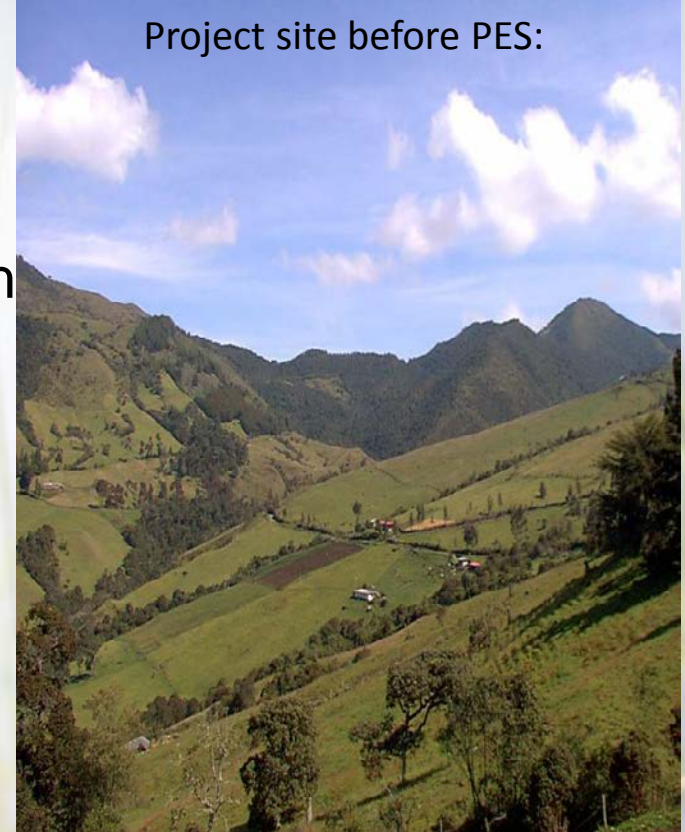


Photo: José Luis Gómez; Fondo Acción, Colombia

Can certification support more sustainable outcomes?

Yes, *if* it –

1. Is developed with users to meet their needs
2. Provides science-based tools that promote learning
3. Creates incentives that shift production toward more sustainable paths
4. Is adaptable to changing contexts and priorities
5. Encourages all to participate
6. Can be implemented on a level playing field
7. Is transparent and easily adopted.



Photo: José Luis Gómez; Fondo Acción, Colombia

Slide adapted from Kline presentation for IEA Joint Task 38-40-43 presentation on LUC:
<http://ieabioenergy-task38.org/workshops/campinas2011> also available on CBES website .

Thank you

Center for Bioenergy Sustainability

<http://www.ornl.gov/sci/ees/cbes/>

See the website for

- **Reports**
- **Forums**
- **Other presentations**
- **Recent publications**



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