

**Implementing Sustainability along
the Supply Chain
AIChE Spring Meeting**

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Implementing Sustainability along the Supply Chain

- Panel Presentations:
 - Challenges, approaches, tools / methodologies around implementing sustainable supply chains
- Q&A
- Discussion
 - Summary of Issues to address
 - Need for a collaborative community? Where to start?
- Next steps

Panelists

- **Paul Ayoub**, Shell Downstream Inc US, Project Implementation Manager and Biofuels Engineer
- **Ron Sizemore**, BASF, Procurement Manager
- **Paul Linzmeyer**, ISO2050, US Dept of Commerce rep. for OECD Sustainable Manufacturing and Eco-Innovation Committee
- **Jim Darr**, US EPA, Pollution Prevention and Toxics Division, Environmentally Preferable Purchasing Program, Chemist
- **Kelly Grant**, US EPA, Design for the Environment Program, AAAS Science Policy Fellow, Molecular Biologist

Sustainability Principles & Criteria: Common themes

▶ **Responsible business practices**

- Transparency
- Meet all laws
- Long term economic viability

▶ **Responsible labour conditions**

- Labour rights (no discrimination, no child or forced labour)
- Training
- Health and safety plan
- Freedom of association
- Fair salaries

▶ **Respect for land rights**

- Use of land is legitimate and not contested
- Does not affect customary rights without free, prior, informed consent

▶ **Responsible community relations**

- SD of local communities
- Complaints & grievance systems
- Negotiations can use local institutions
- Compensation for loss or damage

▶ **Establishment of new plantations or operations**

- EIA, SIA
- Prioritize degraded or already cleared land (RTRS, RSB)

▶ **Environmental responsibility**

- Prevent/minimize negative impacts
- Minimize pollution, waste & GHG emissions
- Avoid fire for waste disposal or land clearance

▶ **Responsible soil and water management**

- Maintain or improve quality
- Avoid soil erosion

▶ **Biodiversity**

- Maintain native vegetation in buffer zones
- Avoid HCV* habitats
- New plantations since Nov 05 have not replaced forest or HCV* habitats (RSPO)

▶ **Crop protection and responsible use of chemicals**

RSB also has:

- ▶ Must significantly contribute to GHG savings
- ▶ Not impair food security
- ▶ Conditions for GM

*HCV = High conservation value



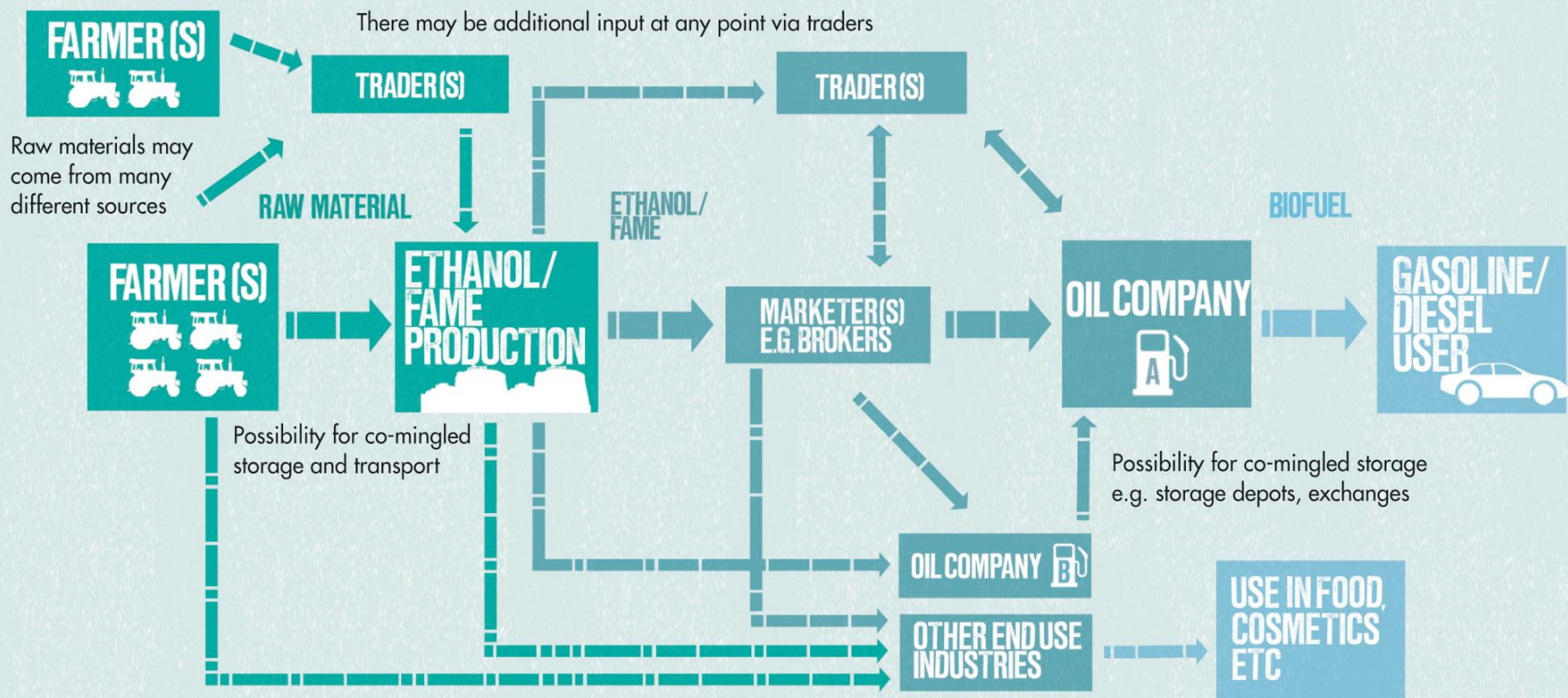
Sustainability: Supply chain issues and challenges

The basic supply chain for biofuels may appear straight forward.....



Sustainability: Supply chain issues and challenges

..... but the reality is more complex, with multiple players and combinations



Sustainability: Supply chain issues and challenges

▶ Long and complex supply chains

- chains may span the globe: bio-components purchased in one country may come originally from another
- for biodiesel, the chain becomes even more complex with additional steps such as seed crushing

▶ Limited source information

- particularly difficult to trace 'spot' contracts

▶ Traceability

- mixing is possible during storage and transportation at any point along the supply chain

▶ Many other end uses:

- Other end-use industries need to be involved to improve the sustainability of supply chains



Sustainability: Next steps

Our priorities moving forward:

▶ **Internal Governance**

- Further developing our compliance and reporting programme
- Evolving our policy and clauses in line with feedback and experience

▶ **Engaging our suppliers**

- Increasing supplier sign up to our clauses

▶ **Raising industry standards**

- Playing an active role in helping to formulate sustainability standards that cover all major raw materials
- Working with other experts



Measuring Sustainability

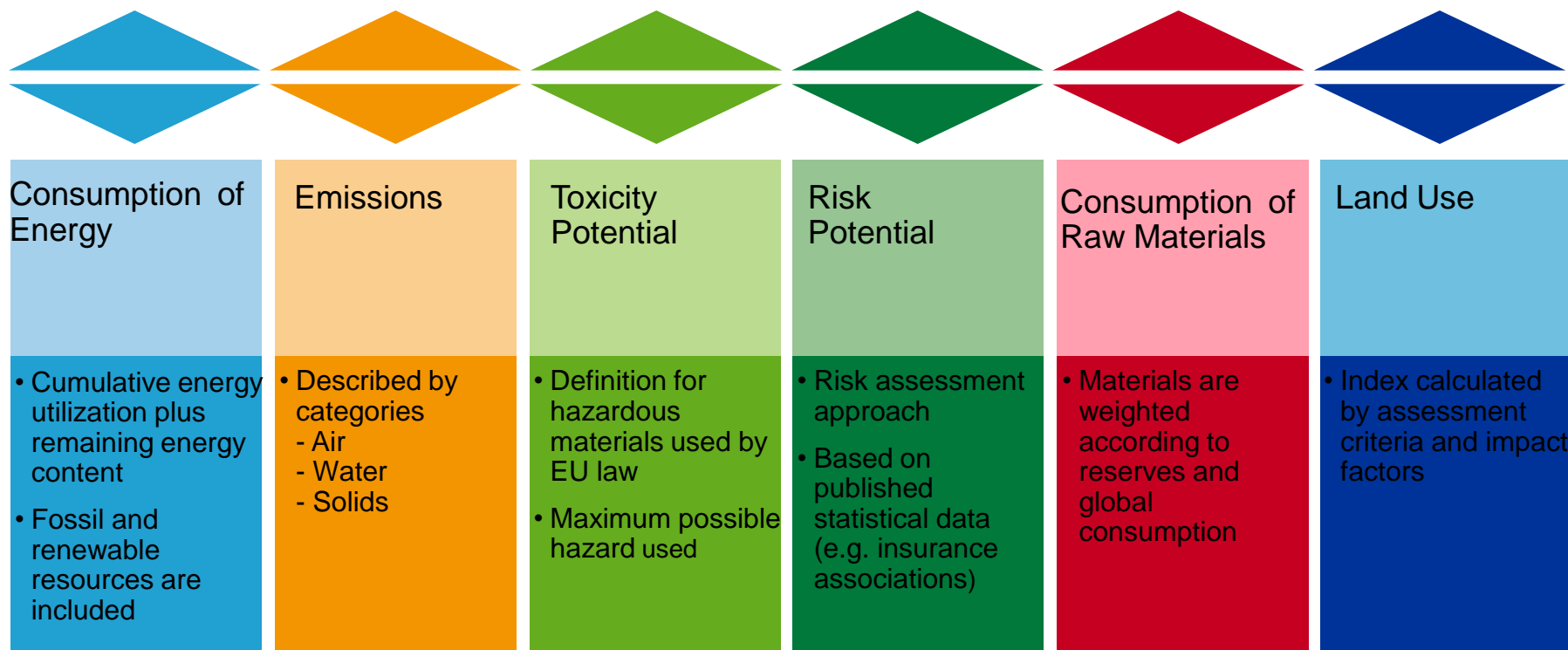


**“You can only manage
what you can measure”**
Peter Drucker

Being able to measure sustainability is critical to its
successful integration into business strategy

Environmental Categories

Environmental impact over the entire life cycle*



*Data acquisition and calculation is done according to ISO 14040 and 14044 (ecological part)

Sustainable Procurement

- 
- **Raw Materials**
 - Working with Business Groups and Product Stewards to find less toxic/harmful replacements
 - Screening Tool helpful
 - **Equipment**
 - Energy Efficiency part of TCO analysis (e.g. Servers)
 - **Services**
 - Suppliers charged with “Green” projects (Fleet, Janitorial, Uniforms)
 - Pre-qualification procedure now incorporates Sustainability questions

Also, hosted a Going Green Forum last summer with good results

Defining Green

- Multiple definitions, programs, and labels
 - single attribute vs multi-attribute
 - life cycle considerations
- Federal programs
 - Energy Star, Water Sense, CPG, DfE, BioPreferred

Defining Green, cont.

- Private ecolabel programs
 - LEED, Green Seal, Greenguard, Cradle to Cradle, SCS EPP, FSC
- Voluntary consensus standards
 - IEEE EPEAT, NSF carpet, BIFMA office furniture, ASTM building products

Sustainable Products Network (SPN)

- Ad hoc group drawn from major EPA program offices and regions
- Follow-up to EPA Innovation Action Council report “Everyday Choices: Opportunities for Environmental Stewardship”
- Response to requests from manufacturers, retailers, institutional purchasers for greater EPA role in addressing marketplace confusion and greenwashing

SPN Activities to Date

- Improved coordination of green product/service programs across the Agency
- Explore opportunities for “bundling” green product programs and tools
- Create opportunities for broader stakeholder dialogue, e.g. ANSI workshop
- Identify options for future EPA role in sustainable products

Challenges in Greening the Supply Chain

- Proprietary data
- Cost, technical obstacles, esp. for small businesses
- Interpretation of green claims
- Overlapping, conflicting demands on suppliers, e.g. multiple scorecards

Summary: Issues

- **Culture change / Mindset**
- **Partnerships / Collaboration**
- **Comprehensive Framework**
 - Environmental, Social and Economic
 - Products and/or Practices
 - Adaptability
 - Product type, company type, geography,
 - Continuous improvement – best-in-class adjustments
 - Weighting of factors

Summary: Issues

- **Criteria for “Green” and “Sustainable”**
 - Identifying categories of concern
 - Plethora of existing certifications, labeling programs, methods....
 - Single Attribute Labels: Energy Star...
 - Multi Attribute Labels / Certifications: Green Seal, DfE...
 - Environmental Product Declarations: LCA extensions
 - Relationship between sustainability quality and measurable effects: use of renewable energy and CC and Fossil Fuel Depletion, Safety criteria and eco-toxicity and human health
- **Costs vs Benefits along the chain**
- **Transparency**
 - Documentation / Data Availability
- **Verification / Validation**
- **Benchmarking**

Next Steps

- Engineering Founders Society Workshops:
 - Product performance – development of criteria for efficacy data (to be incorporated into DfE assessments)
 - Full cost accounting – to present rationale for pushing sustainability into supply chain and justifying costs of supplies relative to full cost of ownership along the chain
- Development of working group to develop standard criteria for assessing supplies/suppliers
 - Start with attendees and CSTP members, and ANSI person
 - Invite other consortium to present: Automotive Consortium, Confectionary Consortium, Pharma Supply Chain effort, etc.
- Distribute session presentations to wider AIChE audience