

## CCaLC workshop

Held on 7 May 2008 at Chemistry Innovation, Runcorn

### Feedback from the Breakout Sessions

This document provides a summary of the discussions in the breakout sessions held during the workshop as well as the agreed follow-up action points. This is followed by a transcript of the breakout discussions.

For a follow up to the workshop, please contact Dr Mike Pitts, Priority Manager at Chemistry Innovation on [mike.pitts@ciktn.co.uk](mailto:mike.pitts@ciktn.co.uk) or 01928 515501.

#### Summary

The workshop discussed various questions in the breakout sessions and overall there was a general agreement that there is a need for a carbon footprinting (CF). The following are the main conclusions related to the CF methodology and tool, respectively:

##### Methodology:

- The CF methodology and data need to be robust to stand up to scrutiny.
- The methodology needs to be flexible to allow for different questions and supply chains.
- The CF methodology should be synchronised at the international level.
- Further methodological developments are necessary, particularly for specific sectors and supply chains.
- Data variability, gaps and uncertainty should be addressed.

##### Carbon footprinting tool:

- The proposed three-level tools (from simple, through intermediate to advanced) was thought a good approach in the development of the CCaLC tool.
- The integration of value added and carbon added as well as the life cycle approach was thought to be a distinguishing feature from any other similar tools available.
- The proposed capability of the tool to ask what-if questions and optimise carbon footprints was considered a valuable feature of the tool.
- The CF tool would need to be simple and easy to use.
- The Level 1 tool should be tailored for non-specialists.
- The tool should be modular to allow flexibility.
- It should enable multiple sourcing of materials and energy.
- The results should be transparent and traceable and sensitivity analysis should be an integral part of the tool.
- The tool should be made available early to test and validate.

#### Follow-up and action points

The following has been agreed at the end of the workshop:

- The participants will consult in their respective organisations and will come back to Chemistry Innovation and/ or the CCaLC research team on whether they would like:
  - to become a project partner;
  - to contribute a case study – in which case they would get carbon a footprinting/LCA/value added study carried out by the CCaLC research team free of cost; and
  - to get involved in the project in any other way – e.g. become a member of the Steering Committee or advise the project on an ad-hoc basis.

The discussions in the breakout sessions are outlined below.

## **Breakout Session 1**

### **Aim:**

- To find out what are the user needs with respect to carbon footprinting in general and what might be the drivers and barriers

### **Discussion**

#### Group 1

1. Why carry out Carbon Footprinting (CF)?
  - Need for industry to understand the energy and emission profiles of products and processes. Methodology must take an holistic approach taking into account complete CF, full life cycle including product fate.
  - Market demand for CF and sustainability criteria is being passed down the supply creating issues and opportunities for suppliers.
  - Providing consumer information is important for some partners.
  - Need to have consistency in methodology for producing CF so competitors within a supply chain can judged on the same basis.
  - CF required for corporate reporting and corporate branding which has far-reaching affects even down to recruitment potential.
  - Analysing CF on its own is too narrow. Other environmental considerations need to taken into account such as water use.
  - Important to tie CF to economic considerations.
  - Industry needs a benching marking tool mainly for internal use.
2. What are barriers to CF?
  - The results of the CF calculations can be difficult to express and communicate. Single numbers can be too abstract but trying to communicate multiple results is difficult. Need layers of complexity in result reporting.
  - LCA methodology is complex and requires experienced operators.
  - The availability of data along the supply is seen as a major barrier and therefore it will be necessary to generate default data which can be swapped for specific data when available.
  - Needs to sell the idea to senior management, funding is less of an issue than resource allocation.

### 3. What are the needs from CF methods?

- The CF tool must be easy to manipulate and user friendly. The idea of a 3-level system of increasing complexity was well received.
- Model needs to be externally verified to generate market confidence.
- Model needs to take into account regional differences in supply chains
- Needs to work on an 80:20 rule to enable the user to address high impact areas.
- Economic considerations need to take into account all aspects of economics including carbon trading and any obligations (e.g. for renewable electricity).
- Methodology should be based on flow sheets to allow for complex integrated manufacture of multiple products.
- Methodology needs to allow for dual (multiple) sourcing of raw materials and energy.

### 4. How should CF tools develop?

- Data should be available for trade organisations such as the CIA and from European platforms.
- Methodology needs to be linked to methods/tools under development e.g. PAS2050 and the RTFO.
- Early versions of the tool need to be made available for trial and validation work.
- Tool needs to develop in a modular way to allow maximum use.

## Group 2

### 1. Why carry out Carbon Footprinting (CF)?

- Customers ask – retailers are asking what the CF of individual products are.
- Trade customers are the biggest drivers.
- NGOs drive industries such as electronics who now ask ‘how are you contributing to our CF?’
- Customers don’t know what they are asking for – need robust analysis to challenge the position of the pressure groups.
- Big industrial products with a poor public image can be shown to have beneficial impact in application and the argument needs making – e.g. HFCs.
- Consumer awareness – food miles versus carbon footprint debate.
- Water impacts are vital to consider (although this varies by region and carbon is a global issue)
- Use CF analysis to stay ahead of the wave – choices of technology informing and pre-empting legislation (e.g. VOCs in paints).
- Some areas such as packaging are much more market led and well ahead of legislation.
- CF legislation not planned currently but is part of the RTFO debate.
- Mitigation of risks – often heavily influenced by political aspects.

### 2. What are barriers to CF?

- Trust in the numbers
- Lack of data
- Collection of data along supply chains
  - requires ability to influence supplier
  - cost associated
  - differences with database figures
- Positioning of boundaries
- Uncertainties in ranges – averaging
- Values change over time with e.g. fluctuations on feedstocks

- Consistency of handling the data – hidden assumptions
  - The complexity of the process
  - Inter-company comparison
  - Business-to-business communication is different to public communication – ranges are expected/understood – consumer perhaps needs categories for ranges – c.f. ABC ratings for white goods
3. What are the needs from CF methods?
    - Compatible with EU/world standards
    - Harmonise data standards or at least make them more transparent
    - Applicability to the UK
    - Add value to planning applications – UK benefits
    - Help the balance of risk/reward/resource
  4. How do you perform CF currently?
    - Use energy as a proxy measure
    - Publish LCAs that are peer reviewed and/or externally verified
  5. How should CF tools develop in the future?
    - Analyse methods for reducing costs and CF – decide between approaches.
    - Understand and include waste disposal aspects – CF of recycling?
    - Waste is an evolving picture and tools should inform (and incorporate) new disposal and handling methods.
  6. What is the role of carbon trading?
    - Can credit be claimed for action to reduce emissions?
    - Different drivers than consumer issues
    - Depends on location in the supply chain
    - Not part of PAS2050
    - In the future potential for personal carbon ownership.

#### PAS2050 (overview)

- Lighter touch than LCA
- Based on ISO14044 so compatible with CCaLC
- Designed to ensure comparability between products
- Fast track standard – launch in Sept 2008
- Voluntary
- Linked to major EU and US standards
- Working through consultation issues now

## Breakout Session 2

### Aim:

- To find out the specific needs and issues for carbon footprint in the specific supply chains, including the features of the carbon footprinting tool to be developed within the project

### Sector/supply chain: Chemicals and related products

1. Specific issues / difficulties
  - Producer has no control over how their product is used by the consumer (e.g. paint); this can significantly affect carbon footprint / environmental impact (Improve by issue of standard usage + disposal procedures).
  - Equipment characteristics/usage e.g. start-up, shut-down and the general amortisation of overhead component of cost.
  - Allocation of, for example, electricity costs will be on a totally arbitrary bases. Need to develop, agree and adopt consistent methodology – to deliver meaningful comparison of output data and more specifically for analysis of value added.
  - Resistance to exchange proprietary information might limit the quality of data available.
2. What would you like to have in a carbon footprinting tool?
  - The production of a single 'figure of merit' that would provide meaningful comparison to industry average data.
  - 'Figure of merit' (FOM) would facilitate simple benchmarking for consumers / users and would act to influence purchasing decisions. For this to be effective the meaning of this FOM would need to be communicated effectively to the customer and highlight the benefit(s) to the customer (e.g. energy efficiency, durability of product, improved process efficiency, potential to recycle, re-use, dispose).
  - An analysis of the contributing data to this FOM (in user-accessible format e.g. pie chart) would be available to the producer, indicating contribution from energy, water, packaging, materials, manufacturing (and further split into usage, disposal, recycle?).
  - Need a measure of the product 'in-service' impact.
  - Internally within producer, detailed, complex data sets and analysis to facilitate prioritisation and decision making.
  - Tool to undertake detailed analysis of cost and value-added within the supply chain.
  - Facility to batch-load bespoke data.
  - Configure the tool to measure the impact of shifting processing variables (data history available to link cause and effect of shifting variables).
3. External accreditation?
  - Meaningful benchmarking can only be fully achieved with global adoption of tool.
  - Needs to align, where practicable, with the relevant standards.
  - Industry proven / case-studies / develop 'critical mass' to drive adoption.
  - Trade organisations? NGOs? Carbon Trust?

## **Sector/supply chain: Chemicals and Biofeedstocks**

1. Specific issues / difficulties
  - Poor availability of data along the supply chain.
  - The need to deal with 100's of products, especially for product formulators.
  - Single products often have a large number of uses and therefore not possible of a manufacturer to complete the full LCA.
  - Biomass feedstock CF vary considerably depending on region and also considerable debate about environmental considerations such as water and land use change.
2. How would this sector use the CCaLC tool?
  - To make comparisons between bio-based and fossil-based manufacturing across the full life cycle.
  - To aid decisions on whether to outsource (or where) or to keep manufacture in house.
  - To benchmark current process and products to direct improvement targets.
  - To look at the effect of process improvement e.g. yield increases or more energy efficient processes.
  - Tool (level 1) could be passed to suppliers to generate data.
  - Would identify gaps in data and knowledge in the supply chain.
3. What should the tool look like?
  - Needs to give an indication on the effect of sourcing feedstock from different global regions.
  - Needs to indicate the scale potential for a process
  - Indicate volume of available feedstock
  - Impact on available land
  - Would be useful if the result were placed into some form of context rather than abstract numbers.
  - The tool needs to be modular to allow different users to integrate feedstocks, process, product use, end of life or the full product life cycle.
  - The tool needs to include a large amount of default data, this data should be accompanied with:
    - A confidence value for the data
    - Be traceable
    - Allows sensitivity analysis
    - And result must transparent.
  - Tool should minimise the need for the user to perform unit conversions.
  - Level one should be usable by a non expert and can be used to identify key products and process hot spots.
  - Tool levels need to be readily linked to avoid multiple data entry when increasing in data complexity.
  - Tool should be able to accept input files and new data with maximum ease.
  - It was thought that the tool would need to be based on company servers rather than web based.
4. Concerns
  - System and data maintenance after the 30 month project completion.
  - The chemical industry is very broad and project may need to focus on a small area
  - Methodology would require some type of verification.
  - Could the tool be used to highlight potential social issues?

## **Sector/supply chain: Food and Drink**

1. Specific issues / difficulties
  - Transport of food often has associated transport of water and waste (e.g. pineapple) and this varies from country to country.
  - Societal impacts affect the sector heavily and may out-weigh the importance of the carbon impact.
  - Along the food supply chain, impact is roughly: agriculture: 40%/, manufacture: 10%, distribution: 10%, retail: 5%, use: 15%, disposal 20%.
  - Highest carbon impacts are cattle and waste to landfill
  - Main difficulty is obtaining data – particularly from sourcing and product use.
  - Attribution of impact in product use to the product CF – e.g. energy allocation from the store to an ambient product on the shelf.
  - Use of recycling – accurate CF of recycling process and knowledge of the recycle mixture.
  - Need to CF condiments – only used as part of a meal.
  
2. How would this sector use the CCaLC tool?
  - Understanding the impact of sourcing location.
  - Training and informing staff how choices affect impact (awareness raising).
  - Innovation – tackling hotspots at all parts of the supply chain (sourcing/process/packaging/use/waste) stepwise and holistically.
  - Strategy – shifting approaches (in say transport or sourcing strategy) to minimise hotspots; and phase out of products with a disproportionate impact versus value.
  
3. What should the tool look like?
  - Designed for the non-expert user (accountant or industrial engineer)
  - Simple and user friendly interface
  - What-if questions provide the power of the tool and need to be included at all levels