Product carbon footprinting - PCF

A review of voluntary standards and schemes that estimate and label the GHG emissions “embedded” in consumer goods and services

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What is a product carbon footprint?

- Information about the total amount of GHGs emitted during the life cycle of a good or service

- Grams CO2-eq. per unit of product

- Display of this information on packaging and websites – with other CC information

- Different from measurement of emissions “at source”

- Different from corporate and project level assessments
Life cycle analysis

• Dominant method for calculating the sum of GHG emissions from activities along the entire life cycle of a product

• From “Cradle-to-grave” or “Farm-to-fork” or “Field-to-Wheel”

Source: www.zespri.com

• PCF activities engages all value chain actors – in terms of data provision and GHG reduction efforts
The carbon footprint of a New Zealand kiwi fruit eaten in the 16ième arrondissement

Share of total GHG emissions

- Farming (orchard operations) 41%
- Packhouse and Coolstore operations 11%
- Shipping (boat and truck) 17%
- Repacking and retail 9%
- Consumption and disposal 22%

Data source: www.zespri.com

Total footprint: **1.74 kg CO2 Eq. per 1 kg of fruit**

No generally accepted methodology: the quality of calculations differs greatly and there is ample scope for manipulation
Consumer perceptions

- Do not think that manufacturers and retailers are genuinely committed to climate change mitigation

- **Want more information about the climate impact of products, but do not trust businesses to report such information accurately.**

- Would probably prefer carbon labelled products (and businesses) over comparable ones

- **But climate concerns are unlikely to dominate buying decisions, relative to price and quality factors**
What can PCF be used for?

- Help prioritise GHG reduction efforts along the entire supply chain
  - E.g. Zespri Kiwifruit is focusing reduction efforts at the orchard, packhouse, coolstore and transport stages

- Compare footprints of “similar” products delivered by different supply chains, to inform consumer choice (and sourcing)
  - Broccoli imported to Sweden from Ecuador have a lower PCF than those imported from Spain, due to higher carbon efficiency of production and transportation

- Compare the footprint of “similar” products with different attributes
  - The footprint of a 330 ml can of Coke is half the size of 330 ml delivered in a glass bottle (Coca cola PCFs)
(Continued)

- Basis for designating products as “carbon neutral” through offsetting what emissions cannot be reduced
  - E.g. the “Stop Climate Change” scheme in Germany
- Help consumers reduce their “personal” carbon footprint
  - “% of daily allowance”
- Help demonstrate corporate commitment to CC mitigation (CSR)
  - to customers (product differentiation, green marketing)
  - to (institutional) investors
  - to lawmakers (threatening to introduce harsh regulatory measures)
Emerging PCF schemes and standards

- Private organisations performing the calculation and display of carbon footprint information for products

- Scheme operators
  - Consultants and environmental NGOs (8 schemes)
  - Retailers and branded manufacturers (user operated, proprietary)

- 12 schemes worldwide, have “footprinted” > 3000 products

- First schemes appeared in 2007
PCF schemes – spread and coverage

- Small number of products footprinted to date
  - Between 1 and 70 products
  - Carbon Labelling Company: 2800 products since October 2008
  - Scheme users footprint selected products (‘pilot’ or ‘show case’)

- Mostly food and drinks, but varied product coverage
  - Bananas, orange juice, carpets, bank accounts, cell phones ...

- Country coverage: Canada, France, Germany, Switzerland, United Kingdom, United States (Japan, South Korea, Sweden, Thailand)
PCF schemes – standards and scope

- Use of publicised standards
  - 7 out of 12 schemes rely on published methodologies, but the quality and completeness of this documentation vary greatly
  - Most “complete” standard is the PAS 2050 (used by 2 schemes)

- Scope of product GHG assessments
  - Most involve “full” life cycle analysis, but precise boundary of the GHG calculation is often not clearly specified
  - No discrimination against products transported over long distances

→ Meaningful comparison of PCFs across schemes is not possible
PCF Schemes – kind of certification

- Additional climate-change criteria
  - Commitment to reducing PCF over specified period (5 schemes)
  - Incentives or pressures to reduce PCF (2 schemes)
  - Commitment to reducing corporate-level emissions (3 schemes)
  - Carbon neutrality through the purchase of carbon credits (2 schemes)
PCF Schemes – conformity assessment

- All operators certify products to their “own” standard (disincentive to tightening the standard)

- Few schemes live up to consumers’ preference for 3rd party verification of PCFs (and other climate claims)
  - Independent, 3rd party verification of the PCFs (4 schemes)
  - Verification by scheme operator (6 schemes)
  - Self-verification by scheme user (3 proprietary schemes)

- A general lack of clarity and transparency in this area
PCF Schemes - display of carbon information

Actual value

Claim
Concluding observations

- Rising number of schemes and labelled products, but still at a very small scale. No clear trend.
- Little involvement of national governments and international organisations
- Great diversity in PCF approaches, but this is normal when standards emerge in a new area
- PCF does not appear to create market access barriers for producers in developing or distant countries
- But cost and capacity issues may disadvantage developing countries if and when PCF is adopted on a wider scale
Issues for research and policy

• Research
  • How might PCF, if scaled up, contribute to CC mitigation in non-energy intensive sectors? What would be the trade and market access issues? Would it support or contradict other (regulatory) measures?
  • What are the costs of conformity and certification?
  • How is verification carried out in practice? What systems are “best”?
  • How can the rigour and cost-effectiveness of LCAs be improved upon?

• Policy
  • Support international standards development?
  • Introduce mandatory carbon labelling?
  • Improve capacity to carry out complex GHG assessments for products?