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VEIL Project Title:

Best Practice Food Distribution Systems

EXECUTIVE SUMMARY

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Best Practice Food Distribution Systems

Executive summary

The objectives of the project “Best Practice Food Distribution Systems” were:

- a) To identify, describe and analyse novel food distribution systems, including examples of urban, local and regional chains; government led and self-regulatory approaches; and supermarket-led initiatives.
- b) To analyse the patterns, motivations and trends in the development and implementation of novel food distribution systems.
- c) To provide an overview of the barriers and opportunities for the application of novel food distribution systems to reduce greenhouse gas emissions in Australia and Victoria.

Context: To provide context for this work, a review was undertaken of the contribution of food supply chains to greenhouse gas emissions; the factors influencing emissions; and how they are measured. Key findings from this review include:

- The global footprint of logistics and transport is 2,800 Mt CO₂-e per year, or 5.5% of the total annual GHG emissions generated by human activity. Road freight contributes around 57% of the total, followed by ocean freight (17%).
- It is now clear that ‘food miles’ cannot be used as a sole indicator of the environmental impact of food supply chains. More local sourcing can greatly reduce the distance travelled by food, but the reduction in transport impacts may be offset by the use of smaller vehicles, lower load factors, or differences in production efficiency.
- International comparisons are difficult. For example, while about half of all vegetables and 95% of all fruit consumed in the UK are imported, Australia imports 30% and 4.2% of all processed and fresh fruit and vegetables consumed, respectively.
- For meat and dairy products the carbon footprint is dominated by primary production, but for non- or minimally processed foods grown outside (such as many fruit and vegetables), absolute differences in primary production impact are small relative to storage and transport impacts.
- The carbon footprint of Australian vegetables production and marketing ranges from 7.4 and 8.5 Mt CO₂-e. Transport (including refrigerated and non-refrigerated) represents 15-17% of this figure.
- In the calculation of carbon footprints, the excessive simplification of distribution activities can underestimate logistics emissions by about 30%.

Investigation: To investigate best practice food distribution systems, a framework of analysis was developed, according to the supply chain player taking a leadership role to decrease food distribution carbon footprints. On this basis, five initiative categories were detected:

- a) Farmers and consumers.
- b) Food retailers.

- c) Food manufacturers and marketers.
- d) Third party logistics providers.
- e) Local councils, State and Federal Governments.

A large number of initiatives were found to fit under these categories. From these, 38 were selected for an in-depth review, including the following aspects:

1. Organisational structure: country, scale (*e.g.* national, global), annual revenue (when the information was available) and type of organisation (*e.g.* non-profit, policy maker, company).
2. Supply chain relations; role in the chain (*e.g.* marketer, manufacturer, farmer), the sharing of risk among supply chain partners (risk structure), distribution links, sourcing strategy (*e.g.* national, local, seasonal), type of fuel used and type of commerce platform used.
3. Mission statements: GHG emissions, vulnerability, fair trade, cost efficiency.

The key results for each type of category are summarised below.

FARMER AND CONSUMER-LED (F&CL) INITIATIVES

- The type of initiatives considered as F&CL include: farmers' markets; marketing cooperatives; community supported agriculture direct and online sales hubs.
- F&CL systems can: (1) promote shorter distances between producers and consumers; (2) promote seasonal sourcing; (3) engage with small, niche farms; (4) implement food purchasing venues (*e.g.* cooperatives, farmers markets); (5) show a commitment to the social, economic and environmental dimensions of sustainable food chains; and (6) promote fair trade.
- Motivations for F&CL initiatives include: the emergence of consumers' concerns on food carbon footprints; social and geographical population trends; power imbalance in food chains and the perception that farmers are not been fairly rewarded in retail chains, among others.
- Challenges for F&CL initiatives include: the varying definition of what "local food" means; the willingness of consumers to eat seasonally and the lack of certification processes for environmental food production and distribution.
- Opportunities include: using localisation as a strategy to reduce distances traveled by food and time in storage; marketing of products that do not reach the quality standards of supermarket chains; increasing communal gardens or organised cooperation with farmers in CSA schemes; and distribution of produce from urban agriculture in vertical farms, urban greenhouses and rooftops.
- Innovative concepts based on the principles of farmers' market could become the future distribution models for fresh produce in urban centres. Examples of concepts for future Farmers' Markets include Farms on Wheels, Hydroponic Farmers' Markets and the Urban Field Farm Stop, which uses existing channels of mass transit and bus stops to sell produce in cities.

RETAILER-LED INITIATIVES

- The direct and indirect GHG emissions of global retailers are significant. For example, Wal-Mart estimates that their total global GHG emissions are 210 Mt CO₂-e per year, including the activities developed by their suppliers (*i.e.* Scope 1, Scope 2 and Scope 3 activities).
- In Australia, Woolworths estimates that their total global GHG emissions are 85.3 Mt CO₂-e per year, including the activities of their suppliers. This represents 13% of Australia's direct and indirect GHG emissions.
- Motivations for retail-led initiatives include: cost reduction; the effects of drought and severe weather events on retailers' suppliers; and regulatory concerns on future carbon pollution reduction measures.
- Challenges for retail-led initiatives include: financial payback of low carbon transport technologies; inconsistent national and international approaches to carbon reduction targets; and a lack of trust and transparency in the retail supply chain.
- Opportunities include: the use of private label and category management as platforms for vertical integration of environmental distribution initiatives; the use of local sourcing strategies to appeal to environmentally conscious consumers; collaborative initiatives between retailers and suppliers to optimize distribution networks; and developing formats (*e.g.* store size) and delivery systems that reduce emissions from consumer trips.
- Innovative concepts can also be driven in other commercial areas where retailers have influence. For example, in financial services, restaurants, liquor and petrol stores.

GLOBAL MANUFACTURER-LED INITIATIVES

- Global manufacturers are exposed to regulatory risks and costs through mechanisms/policies that affect the entire value chain, including raw material production (*e.g.* biofuels policies), transportation, product design and use and consumer habits.
- Motivations for manufacturer-led initiatives include: cost reduction; exposure to regulatory risks (as abovementioned); the initiatives undertaken by their major buyers (supermarkets) and consumer drivers.
- Challenges for manufacturer-led initiatives include: the lack of a clear business case for sustainable distribution that encompasses financial, environmental and social aspects; uncertainty in the introduction of global carbon reduction targets and policy instruments (and how they will be applied at international borders); and the use of global procurement, which increases resilience to variability in supply of raw materials but imposes a significant carbon footprint in the supply chain.
- The strongest opportunity lies in the implementation of sustainable distribution strategies with third-party logistics providers (3PLs), retailers, suppliers and even other manufacturers.
- The cumulative GHG emissions in Scope 1 and 2 activities by seven major global manufacturers investigated in this report amounts to 24.3 Mt CO₂-e per year. The global reach of large food manufacturers means that their potential to achieve reductions in GHG emissions is large. For example, a commitment of 20% reduction in GHG emissions by these seven manufacturers amounts to 4.9 Mt CO₂-e per year.

LOGISTICS-LED INITIATIVES

- Reduction in oil dependency can substantially reduce operating expenses in the transport sector, where energy purchases can range from 5 to 35% of the total cost base. In Australia, 30% of the costs during long distance road freight transport are fuel related.
- Motivations for logistics-led initiatives include: cost reduction, regulatory drivers, and the alignment of 3PLs with their client's initiatives, including sustainable distribution.
- Challenges for these initiatives include: economic factors (*e.g.* global economic volatility); the state and availability of road, sea and rail infrastructure (which are factors outside the control of logistics providers); and uncertainty in the introduction of global carbon reduction targets and policy instruments.
- Opportunities include: improving the efficiency of road vehicles in their day-to-day operation; reducing speed in shipping vessels and road freight vehicles and the re-design of distribution networks, among others. The cumulative global potential GHG emissions abatement through these three opportunities is estimated in 470 Mt CO₂-e per year.
- A key lesson is that different measures are needed to decrease the impacts of transportation. For example, the combination of transport modes, fuels and methods of transportation is more effective than one single measure.

GOVERNMENT-LED INITIATIVES

- Food distribution has social, environmental and economic impacts. It is a cross-cutting issue that needs a holistic approach to be properly dealt with, and "triple bottom line" indicators.
- Motivations for Government-led initiatives include: growing public awareness and higher expectations for environmental leadership; the Government's commitment to decrease Australia's carbon footprint, in accordance to the Kyoto protocol and a yet-to-be-agreed international target on carbon reductions; and the strong social and business case to integrate sustainable food distribution at local, state and national levels.
- Challenges include the low traction that food distribution issues have in the political and policy agenda; the complexity of food systems; and a tendency to focus on food export rather than domestic channels.
- Opportunities include government-industry collaborative efforts that can contribute to policies that align better to the realities of commercial enterprises; the use of government procurement systems to drive sustainable food distribution; and the potential developments of programs to support F&CL initiatives, such as farmers' markets and local food initiatives.

This report highlights a wide range of alternatives that can help to decrease GHG emissions derived from food distribution systems. Rather than advocating for a unique approach to be used to drive emissions out of food supply chains, this report shows that each player in the chain can have a significant role in developing sustainable food distribution systems in a local, national and international level. Similarly, there are opportunities for players in each category to learn from and develop ideas from the others. The opportunities for abatement, and the creation of more resilient and sustainable supply chains, are significant.

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