

Measuring carbon dioxide emissions in Turin (Italy)

School catering represents a significant part of the procurement budget for the City of Turin. On average 8 million meals are delivered each year, with an annual cost of approximately 40 million EUR. The school catering services present an opportunity to educate children on sustainability policies, as the Turin school system (kindergarten and primary schools) includes approximately 71,500 children aged 0-13 years. Taking into consideration the teachers and families of these children, between 230-250,000 citizens are affected by the school catering services.



The current contract

The current school catering service contract began in September 2013 and will run until August 2016 with the possibility of extension for a further two years. It contains a number of measures aimed at making the catering service more sustainable. These include the purchase of energy efficient appliances for schools, use of tap water, transportation using vehicles with a low environmental impact and a significant reduction in packaging and waste.

Additional criteria used to lessen other sustainability impacts associated with the catering contract include requiring the use of ecological cleaning products and awarding points for bidders offering a wider range of organic or fair trade products than were specifically requested.

A targeted approach

The City of Turin wanted to gain a better understanding of what levels of greenhouse gas emissions (GHG) were produced at different stages of the food procurement process in order to build on its current sustainability measures with targeted efforts in future contracts. A detailed study was therefore commissioned from the University of Turin to look into the carbon footprint of the catering system in more depth.

As emissions vary greatly between different products, the university chose to focus on five of the most commonly consumed foods (potatoes, carrots, apples, pears and peaches). They also narrowed their analysis to measure just carbon dioxide emissions in the first instance, in order to avoid over-complication.

A clear difference

A life-cycle assessment analysis was used to see how much CO₂ was produced for each food product at different stages of the supply chain. Production processes accounted for



between 50% and 75% of the total carbon footprint of these five products, revealing the significance of agricultural practices. In fact, during the school year 2013/2014, the requirement to provide food from integrated and organic production resulted in a reduction of 66.1 tCO₂ equivalent (approximately -26% of the carbon footprint of the whole supply chain of these five products) compared with providing the same amount of food from conventional agricultural systems.

Transportation of these five foods from the farm gate to the table accounted for between 25% and 50% of the carbon footprint and, interestingly, emissions from the site of production to the city hubs were in all five cases less than 10% of the carbon footprint. On the other hand, urban transportation accounted for between 20% and 40% of the carbon footprint.

What next?

These results showed that, in the case of Turin, production practices and urban transportation are two parts of the supply chain where there is a good deal of potential for significant reductions in GHG emissions. The city is using these results to put together official guidelines for eco-innovative procurement of school catering service in Turin, which will be adopted by the local government and used in future procurement contracts.

