

## Tracking the Environmental Footprint of Business Activities

[Corina Ionescu](#)

In Australia, large organisations are required to report their direct, Scope 1, and indirect, Scope 2, Green-House Gas (GHG) emissions annually through the National Government Emissions Reporting Scheme ([NGERS](#)). These organisations must therefore find the resources and means to measure these aspects of their Environmental Footprint. SMEs are not yet required to report to NGERS and most do not have the knowledge and resources to do it. Many, however, would like to know more about their environmental impact and how they can reduce it in simple, cost-effective ways.

In the last several years, more and more businesses have started to embrace the concept of green business activities. While there is information on the carbon emissions and energy consumption of things (cars, computers, equipment, etc.), there is little information regarding the carbon emission released into the environment or the energy consumption per business activity.

My Masters (research) project concerns the design of a freely available online information system that will enable managers of Small and Medium Enterprises (SMEs) to determine and track the contributions to their Environmental Footprint of their various business ‘activities’. There are many online ‘carbon calculators’ that can help people estimate the amount of GHG or carbon emissions associated with ‘things’ such as vehicles for transport, plant equipment of all kinds, office equipment and so on. These are either direct emissions, e.g. truck exhaust, or indirect emissions due to equipment that uses electric energy from non-renewable sources. Businesses can take steps to be more environmentally responsible by reducing their use of ‘things’ that pollute the environment or by choosing equipment that is more environmentally friendly; but this will only get them so far. Further gains need a more holistic approach that looks at different ways of doing things. This project takes an approach that estimates the GHG emissions of whole ‘business activities’ rather than individual ‘things’. The research behind the project logically uses ideas from Activity Theory, described elsewhere in this book.

The first step in this undertaking was supported by the University’s Social Innovation Network and involved the setting up of a knowledge repository in the form of a Carbon Wiki in an attempt to ‘crowd source’ data on the Carbon Footprint of activities. My project was initially an extension to the Carbon Wiki and sought to understand what would be needed to develop a Dashboard interface to this repository that would allow managers of SMEs to easily extract and manipulate data in the wiki that related to their business activities.

My project began by developing typical profiles of a business in each industry sector, identifying their typical, regular business activities. For example, restaurant business activities comprise preparing meals, serving customers, placing orders, cleaning up, etc. as well as office work, which means maintaining an office. These activities vary with the type of restaurant, the locations, e.g. whether heating or air-conditioning was needed, etc. A generic list of restaurant activities that have substantial environmental footprint was produced (Figure 1). More specific templates were designed to help structure the dashboard for each types of business and support the user experience, following a scenario that allowed the user to select their type of business then find entries in the wiki that were similar to theirs – e.g., a small restaurant in a cold climate that used electrical equipment produced from a non-renewable supply. A dashboard would then be provided where the user could enter an estimate of the number of customers per day and other relevant variables.

<b>Generic Activities</b>
<b>Production Goods and Services</b>
Manufacture goods
provide service
<b>Resource Storage and Transport</b>
Procurement
Transport and delivery
Warehouse activities
<b>ICT and technology</b>
Server management, network /email
Device lifecycle management
<b>Administration</b>
Maintain offices
Heating and Cooling
<b>Maintenance</b>
buildings and grounds
equipment
vehicles
security
cleaning
<b>Research and Development</b>
events
training
catering
<b>Marketing</b>

**Figure 1.** Typical business activities on which templates for specific industries are based

At this stage, we realised that it would help if data entry into the Carbon wiki was more standardised so that the data it contained would better support the dashboard. Forms were designed for data entry in the Carbon wiki that asked the user for specific items. To begin with, all data entered would estimate the environmental footprint in standard CO<sub>2</sub> equivalents (CO<sub>2</sub>e). Other data was then structured according to type. For example, if someone was entering an estimate for the activity of heating a room they would be asked to do so in terms of the CO<sub>2</sub>e of heating 1 cubic meter perh 1 degree centigrade. There may be several entries in the Carbon wiki for this and the user could then choose which one seemed most appropriate and reasonable. This would only be an estimate.

These forms were designed and implemented in the Wiki (see Figure 2).

The screenshot shows a web browser window titled "Create FormSpaceHeating: Special pages - CarbonWiki". The address bar shows the URL: "http://www.bsl.uon.edu.au/carbon\_wiki/index.php/Special:FormEdit/FormSpaceHeating/Special\_pages". The page content includes a navigation menu on the left with links like "Main Page", "Community portal", "Current events", and "Help". The main form area is titled "special page" and "Create FormSpaceHeating: Special pages". It contains several input fields: "Contributor:", "Country:", "City:", "Today's Date:" (with a dropdown for "August" and "2013"), "Heater Type:", "Carbon(CO2e):", "Volume Unit:" (dropdown), "Temperature Unit:" (dropdown), and "Time Unit:" (dropdown). There is a large text area for "Other Information:". Below this is a "Summary:" field and two checkboxes: "This is a minor edit" and "Watch this page". At the bottom of the form are buttons for "Save page", "Show preview", "Show changes", and "Cancel". The footer of the page includes links for "Privacy policy", "About CarbonWiki", and "Disclaimers", along with a "Powered by MediaWiki" logo.

Figure 2. An example of a form for data entry into the Carbon Wiki

The project is ongoing. To increase the amount of data in the wiki there are plans to stimulate this through some student projects. The development of the dashboards themselves is outside the scope of my current project and is still to be done.