A3. ASSESSING CO2 EMISSIONS FROM PROCUREMENT – QUANTIFYING THE CARBON FOOTPRINT OF OUR PURCHASING ACTIONS

MESURING CO2 SAVINGS THROUGH BUYING RECYCLED PRODUCTS

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ORGANISATION

The Waste Agency of Catalonia (the new name for the Junta Residus following the publication of Law 15/2003 of 13th June), is an entity of public law regulated by article 1.b of legislative decree 2/2002 of 24th December, which approves the rewritten text of Law 4/1985 of 29th March concerning the statute of Catalan public companies.

The Waste Agency of Catalonia is competent concerning waste generated in Catalonia and the waste managed in its territorial area, albeit industrial, municipal, health care, or agricultural, with the exception of radioactive waste, waste from mining activities, waste from agricultural and stockbreeding operations that are not dangerous and are used only within the framework of the agricultural operation, declassified explosives, those managed as waste water and gas effluents.

In order to improve the quality of life for citizens in Catalonia and to protect the environment, the main objectives of the Waste Agency of Catalonia are:

- to promote the minimisation of waste and their danger
- to nurture selective waste collection
- waste evaluation
- refuse disposal
- the recovery of spaces and soils deteriorated by the uncontrolled unloading of waste or by pollutants

EXECUTIVE SUMMARY:

This study employs LCA methodology with the purpose of estimate the CO_2 savings resulting from the use of recycled material in selected products (office items, urban furniture, floorings) that are available in the "Buy Recycled" Network of the Waste Agency of Catalonia.

ABSTRACT

Introduction

This study is focused on the estimate of the CO_2 savings that result from the use of recycled material in selected products that are available in the "Buy Recycled" Network of the Catalonian Waste Management Agency. This network includes more than 280 products that meet at least one of the following sustainability requirements:

- must contain recycled material
- must be recyclable
- must be compostable.

The aim of the network is to help producers, retailers and potential customers present and promote their products and encourage their procurement, both for public and private purposes.
In order to evaluate the potential environmental benefit of using the products from the catalogue in terms of CO_2 emissions savings, we commissioned an LCA analysis of the most representative items, which contain common materials such as plastics (PE, PET, PVC, PP,..), steel, aluminium, paper, cardboard and gravel.

Objectives
The overall objectives of the project can be summarised as follows:
1) To evaluate the CO_2 savings resulting from producing the same items using partially recycled materials (real case scenario) instead of only primary materials (worst case scenario).
2) To use the study as a communication tool, in order to promote products made from recycled materials and thereby also spur producers to use more and more secondary materials.
3) As a long-term objective: to encourage sorted waste collection and encourage the local transformation of recovered materials as a potential resource.
4) To establish an easy and user-friendly marketing tool to calculate potential CO_2 savings through the use of recycled materials for potential products. Producers will thus have an additional criterion to promote their products among environmentally sensitive purchasers.

Methodology
The study has been carried out using the Life Cycle Assessment methodological framework. Life Cycle Assessment (LCA) is an internationally standardised methodology (ISO 14040 series) that helps quantify the resources consumed and the potential environmental impacts of goods and services (products). The entire life cycle is taken into account, including the provision of raw materials, energy, as well as the end-of-life stages.
The LCA analysis carried out within this project consists of the following steps:
• Goal and scope definition: defines the goal and intended use of the LCA, and scopes the assessment concerning system boundaries, function and flow, required data quality, technology and assessment parameters.
The following products have been analysed:
- office items: paper and folders made of recycled paper and cardboard;
- public furniture: bins, traffic separators and benches made of recycled plastic;
- office furniture: office chair and shelves made of metal (steel and aluminum) and plastic (PE, PA and PP);
- construction materials: crushed gravel from building demolition;
- rubber floors made from sorted plastic mix, for playground covers.
As regards impact assessment, the scope of this specific project has been restricted to only include climate change as impact category, the corresponding indicator of Global Warming Potential (GWP) being measured in terms of kg of CO_2 equivalent emissions.
• Life Cycle Inventory analysis (LCI): the collection of data on inputs (resources and intermediate products) and outputs (emissions, wastes) for all the processes in the product system.
Data collection has been carried out using producer specific data for each product (specific questionnaires and interviews were set up in order to simplify the data

collection). Product manufacturing and end of life have been assumed to be the same for both scenarios, and therefore excluded from the comparison. Primary materials are assumed to be sourced from typical international suppliers, while recycling facilities are assumed to be local.

- Life Cycle Impact Assessment (LCIA): the translation of inventory data on inputs and outputs into indicators of the product system's potential impacts on the environment, on human health, and on the availability of natural resources.

As already mentioned, this project has been specifically targeted at evaluating the potential CO_2 savings, expressed as a differential GWP indicator.

- Interpretation of the LCI and LCIA results according to the goal of the study, and sensitivity and uncertainty analyses to qualify the results and conclusions.

Results

Results for all analyzed products are quite positive, meaning that considerable CO_2 savings have been highlighted when comparing the use of recycled materials (real case scenario) to primary materials (worst case scenario). This seems to equally apply to very simple, single-component products (e.g. gravel), as well as to more complex products which are composed of several different materials, only a fraction of which are recycled (e.g. office chair). The only products for which the savings were comparatively more moderate (but still positive) were those entirely made of cellulosic materials (paper and cardboard), because of the relatively large energy intensity of their recycling processes.

Conclusions and outlook

This study represents a first attempt at measuring the CO_2 savings for green public procurement products and needs to be considered considering the restrictions mentioned above.

Future developments of the study may include extending the analysis to all the products already available in the Network catalogue, as well as broadening the scope to include all the main environmental impact categories besides climate change.

Resumé

Laura Fabregó earned her degree in Environmental Science from the Autonomous University of Barcelona (UAB), later going on to complete various courses and postgraduate programmes in waste management. Since 2002 she has worked as a technical expert at the Catalan Centre for Recycling of the Waste Agency of Catalonia. Prior to that, she worked as project director at various private consulting firms in Catalonia, among them the well-known Institut Cerdà.

RECOMMENDED READING:

-GaBi software- Professional DataBase. http://www.gabi-software.com/

- Hem consultat també la pàgina de European Platform of LCA: http://lca.jrc.ec.europa.eu/EPLCA/index.htm