

Summary: Environmental monitoring tools

C2 Action

Document type: Deliverable C2 summary

ecoRaee



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C2 action summary:

The aim of this action is to verify the environmental impact of the project with respect to the main criteria of environmental impact: savings, efficiency, emission reduction; monitoring the environmental impact of the project through software which allows close tracking of the demonstration processes, registering the data accumulated every day on each of the inventory lines and on products and sub-products.

This software is further backed by an application which, based on the results obtained from the LCA and the collected data, calculates the proportionality corresponding to each unit from the inventory and product in terms of environmental impact.

It takes data from a procurement matrix provided by the demonstrations, transferring it to the parameters established for the comparative LCA and to others defined for easier, more rational dissemination by a web user who is not familiar with the material.

The objectives attained until now included the construction of a model for obtaining data to supply website software based on the first outline of the LCA calculation model. Using SimaPro software, we have calculated the characterisation factors of the impact to be taken into consideration, its conversion to intuitive units and single scoring, providing information on the weight contribution for each category. These factors have meant that the processed mass can be turned into the environmental impact sample for Revertia and duly monitored.

The results show the environmental benefit of the reuse process. The methodology applied when making Life-Cycle Impact Assessments (LCIA), providing information on and allowing us to assess the scope and significance of the potential impact of the system, is known as ReCiPe. It combines the solid scientific approach of the CML2001 method and the ease of interpretation offered by Eco-Indicator 99, permitting the contribution level for each environmental impact category to be obtained and a total single score calculated to show the system's environmental impact. The application of these criteria allows us to select the six impact categories which will have the greatest repercussion and which will be represented on the website software. The six impact categories to represent the website results are then selected:

- Fuel exhaustion
- Human toxicity
- Climate change
- Particulate formation
- Mineral exhaustion
- Ionising radiation

A document of technical conditions has been drawn up, setting out the technical requirements and functionality of the data treatment and visualisation software within a website environment, allowing regular automatic handling of series of numerical data which can be viewed in a graphic, intelligible manner by the general public on the project's official website. Finally, Discalis has been selected as the company responsible for programming the software.

Website programming is currently integrated within <http://www.life-ecoraee.eu/es/> making it possible to automatically and regularly treat the numerical data facilitated by each of the examples, through operations that allow the general public to visualise the environmental benefits obtained from each of the four examples, graphically and in an understandable way. The tool is designed to read the input values from the data sheets that each of the example overseers upload on a regular basis to a private area on the website, making the calculations that allow data to be visualised and exported (input parameters, results and accumulated values).

Accessing the *Examples* option on the main menu of the project website will bring up the graphic summary of the data accumulated in each of the examples. Default website access is in Spanish, although public sections can also be seen in English through the overall website language selection on the project's current website.

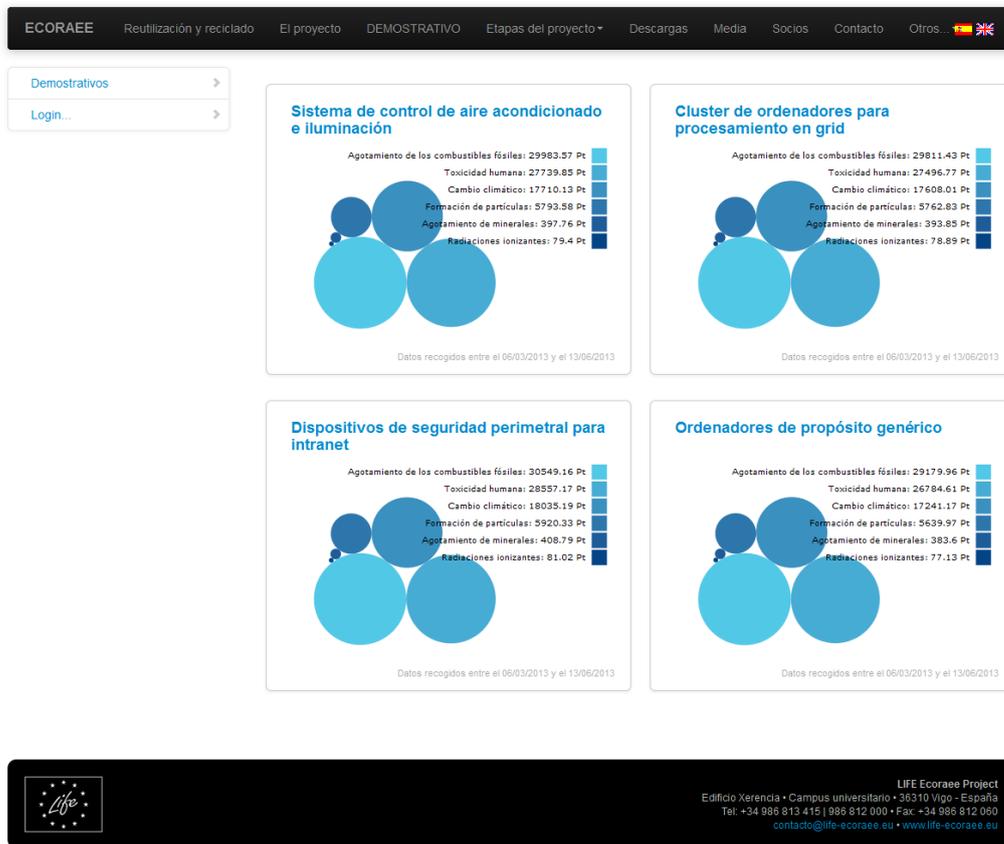


Figure 1. Main software screen showing the bubble chart for all examples (Language selection - Spanish)

Environmental benefits are shown in two types of graph. The first of these - bubble charts - represent the accumulated values for each of the examples and each of the categories of impact selected. The second type - line charts - allow us to simultaneously represent the evolution of the two parameters to be chosen by the user in relation to a determined period of time.

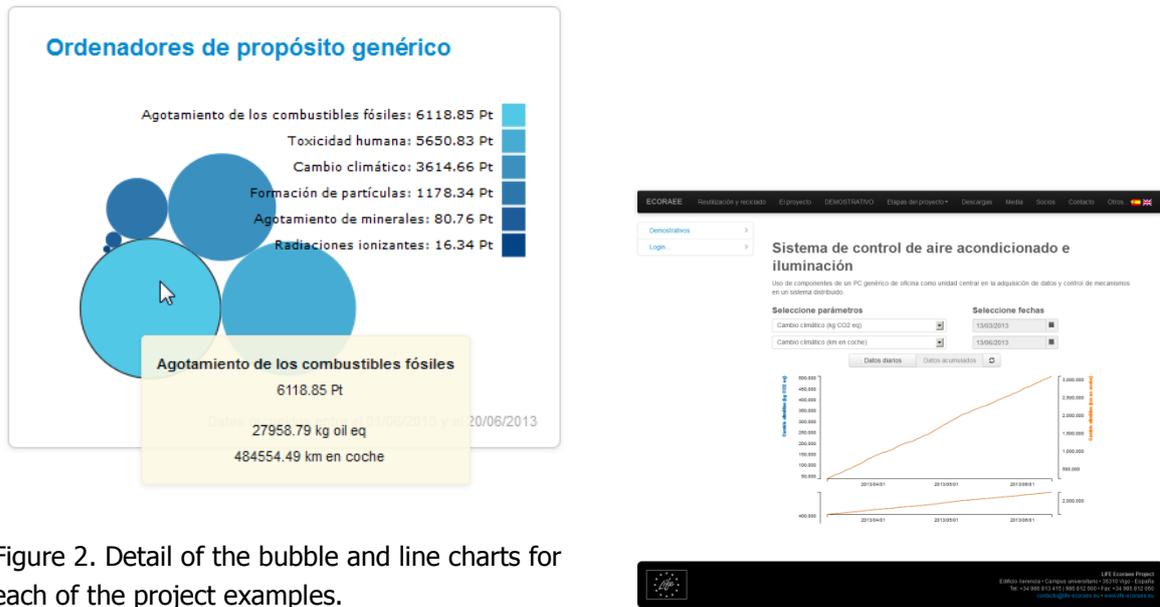


Figure 2. Detail of the bubble and line charts for each of the project examples.

It is also possible to select the parameters to be viewed through a drop-down menu, also specifying the time period for the desired data.



Figure 3. Drop-down menu showing the parameters and dates to be selected for showing on the line chart.

The software has a restricted access area which can be viewed by the managers of each of the examples. It enables the user to view the imported documents for the selected example grouped together by months, download a copy of them and import the data from each of the

examples in a specified format so that the software can make the calculation. This data can then be exported as a spreadsheet.

