



## BIOLCA - DEMONSTRATION OF A TOOL FOR THE EVALUATION AND IMPROVEMENT OF THE SUSTAINABILITY IN THE TRANSPORT SECTOR

LIFE11 ENV/ES/000585



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### Project description:

#### Background

Transport is responsible for about a quarter of the EU's greenhouse gas emissions (GHG), of which 71.3% are generated by road transport, 13.5% by maritime transport, 12.8% by aviation, 1,8% by inland navigation and 0,7% by rail (2008). Transport is heavily dependent on imported oil, and while most sectors have been reducing CO2 emissions, transport's share has been steadily increasing.

The EU's goal for the transport sector is to reduce GHG emissions to around 20% below their 2008 level by 2030. In 2011, the European Commission adopted a comprehensive strategy, Transport 2050, that aims to increase mobility, remove major barriers in key areas and fuel growth and employment. In its report 'Impact Assessment-Accompanying document to the White Paper Roadmap to a Single European Transport Area', it emphasised that the potential to reduce emissions by using biofuels depends on the feedstock and their production methods. The use of biofuels in transport may also be constrained by total limits to land availability and by competing demand for biomass or for land and water from other sectors. Finally, ensuring that biofuels deliver GHG emissions reductions over the life cycle of the fuel remains a challenge.

It is therefore essential to evaluate the sustainability of biofuels throughout their whole life cycle in order to establish which ones are the most sustainable. The BIOLCA Web-based tool enables the sustainability of biofuels to be evaluated

through individual or comparative studies that analyse parameters of the three pillars of sustainability: environmental, economic and social dimensions.

## Objectives

The main objective of the BIOLCA project was to demonstrate a Web-based tool to evaluate and improve the sustainability in the transport sector. This tool is based on the Life Cycle Assessment methodology, and takes into account environmental, economic and social impacts in every stage of the life cycle. BIOLCA simulates and analyses different scenarios of development, production and use of biofuels, and compares them in order to identify those options that offer a better performance from the point of view of sustainable development.

The specific objectives of the project were to:

- Establish specific indicators to evaluate environmental, social and economic impacts of biofuels, as well as a systematic method for calculating these impacts;
- Model the unitary processes of the life cycle, quantifying the inputs and outputs of each process, and establishing the relationship among the different parameters and processes;
- Create a database with sufficient data to carry out the demonstration of the tool in all scenarios proposed by the users participating in the project;
- Implement and demonstrate a Web-based application as useful tool for decisions making related to identifying the most sustainable options for design, production and use of a biofuel; and
- Demonstrate the tool at two pilot applications on a real scale, namely the public bus fleet of Bilbao's City Council and the garbage truck fleet of a private company, Cespa.

## Results

The BIOLCA project demonstrated a Web-based tool for modeling unitary processes of the life cycle of the transport sector and for generating a powerful database of environmental, economic and social data for a wide range of scenarios. The tool includes specific indicators to evaluate the environmental, social and economic impacts of different types of fuels, through a systematic and reliable method of calculation. As a result, the transport sector and public authorities now have access to a decision-making support tool for assessing transport scenarios.

During the project, the tool proved its usefulness for this purpose in two pilot contexts: the public bus fleet of Bilbao City Council and the garbage truck fleet of the company Cespa. The pilot calculations showed positive results in terms of expected reduction of the environmental impact, if the scenarios selected by the tool were to be implemented. The tool calculated that the reduction of GHG emissions would be 6% for Bilbao City Council and 30% for Cespa. An expected 30% reduction of the overall environmental impact was estimated; potentially up to 66% for Bilbao City Council and 100% for Cespa. Finally, an increase in expenditure on green procurement of 3-5% is also expected; 21% for Bilbao City Council and 100% for Cespa.

The BIOLCA tool can be used to assess a wide range of fuels, and unlike other Life Cycle Assessment applications, it also calculates economic and social impacts. BIOLCA is the first software application that integrates all three variables to be designed specifically for the transport sector. It can also be configured to take into account local conditions.

The tool is moreover useful for implementing the EU's strategy on biofuels that addresses the concern that greater use biofuels will lead to higher food prices. It allows policy-makers to take into consideration this issue when designing and adopting transport strategies based on biofuels, making it possible to find a balance between transport needs and food provision.

Another aspect of the BIOLCA web tool is its significant potential for replication, as it not constrained by use in a particular region. The beneficiaries propose to commercially exploit the tool through the sale of licenses and consulting services. They estimate a potential revenue close to €1 million over the next five years, however, no specific pre-study on market interest or cost-benefit analysis has been performed within the framework of the project.

Further information on the project can be found in the project's layman report and After-LIFE Communication Plan (see "Read more" section).

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Environmental issues addressed:

Themes

Services & Commerce - Transportation - Storage  
Climate change Mitigation - GHG reduction in non EU ETS sectors  
Environmental management - Life Cycle Assessment-Management

Keywords

decision making support, emission reduction, greenhouse gas, public transport, information service, on-line service

Target EU Legislation

- Climate Change & Energy efficiency
- COM(2014)15 - Policy framework for climate and energy in the period from 2020 to 2030 (22.01.2014 ...

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	EKOTEK, INGENIERÍA Y CONSULTORÍA MEDIOAMBIENTAL, S.L.
Type of organisation	SME Small and medium sized enterprise
Description	EKOTEK is an Engineering and Consultancy Company (SME) specialised in the development and delivery of innovative engineering solutions to the environmental sector, from R&D to execution.
Partners	Factor CO2 Integral Services, S.L. Fundación Tecnalia Research & Innovation Fundación Gaiker Cespa Compañía Española de Servicios Públicos Auxiliares, S.A. Ayuntamiento de Bilbao

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Administrative data:

Project reference	LIFE11 ENV/ES/000585
Duration	01-JUL-2012 to 31-DEC -2014
Total budget	1,222,915.00 €
EU contribution	611,457.00 €
Project location	País Vasco(España)

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Read more:

Leaflet	Title: Project's leaflet [ES] (743 KB) Year: 2012 Editor: Biolca No of pages: 2
Leaflet	Title: Project's leaflet (701 KB) Year: 2012 Editor: Biolca No of pages: 2
Poster	Title: Project's notice board (796 KB) Editor: Biolca No of pages: 1
Poster	Title: Project's notice board (1.02 MB) Editor: Biolca No of pages: 1
Project web site	<a href="#">Project's website</a>
Publication: After-LIFE Communication Plan	Title: After-LIFE Communication Plan (Spanish version) Editor: EKOTEK No of pages: 8

Publication: After-LIFE  
Communication Plan

Title: After-LIFE Communication Plan  
Editor: EKOTEK No of pages: 8

Publication: Layman report

Title: Layman report Editor: EKOTEK No of  
pages: 8

Publication: Layman report

Title: Layman report (Spanish version)  
Editor: EKOTEK No of pages: 8

Video link

[Project's video \(ES - 3'52\)](#)

Video link

[Project's video 2\(ES - 3'43\)](#)

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