GREENROAD - Fostering GREEN Public Procurement in ROAD construction through the validation of high-performance asphalt eco-mixtures

LIFE11 ENV/ES/000623

Project description

Background

The use of recycled aggregates is being more and more encouraged to reduce or even eliminate the environmental impact of road construction. Given the scarcity of natural resources and rising fuel prices across the world, those countries where natural aggregate is abundant are increasingly using recycled and secondary aggregates. A wide range of industrial wastes has already been tested as recycled material in road construction.

However, concerns about the quality of recycled aggregates remain and public works still only use low amounts of asphalt mixtures from wastes. Advances in technology and processes are thus needed to overcome these issues and to achieve a wider acceptance of recycled aggregates.

Objectives

GREENROAD’s main aim was to demonstrate both the technical and economic viability of 100% recycled asphalt mixtures, with the objective of fostering the implementation of green asphalts to municipal calls for tenders.

Specifically, the project aimed to:
- Offer a green and economically viable alternative to the road construction sector;
• Break down all current barriers to the widespread implementation of GPP and set an example of a sustainable municipality;
• Validate an initiative to valorise the large amounts of steel slag generated in the region; and
• Facilitate a new and wider market for steel slag and reclaimed roads.

Results

The GREENROAD project produced a range of recycled asphalt mixtures whose production consumes less energy and results in fewer CO2 emissions per tonne of mixture than conventional ones. This overall result was achieved by processing waste materials and avoiding the carbon footprint associated with the transportation to landfill of waste such as steel slag. Recycling moreover reduces the consumption of natural aggregates.

While re-using waste material is undoubtedly the most efficient use of resources, the economic savings vary according to the local cost of natural aggregates, the cost of the slag and the transport distance for both materials. But the proven technological and economic feasibility of the green mixtures has nevertheless led to the development of tendering specifications for road construction procurements. GREENROAD and the introduction of green public procurement (GPP) at the Santander City Council should benefit the overall economy, creating opportunities for emerging green businesses. GPP provides incentives for companies to develop environmental technologies, particularly in road construction where there is potentially a wide market for a new type of waste management company and eco-friendly asphalt producer.

The mixtures meet Spanish legal requirements even for the most demanding traffic category, and behave in a very similar manner to the conventional mixtures. They have carried out improvements in all types of roads including highways, secondary roads, urban roads and link roads, and an increase in sliding resistance was observed. Furthermore, the results are in line with the objectives of the Waste Framework Directive (2008/98/EC), which encourages re-use and recovery, and the Landfill Directive (1999/31/EC), which has the goal of reducing landfill waste. The replication of the GREENROAD results, however, will be limited to cities, region and countries with extensive iron and steel industry, which limits its transferability potential.

According to the Spanish union of steel companies, steel production is at same level as 2003. GREENROAD offers the steel sector the possibility for their slag to become a source of additional income that will help the sector overcome its current crisis. The beneficiary, COPSESA, is eager to ensure the continued legacy of the project and will include GREENROAD asphalt mixtures in its future procurement processes. Santander City Council has also developed technical specifications for the use of ecological mixtures, which will be incorporated into future tendering processes. Finally, UNICAN has already applied the experience gained through the GREENROAD project in another European project: the ALTERPAVE (ALTERPAVE- use of end-of-life materials, waste and alternative binders as useful raw materials for pavements construction and rehabilitation), belonging to the INFARAVATION European Programme.

Further information on the project can be found in the project's layman report.
Environmental issues addressed:

Themes

Waste - Waste recycling
Waste - Industrial waste

Keywords

road construction, environmental friendly procurement, public procurement, alternative material, waste recycling

Target EU Legislation

- Waste

Natura 2000 sites

Not applicable

Beneficiaries:

Coordinator COPSESA
Type of organisation SME Small and medium sized enterprise
Description COPSESA is a Spanish SME that carries out of all types of civil and building works, including transport and excavations, along with the manufacture of construction material.
Partners Santander City Council University of Cantabria
Administrative data:

Project reference: LIFE11 ENV/ES/000623
Duration: 01-SEP-2012 to 31-AUG-2015
Total budget: 1,302,303.00 €
EU contribution: 634,115.00 €
Project location: Cantabria (España)

Read more:

Brochure
Title: Folleto del proyecto
No of pages: 2

Brochure
Title: Leaflet of the project
No of pages: 2

Leaflet
Title: "Fostering GREEN Public Procurement in ROAD construction through the validation of high performance asphalt eco-mixtures" (1.60 MB) Year: 2013 Editor: COPSESA No of pages: 2

Poster
Title: "Greenroad: Fostering GREEN Public Procurement in ROAD construction through the validation of high-performance asphalts eco-mixtures" (334 KB) Year: 2013 Editor: COPSESA No of pages: 1

Project web site
Project's website

Publication: Layman report
Title: Layman report Editor: Constructora Obras Públicas San Emeterio No of pages: 16

Slides Presentation
Title: "Fostering GREEN Public Procurement in ROAD construction through the validation of high-performance asphalt eco-mixtures GREENROAD: Tecnologías sostenibles. Caso práctico: Proyecto Greenroad." (881 KB) Year: 2015 Editor: COPSESA No of pages: 18

Slides Presentation
Title: "Betunes mejorados y modificados con caucho" (1.12 MB) Author: Mª del Mar Colás Victoria Year: 2015 Editor: CEPSA No of pages: 12

Slides Presentation
Title: "Fomento de la contratación pública ecológica en la construcción de carreteras a través de la validación de mezclas sostenibles. GREENROAD: Implantación" (1.58 MB) Year: 2015 Editor: COPSESA No of pages: 15