



Newsletter

HUELLAS European Project LIFE+



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Issue 6 - March 2017

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Briefing

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Editorial

In this issue you will find first environmental impact reduction results on a superstructure project, although more relevant results are expected at infrastructure project due to soil movement project units. These tests will serve also for fine-tuning the tool.

Last year, LIFE HUELLAS project has faced some problems due to the political situation in Spain. The absence of Government for more than ten months has meant above 80% reduction on public civic works. This special situation has impacted

severely on project planning due to the impossibility of performing pilot tests on real railway projects. So, LIFE HUELLAS consortium requested an amendment to extend project deadline until March 2018, i.e. twelve more months, that was accepted by the European Commission.

Now, this situation has changed and real pilot tests have begun. Project team is performing a significant effort on disseminating LIFE HUELLAS results, and raising awareness on sustainable development among stakeholders.

Gregorio Sainz Palmero
LIFE HUELLAS Coordinator
Fundacion CARTIF

LIFE HUELLAS Project Update:

Sustainability Decision Support Tool Tested on Real Railway Project

LIFE HUELLAS tool has been tested on a 28 km section of high speed railway superstructure project, located at the south of Spain. Sustainability assessment showed the benefits of track laying gantry vs auxiliary track technique, but due to gantry crane height gauge problems on tunnels, track laying gantries were initially discarded.

LIFE HUELLAS has assessed towards a mixed technique, using an adapted backhoe as track-laying gantry. This way, environmental savings from track laying gantry technique were kept.

Auxiliary track laying consist on constructing a parallel track for facilitate machinery access and materials distribution. This track is disassembled once main track is finished. Track-laying by gantry crane needs only one track due to the use of special cranes to place the rails, sleepers, etc. along the trace.

Main saving on track laying gantry comes from fuel consumption, due to avoidance of auxiliary track mounting and unmounting and associated materials movement. Also, some savings come from materials, e.g. wooden sleepers, although this is less



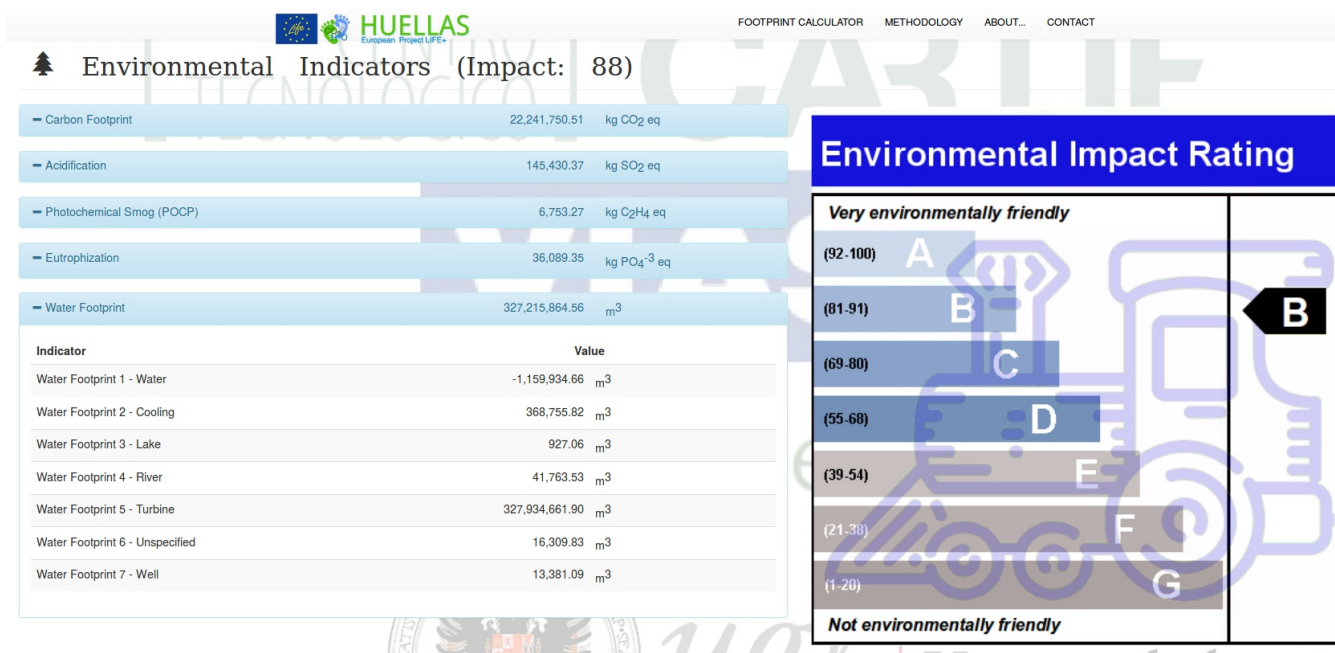
On site panel at pilot location.

significant because those materials could be used again in other projects. Total carbon footprint reduction on track laying gantry, near 30%, is less significant than fuel savings because the main source of carbon footprint is materials, not fuel, as

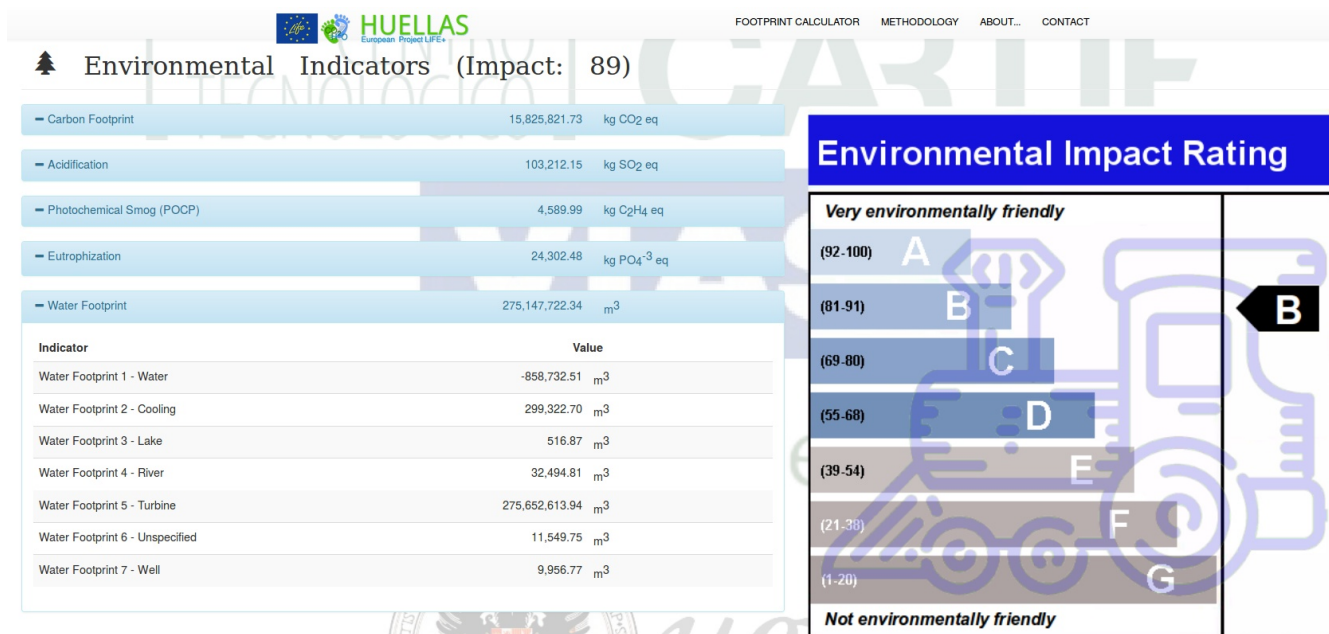
illustrated on figure 'Carbon Footprint Composition'. Water footprint reduction is around 15% for the same reason, because materials are almost the same in both cases. Cost savings are mainly based on fuel consumption reduction and labour costs of auxiliary track mounting and unmounting project units.

Other relevant environmental indicators, such as Acidification, Photochemical Smog (POCP) or Eutrophication also benefits from reductions around 30% by gantry crane against auxiliary track laying. On the other hand, social impacts are quite similar on both cases due to the slightly differences in materials.

Even bigger sustainability savings are expected on infrastructure projects, due to soil movements functional units, that has the highest environmental impact. Next months, project team will be working on infrastructure pilot site.



Environmental impact of track laying by auxiliary track.



Environmental impact of track laying by gantry crane.

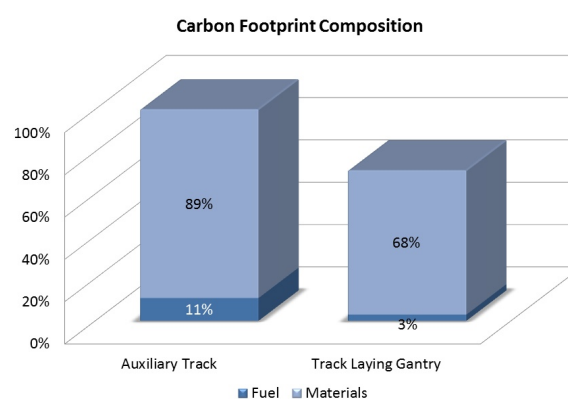
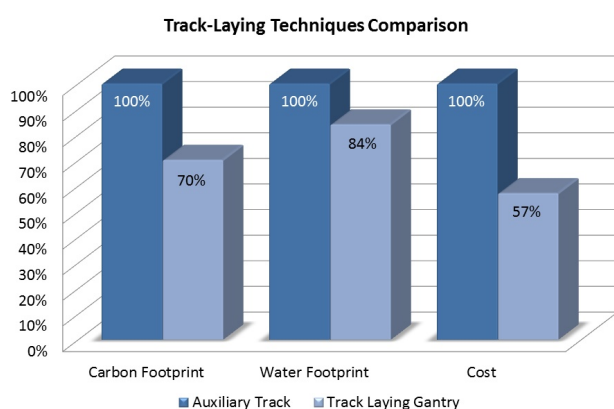
Several technical and coordination meetings have taken place in the last months. 6th Coordination Meeting, held at the offices of IK Ingeniería in Barakaldo, where current situation of the project was reviewed and discussion focused on the problems that arise for the pilot phase due to the current stop in public civil works. Modifications and improvements to the LIFE HUELLAS tool were discussed at 7th coordination meeting, held at VIAS offices in Madrid.

At 8th coordination meeting, held by audio conference, LIFE HUELLAS tool functioning was reviewed with the different infrastructure and superstructure pilot projects.

project members. A representative of the External Monitoring Team has reviewed project progress, both technically and financially. First pilot results on real construction projects were presented.

LIFE HUELLAS tool helped reducing around 30% of carbon footprint and 15% of water footprint

The aim of the project is that railway construction companies become more sustainable. Therefore, an application based on LCA and Intelligent Systems has been developed, providing environmental and social indicators of the main railway infrastructure construction project units.



Results comparison among different track laying techniques.

EnviroInfo 2016: Great Interest in LIFE HUELLAS Findings

The EnviroInfo 2016 International Conference was held at Berlin University of Applied Sciences (HTW) from September 14th to 16th 2016.



Round table sessions.

The LIFE HUELLAS project showed outcomes of the work done over the last three years.

During and after the presentation of the research paper, which was held at the **Special Session on Life Cycle Assessment and ICT**, there were several expressions of interest on LIFE HUELLAS findings: Argonne National Laboratory (USA), National University of Colombia, EATERNITY (Switzerland), among others.



EnviroInfo 2016 sessions.

Especial mention to ISEP (Austria), who congratulated HUELLAS team for the quality of the contribution sent to the Conference.

HUELLAS and CEDEX Networking Meeting

On Sep. 2016 the Center for Studies and Experimentation of Public Works (CEDEX), contacted the LIFE HUELLAS technical team at VIAS Y CONSTRUCCIONES to show their interest in project outcomes.

Its aim was to learn more about the methodology used to develop the LIFE HUELLAS carbon footprint calculator, and expectations for tool valorization. Project consortium is studying tool replication options.

CEDEX is a vanguard public body applied to civil engineering, building



LIFE HUELLAS and CEDEX meeting.

and environment, organically attached to the Ministry of Public Works and functionally to the Ministries of Public Works and Agriculture, Food and Environment. The Agency provides multi-disciplinary support in civil engineering technologies, construction and environment, assisting both administrations & public institutions and private companies.

LIFE HUELLAS Project presentation in IETcc IETcc Advanced Courses, 2016 edition

The Eduardo Torroja Institute for Construction Science (IETcc) main function is to carry out scientific research and technological developments in the field of construction and its materials. The objective of the IETcc Advanced Courses is to analyze new opportunities and developments that are taking place in the construction field from the point of view of Durability, Rehabilitation and Sustainability.

Seminar 12 - SUSTAINABILITY: PRODUCTS, EPDs, TOOLS, DATABASES AND EXAMPLES, was held on November 22-23rd 2016, at IETcc facilities.

On the second day of the seminar, Jorge Rodríguez as Head of ICT and Environmental R&D projects at VIAS Y CONSTRUCCIONES presented LIFE HUELLAS project for the reduction of the carbon footprint in railway infrastructure.

Thanks to the IETcc for inviting us to share the results of the project.



LIFE HUELLAS presentation.

NEWS

LIFE HUELLAS paper published in Transport. Research Procedia June 27th 2016

Final version of LIFE HUELLAS paper is now available online, free access, at Transportation Research Procedia (Science Direct) website.

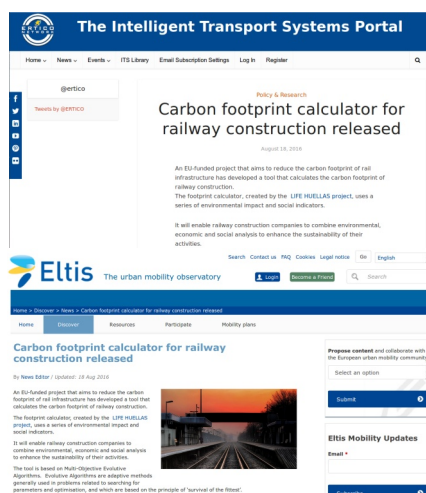
4th International Open Data Conference (IODC 2016) Blog July 21st, 2016

The article "Sustainable Public Procurement and Open Data", published at IODC blog, shows the LIFE HUELLAS project foundations.

Multiple references to LIFE HUELLAS project in the media August 18th 2016

After publication of an entry about LIFE HUELLAS project in the News section of the LIFE Programme web page, several media have published information about project outcomes, including the Urban Mobility Obser-

vatory (ELTIS), the Intelligent Transport Systems Portal (ERTICO Network) and the Spanish Construction Technology Platform (PTEC), among others.



LIFE Newsletter No.7/2016 echoes HUELLAS project findings September 21st 2016

The volume 7 of LIFE Newsletter, published by LIFE Programme, references LIFE HUELLAS project findings.



3rd Project Monitoring Meeting Boecillo, February 20th 2017

Another monitoring meeting of LIFE HUELLAS project was held today, with the presence of all project members.

A representative of the External Monitoring Team has reviewed project progress, both technically and financially. First pilot results on real construction projects were presented.

AGENDA

25th Anniversary of the LIFE Programme 25 Years of Protecting and Enhancing the Environment May 21st 2017

The EU has been supporting nature, environment and climate action for 25 years! To celebrate this milestone the LIFE community is organising a series of events around Europe during May 2017, a date that also marks a quarter century of the EU Habitats Directive and Natura 2000 network of protected areas. Find out what's happening near you and how to get involved with LIFE, the EU's

financial instrument for nature, the environment and climate action. More info on <http://life-25.eu/>.



EnviroInfo 2017 Environmental Informatics Conf. Luxembourg, Sep. 13-15th 2017

The 31st edition of the conference EnviroInfo will take place in Luxembourg on September 13-15th

2017, to discuss the state of the art in research and application of Environmental Informatics, and how the discipline can help to improve our societies.

EnviroInfo2017 will be organized by the Luxembourg Institute of Science and Technology (LIST) in collaboration with the German Informatics Society and the Technical Committee of Environmental Informatics.



LIFE HUELLAS Consortium

The LIFE HUELLAS project (Ref.: LIFE12 ENV/ES/000686, with the contribution of the European Union LIFE financial instrument), was granted in the framework of the 2012 Call of the LIFE+ European Programme. Project start date is October the 1st, 2013 and estimated project end will be on March 31st, 2018. Consortium is formed by:

- **Fundación CARTIF**: (Coordinator) Private, non for profit, research centre with 20 years of experience researching in energy, environment, ICT, agrofood, automation, robotics and computer vision areas. [1]

- **VIAS Y CONSTRUCCIONES S.A.**: Large construction firm with over 80 years' experience. Leader in railway infrastructure construction, it has been involved in every High Speed line deployed in Spain. [2]

- **Ingurumenaren Kideak Ingeniería S.L.**: Consulting firm specialized on industrial ecodesign, sustainable building and environmental technical training. It has been supporting companies and public bodies on environment innovation applied to products and services improvement since the year 2004. [3]

- **Universidad de Granada**: The research group "Soft Computing and Intelligent Information Systems" (SCI2S) is composed of a number of professors and researchers with widely recognized expertise in Soft Computing and Computational Intelligence fields. [4]

LIFE+ is the financial instrument of the European Union for the environment, with a budget of 2,143 M EUR for the period 2007-2013. LIFE+ Projects include actions in the field of nature conservation, climate change, environmental policy and information and communication on environmental issues in all EU Member States.



References

- [1] Fundación CARTIF, <http://www.cartif.com>.
- [2] VIAS Y CONSTRUCCIONES, <http://www.vias.es>.
- [3] IK-Ingeniería, <http://www.ik-ingenieria.com>.
- [4] SCI2S - Universidad de Granada, <http://sci2s.ugr.es>.



For further information, please contact:

huellas@cartif.es

+34 983546504

 @life_huellas



Universidad
de Granada