PavementLCM

A complete package for Life Cycle Management of green asphalt mixtures and road pavement

Programm / Ausschreibung	Mobilität der Zukunft, Mobilität der Zukunft, CEDR Transnational Research 2017 - Materials	**Status**	abgeschlossen
Projektstart	01.10.2018	**Projektende**	30.06.2021
Zeitraum	2018 - 2021	**Projektlaufzeit**	33 Monate
Keywords	LCM, LCA, LCCA, sustainability assessment, durability assessment, circular economy		

Projektbeschreibung

This abstract gives a brief summary of a research proposal that relates to the Call for Proposals entitled CEDR Transnational Road Research Programme Call 2017 managed by FFG (Austria) on behalf of the Conference of European Directors of Roads (CEDR). The research proposal refers to the research topic Reliable life cycle and social cost-benefit analysis of 'green asphalt'. Road pavements are complex and dynamic systems which need to be properly managed during their whole life cycle to ensure they deliver their function to society. From this point of view, Life Cycle Assessment (LCA), Life cycle costing (LCC) and Social Cost Benefits Analysis (SCBA) are becoming popular techniques aimed at helping the different stakeholders in the process. However, the lack of a standard framework to perform Life Cycle Management (LCM) of road infrastructures means decisions are very much dependent on the analyst's work and assumptions, which can lead to considerable differences amongst methodologies and finally makes results incomparable from one case to another. This is not least the case for assumptions concerning the durability of new materials, which is a necessary part of any life cycle analysis. Previous projects, such as the CEDR-funded projects AllBack2Pave, LCE4ROADS and EDGAR, already provided a basis for LCM and further sustainability assessment to support the use of "green asphalt" technologies. However, discrepancies are still present not only within NRAs but even amongst researchers and it is in the interest of every stakeholder that a harmonised framework and clear user-friendly guidelines are created to allow carrying out LCM analyses with confidence and clear references. At last, another important aspect of LCM is durability assessment and in case of asphalt mixtures/road pavement EU is far away from having harmonised procedures and datasets.

PavementLCM is a 2 year international project which will be carried out by a multi-sectoral consortium to deliver a complete package to allow NRAs to carry out harmonised LCM exercises and durability assessment for Green Asphalt, as well as providing training and user-friendly guidelines to support their widespread use. The specific objectives of PavementLCM are:

" To create a general LCM framework with templates and case studies to carry out harmonised sustainability assessments of both asphalt mixtures and road pavements and to transfer the knowledge with a training tailored to NRAs.

" To create the Pavement LCM lookup tool as a user-friendly tool to help members of NRAs to find out most appropriate datasets, methodologies and results of previous LCM studies for a specific situation.

" To produce datasets of sustainability data and durability data of identified Green Asphalts for selected case studies, based on existing sustainability datasets and novel durability testing.

" To provide NRAs with a methodology and recommendations for coping with uncertainty of datasets of LCM exercises, both inputs and results, as well as roadmaps towards data harmonization at EU level.
" To produce guidelines and recommendations towards using LCM results within a multi-criteria sustainability assessment according to CWA 17089 and EN15804.
" Furthermore, PavementLCM will be an opportunity for CEDR to work with circular economy experts (FCEI) to have a review of current best practices of circular economy as well as circular economic and business models together with a implementation roadmap to support the deployment of green asphalt technologies in Europe.

Abstract

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Projektkoordinator

- University of Nottingham

Projektpartner

- Swedish National Road and Transport Research Institute Statens väg- och transportforskningsinstitut (VTI)
- TNO - Netherlands Organization for Applied Scientific Research
- university of palermo - Dipartimento di Ingegneria Civile, ambientale, aerospaziale, dei materiali