

**ISABELA**  
**Integration of social aspects and benefits**  
**into life-cycle asset management**

a research project of the  
cross-border funded joint research programme

**“CEDR Call 2014: Asset Management and Maintenance”**

### 1) Introduction

This trans-national research programme was launched by the Conference of European Directors of Roads (CEDR). CEDR is an organisation which brings together the road directors of 25 European countries. The funding partners of this cross-border funded Joint Research Programme are the National Road Administrations (NRA) of Belgium-Flanders, Finland, Germany, Ireland, Norway, the Netherlands, Sweden, United Kingdom and Austria. As in previous collaborative research programmes, the participating members have established a Programme Executive Board (PEB) made up of experts in the topics to be covered. The research budget is jointly provided by the NRAs who provide participants to the PEB as listed above.

### 2) Project Facts

**Duration:** 01/08/2015 – 31/05/2017

**Budget:** EUR 387'362.81

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### 3) Project Description

The main objective of **ISABELA** (Integration of social aspects and benefits into life-cycle asset management) is the definition of a holistic asset management framework for social key performance indicators (S-KPIs) and social benefit modeling in form of social effects (monetary and non-monetary), social backlog and social risk. **ISABELA** provides an essential enhancement for the life-cycle-assessment of maintenance strategies and enables to incorporate social aspects and benefits into classical asset management.

**ISABELA** aims at identifying clear and repeatable social key performance indicators (S-KPI) in combination with existing technical parameters, described in projects like COST354, FORMAT, EVITA, SBAKPI, etc. The use of these new indicators in parallel to existing technical performance indicators will help to underline the necessity of road infrastructure maintenance and, of course, is the basis for a holistic definition of a new maintenance benefit taking into account maintenance aspects such as:

- Availability and disturbance (travel time, vehicle operating costs, etc.);
- Road safety (fatal and severe accidents related to asset condition);
- Environment (noise, air pollution, natural resources, etc.);
- Socio-economy (asset value, wider social effects, etc.).

To achieve the objectives of **ISABELA** it is subdivided into 5 work packages as follows:

**WP1 Social benefits investigation**

The main task of WP1 is the investigation on basics for the social benefit definition (monetary and non-monetary) and calculation in the context of asset management.

**WP2 Social benefits indicators**

The main task of WP2 is the definition of social key performance indicators (S-KPI), based on existing asset management procedures and (technical) performance indicators, and viewed from the maintenance perspective.

**WP3 Social benefits modelling**

The main task of WP3 is the definition of social benefit, the assessment and selection of models (eventually development of new) as well as the necessary calculation procedures.

**WP4 Social benefits implementation**

The main task of WP4 is the implementation of S-KPIs and models for the calculation of social benefits into LCA/LCCA and risk analysis associated with it.

**WP5 Social benefits in practice and dissemination**

The main task of WP5 is the testing of the recommended solutions in cooperation with pre-selected RDs and the dissemination of the results.

#### 4) Expected Results

As a result of **ISABELA** a clear and reproducible definition of the necessary basics for social benefit calculation within life-cycle-assessment (LCA), life-cycle-cost-analysis (LCCA) and risk-assessment will be available such as:

- Calculation of social indicators in the context of asset management;
- Definition of monetary and non-monetary social effects;
- Definition of asset management social backlog and social risk.

Using these results, an extended way of benchmarking on the social levels will be possible (national as well as trans-national), taking actual needs and requirements of different stakeholders into account.

**ISABELA** will improve extensively the assessment of the total road infrastructure from social viewpoint and open the door to the development of broader asset management processes to meet the future challenges. The proposed social key performance indicators (S-KPIs), and the life-cycle assessment framework in which they will be incorporated and could interact, will be available for advanced management systems. Because of these S-KPIs, the management of the Europe's Strategic Road Network (ESRN) will certainly be facilitated and improved by using an optimized asset management system, able to apply advanced management strategies. Only the closure of the existing gap between technical and social aspects will enable application of a more holistic and sustainable management of the road infrastructure assets. Thus the exploitation of the results of **ISABELA** can be summarized as follows:

- Improvement and extensions of societal aspects' assessment procedures for different sub-assets of the road infrastructure;
- Integration of S-KPIs into the asset management processes (PMS, BMS, etc.) of the total road infrastructure;
- Description of road network managers' requirements and expectations through the use of new or extended objective indicators;
- Use of S-KPIs in the evaluation and assessment process for new road construction or maintenance projects (public and private);
- Benchmarking for the social aspects as an output of the "state of the art" investigation and the recommendations;
- Support of the decision makers to underline the necessity of maintenance activities from the societal point of view;
- Definition of a social "Maintenance Backlog" for strategic decisions.

Furthermore, since the European strategic road network covers a number of European countries, S-KPIs will be designed to be consistently usable by the different operators, on different road types, and taking into account the fact that the priorities and approach in different countries will necessarily be somewhat different. Especially the implementation packages (WP4 and WP5) should clearly show how the theoretical approach can be applied in practice under certain framework conditions.