

## **Workshop on the Proposed International Study of Road Asset Management and Models**

**May 22, 2015**

**The World Bank  
1818 H Street NW, Washington, D.C. 20038**

You are invited to participate in a workshop on Friday May 22, 2015 at the World Bank to discuss the proposed International Study of Road Asset Management and Models (ISRAMM). The goal of the study is to mobilize resources and support to undertake a major international effort to develop the next generation of tools to assist countries with determining investment priorities in their road transport infrastructure.

### **Background**

In 1993 the World Bank initiated the first International Study of Highway Development and Management (ISOHDM). This effort included a range of donor partners including the Asian Development Bank, the UK's Department for International Development (DFID), and the Swedish National Road Administration. It received support from a number of countries including Canada, Chile, Finland, France, Hungary, Indonesia, Japan, Malaysia, the Philippines, and South Africa.

There were three key outputs from the ISOHDM study:

- An analytical framework and modeling approach for integrating pavement deterioration, vehicle operating costs, and investment activities to manage road assets;
- A series of technical relationships and models by which one could predict the inter-relationship between pavement deterioration, maintenance effects, and their impact on vehicle operating costs, especially fuel consumption and the related GHG emissions; and
- With the support of the Permanent Association of Road Congresses (PIARC), ISHODM produced a computer program (HDM-4) which used the analytical framework developed for the earlier HDM-3 and updated technical relationships to enable transport agencies to undertake technical and economic analyses of road investments.

The ISOHDM analytical framework and technical models have been widely used in developed and developing countries as the basis for locally developed asset management systems. The HDM-4 software has also been widely used, particularly in developing countries.

### **The need for a new study**

In the twenty years since ISOHDM there have been dramatic changes in the road transport sector which cannot properly be assessed by the existing modelling tools, for example new vehicle and fuel technologies as well as techniques and materials for road construction. These changes mean that biases are being introduced to investment decisions—for example an overemphasis on the benefits arising

from pavement roughness reduction and underestimation of economic losses from traffic congestion and road accidents and the impact of GHG emissions from both road construction and operation of motor vehicles.

There have also been a number of emerging issues, which will play increasing roles in asset management in the future, for which appropriate models and tools do not exist to include in an integrated road asset management framework, such as:

- Considering the advances in cleaner vehicle and fuel technologies including electric, hybrid and alternate fuel vehicles;
- Integrating emerging requirements for GHG accounting into decision-making;
- Integrating environmental performance into road asset management and mitigation/adaptation measures to ensure climate resilient road infrastructure;
- Incorporating new types of pavement technology, including hot and cold recycling, warm and cold asphalt mixes, semi-rigid pavements, and a range of soil and aggregate stabilization alternatives to minimize the use of new aggregate;
- Integrating 'Intelligent Transport System' (ITS) investments and their benefits in terms of traffic flow and congestion;
- Providing an interface with transport demand and traffic estimation models/tools so that a consistent assessment can be done with regard to urban versus rural investments;
- Properly considering the micro and macro benefits from investments in road safety improvements, as well as integrating the iRAP road safety assessment approach;
- Estimating the connectivity benefits of investing in low-volume roads where the traditional measures (vehicle operating cost and time savings) are insufficient to provide economic justification;
- Optimizing investment programs against multiple objective functions, not just economic; and,
- Incorporating risk and uncertainty in the evaluation of road investments.

A new generation of methodologies and tools need to be developed to provide transport agencies with the ability to make appropriate investments in their infrastructure. This can only be achieved through a coordinated approach where the international community comes together to leverage their individual efforts and help ensure that the key issues are addressed in a consistent and complementary manner. This can be best achieved through an **'International Study of Road Asset Management Models' (ISRAMM)**. Such a study is expected to provide the models and tools which will form the basis of effective road asset management for the next 10-20 years.

## ISRAMM Project Objective

Improved methodologies, models and tools to facilitate informed road asset management decision making

### Proposed Study Approach

Many of the issues to improve road management and operations at the global level are being addressed to varying degrees in different countries, primarily the OECD countries. What is lacking is a coordinated international effort to: (i) bring together this work into a consistent framework which ensures a consistent approach to road asset management; and, (ii) address the gaps in the knowledge base effective and consistent investment decisions.

The proposed approach to the study is as follows:

- Key stakeholders in road asset management—transport agencies, development partners, contractors, consultants, researchers—would come together to identify the key areas where the current knowledge is lacking. This would provide a prioritized list of areas that the ISRAMM project would address.
- Transport agencies and researchers already working on areas in the prioritized list would be identified and invited to work with the ISRAMM project to adapt/extend their work so it would address the issues in a manner consistent with the ISRAMM project objectives.
- For priority areas not addressed by existing programs, the ISRAMM project will seek to mobilize resources to address these areas.
- All products will be produced in a consistent framework, including developing an ‘Open Source’ dynamic-link library (DLL) which would enable unrestricted application of the research findings, including the adaptation and incorporation of the ISRAMM analytical methodologies/models in any road asset management system.

## ISRAMM Outputs

The ISRAMM project outputs will be:

- i. methodologies;
- ii. analytical tools and models; and
- iii. DLLs to apply (i) and (ii).

Thus, it is a knowledge project as opposed to a software development project. These knowledge products, in the public domain and ‘Open Source’, will enable any user—private or commercial—to apply them to improve their management of road assets.

## **Proposed Workshop Program**

The workshop will be held at the World Bank's headquarters in room MC9-100 and will have two parts:

- **Morning 08:30 – 13:00 – Open Meeting on ISRAMM Structure and Priorities**
  - Discuss the need for the study and conceptual governance structure
  - Identification of the priority areas for ISRAMM to address: Where are the gaps? Where is their expertise? Who may be interested in supporting work in these areas?
- **Afternoon: 14:00 – 17:00 – Closed Meeting for Development Partners and Road Agencies**
  - Discussion on governance structure for ISRAMM
  - Opportunities for donor support, key areas of interest, existing areas of expertise or where research is under way.

The draft workshop agenda is attached.

Please respond to Jens Hede ([jhede@worldbank.org](mailto:jhede@worldbank.org)) if you would like to participate in the workshop, or be kept advised of developments. You will be provided with details on how to obtain a security pass to the World Bank's office.