

# 13<sup>th</sup> UIC Sustainability Conference



## **WORKSHOPS**

**Vienna 12-13-14 October 2016**

## Carbon Footprint in Railways: Integrated scope and innovative tools



### Sustainable Development Goal 13: Take urgent action to combat climate change and its impacts

#### Target 13.3

*Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning*

**Opportunities of this subject: Improving knowledge on calculation of carbon footprint of transport allows policy makers, companies and society to choose the most carbon efficient modes.** An accurate measurement of carbon footprint is contributing to avoid green washing, to get solid results and to increase awareness among clients and general public. The final goal of carbon footprint evaluation in transport and comparisons is to reach an effective mitigation of carbon emissions by the promotion of the most efficient modes.

**Main benefits: Integrating infrastructure into the calculations improves the previous existing methodologies and enables to the main stakeholders to enlarge the scope of the evaluation.** The rail sector needs to provide stronger ideas on the topic of carbon footprint, showing our strengths compared to the major competitor modes. The solid scientific background of the existing methodologies and the analysis of all of them provide our users the possibility to perform a Life Cycle Analysis of rail activities.

## Weather Resilience and Climate Change Adaptation



### **SDG-9 : Build Resilient Infrastructure, promote inclusive and sustainable industrialization and foster innovation**

#### **Target 9.1**

*Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all*

The whole rail sector is facing common problems related to the increase in occurrence of extreme weather events (high and low temperatures, flooding, high wind speeds, etc). For example, it has been estimated that adverse weather conditions are currently responsible for 20% of all unplanned delays (5 million delay minutes in the UK alone).

Even if the 2 degree scenario is achieved, changes in climate envelop will be more challenges for future rail operations.

This workshop will examine:

- Strategies for management of weather resilience and climate change adaptation with respect to funding rail projects. (World Bank, European Structural and Investment Funds, Asian Development Funds)
- Benchmark climate change adaptation for railways to ensure optimum performance and cost efficiency

## Emissions and Air Quality: which framework?



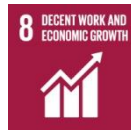
**SDG11 : Make cities and human settlements inclusive, safe, resilient and sustainable.**

### **Target 11.6**

*By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management*

Diesel traction plays a major role at World level and a significant one in Europe and a significant one in providing rail services. In Europe, total emissions of NOX and PM have already decreased by about 20% from 2005 to 2010 and absolute energy consumption decreased from 50 to 41 PJ from 2005 to 2009 for passengers and from 23 to 27 PJ for freight; but where improvements in Energy Efficiency are still possible? The workshop will explore the impact of the introduction of cleaner Technologies (Biofuel and Others...) but also the best current practices in operating regimes such as less idling or higher load factor...

## Digital Communication and Energy Efficiency in railways: Driving, Metering, and Billing



**SDG8 : Promote Sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**

### **Target 8.4**

*Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead.*

**Opportunities in this field: Improving current systems on energy consumption information and efficiency systems allows companies to reduce costs, saving resources for the society in a environment of potential scarcity.** An accurate measurement of energy consumptions and improved systems for the exchange of information between main actors may improve measurement and saving policies. Systems helping efficient consumption for driving integrating technologies and knowledge in efficient operation will be required to improve the energy efficiency.

**Main benefits: Integrating infrastructure into the calculations improves the previous existing methodologies and enables to the main stakeholders to enlarge the scope of the evaluation.** The rail sector needs to provide stronger ideas on the topic of carbon footprint, showing our strengths compared to the major competitor modes. The solid scientific background of the existing methodologies and the analysis of all of them provide our users the possibility to perform a Life Cycle Analysis of rail activities.

## Energy Efficiency Projects: Potential Improvements for mid and long term



**SDG7 : Ensure access to affordable, reliable, sustainable and modern energy for all**

### **Target 9.4**

*By 2030, double the global rate of improvement in energy efficiency*

**Opportunities on the field: Increasing energy efficiency allows rail transport to improve cost-benefits balance and to increase competitiveness compared to major competitor modes in terms of economical cost but furthermore in environmental and social advantages.** Increasing energy efficiency impacts in one of the major cost components of rail companies and in the main environmental driver influenced by rail services operation.

**Main benefits: Decreasing energy consumption may help railways to reduce total costs by 5%.** Rail sector needs to continue improving efficiency of the sector. Several projects and existing technologies will increase the efficiency in coming years, to spread knowledge and to understand main interactions between technologies are required to reach a holistic approach to improve energy performance of railways.

## GRI G4 Reporting: Challenges for rail sector



### **SDG12: Ensure sustainable consumption and production patterns**

#### **Target 12.6**

*Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle*

**Opportunities in this field: Collecting and displaying indicators on sustainable performance allows companies to link their activities with the stakeholders and to improve their dialogue.**

The latest GRIG4 standard focus on this vision improves the materiality oriented scope of the companies reporting cycle. The main challenge for railways is to perform effective reports in the dialogue with all the stakeholders.

**Main benefits: Improving dialogue with stakeholders allows companies to integrate external opinions into the business activities adapting the company to the requirements of the society.**

Fluent dialogue with stakeholders allows companies to collect their demands and to integrate in their daily activities. The new reporting standards might allow companies to increase the inclusion of third-parties by a good identification of all the material aspects of their activities is the main task in order to implement the new G4 Standard of GRI.

## Railway noise in the Common Noise Assessment Method Cnossos



### **SDG3 : Ensure healthy lives and promote well-being for all at all ages**

By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being

### **SDG8: Promote inclusive and sustainable economic growth, employment and decent work for all**

Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead

This workshop will consider potential additional costs and damage to the reputation of the rail sector arising from the mandatory use of the common assessment method for noise mapping.

European Noise Directive END (2002/49/EC) requires member states to produce, every five years, strategic noise maps and noise action plans considering, inter alia, railways. A new calculation method is now available, this may be used for the 2017 mapping and will be compulsory for 2022 onwards. Rail infrastructure managers usually participate in communication to the public, an important element of the END. And if mitigation measures are foreseen in the frame of Noise Action Plans, both infra managers and fleet owners/operators may be involved. Since international rail transport is significant, this impact may extend across national borders.

In particular the workshop will consider the following issues:

- The new method requires a large set of varied input data. The use of default parameters where the influence exceeds 2dB is discouraged. For many countries the complete data sets may impose significant costs on the sector, eg location specific rail roughness values.
- Noise levels assessed with Cnossos will differ from noise levels assessed with existing (national) methods. What should the position of the railways be when this is about to happen, particularly if Cnossos would become the new legal national method (as some



countries consider to make it). How do we explain the changes in reported levels and maintain credibility?

- Where does Cnossos differ from most of the national methods and the END interim method and how might this affect the interest of the railways? Here a distinction will be made between noise production assessment and noise propagation. Both contain new elements that will have an influence on the end result, and might also require serious effort from railway stakeholders. Rolling stock will have to be categorized according to the parameters defined in Annex II of the END. New elements like track and wheel roughness need to be addressed. Should this be done in a joint effort? Where will propagation definitions change and what impact could this have on noise exposure and on options for its control?

- How can and should railway stakeholders ensure that they will be informed timely about planned decisions, both on a national and European level, and how should they act in their joint interest?

- What role should UIC, in particular the noise expert network, take up to assist in this process?

The objective of the workshop is twofold:

First, to inform the railway stakeholders about the changes due to the implementation of Cnossos and the impact on the railways, Second, to build consensus on the best way to deal with the introduction of Cnossos in the interest of the railways.

Moderator: Paul de Vos

## **Sustainable Procurement in the Rail Sector: taking larger strides and leapfrogging along the Sustainability Path**

### **Background:**

The benefit of embedding sustainability in procurement process is well proven and many companies have adopted this as a key vehicle to manage the risks to human health, environment and society arising from their operations. Many rail companies have gained significant economic advantages too by deeper supplier engagement around sustainability issues to reduce cost of products and services over life cycle. Regulatory bodies and the traveling public often have very high expectations and willingness to hold rail operators to be accountable for the actions of the whole supply chain. In addition, the practice of sustainable procurement is crucial to delivery of the Sustainable Development Goal 12: Sustainable consumption and production.

While railway operators in developed countries have aligned their sustainable procurement policy with organizational business strategy and are now working with suppliers to streamline the process, most railroad operators and companies across the railway industry value chain in developing countries are struggling to integrate sustainability in supply chain practices. Since railway operators in countries like China, India etc. will continue to contribute significantly to the overall GHG emission of the Rail Sector, such situation poses a significant challenge to the targets set out in the UIC “Low Carbon Transport Challenge” and also the United Nations Paris Agreement.

The Rail sector is fairly cohesive across the globe, a fact which has helped the growth of a global supply chain. While globalization has improved the bottom- line of companies, it has also vastly increased exposure to risks arising from unsustainable practices by a complex web of suppliers operating in a myriad of jurisdictions. Addressing this challenge requires collaboration among stakeholders from both demand and supply sides to decouple growth of this sector from resources use and their impacts on human health, environment and society.

### **Objectives:**

The key objectives of the Workshop are

- a. Encourage the conversations around challenges faced by railway industries in implementing sustainable procurement practices and leverage demonstrated cohesiveness in rail sector to scale up sustainability practices in railway global supply chain.
- b. Exploring possibility of setting up collaborative institutional mechanism for supporting the implementation of sustainable procurement by UIC’s member organisations through better access to capacity building tools and resources.

**Speakers:**

A UIC Member

A representative from railroad operator of developing country

A representative from Rail Industries Association A representative from Business

## Door to Door Business Solutions



**SDG11 : Make cities and human settlements inclusive, safe, resilient and sustainable.**

### **Target 11.2**

*By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons*

Railways are expanding their business and are seeking for offering different possibilities to ensure more efficient journeys to their passengers. It is now getting easier to travel to the station by car, enjoy the train travel and continue on the trip by car or public transport to the final destination. More and more solution are arising. Are these enough to drive modal shift? Which is the winning business model?

## Sustainable and Smart Stations and Infrastructures



### **SDG13 : Take urgent action to combat climate change and its impacts**

#### **Target 9.4**

*By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities*

**Opportunities in this field: Improving rail stations and infrastructures allows inframanagers, operators and users to improve the basis frame of development of transport, increasing efficiency since the first step of the chain.** An improvement of the sustainability in the basic and required field of the infrastructure fosters rail undertakings to include these advantages in the following steps of the rail service. The final goal is to reach and effective improvement in the whole rail system and to disseminate this advantages to society and clients since the first interface such as the stations.

**Main benefits: Integrating sustainability in infrastructure design and management creates a sustainable and efficient background for following steps.** Rail sector needs to adopt best existing technologies in the field to increase economical, environmental and social efficiency. The implementation of sustainability measures in stations and infrastructures helps railways to improve performance and reputation.