

Ad Hoc Expert Meeting on

**Climate Change Adaptation for
International Transport:
Preparing for the Future**

16 to 17 April 2019

Climate Change Adaptation in the Rail Sector

Presentation by

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INTERNATIONAL UNION
OF RAILWAYS

CLIMATE CHANGE ADAPTATION IN THE RAIL SECTOR

Sustainable Development – 16 April 2019

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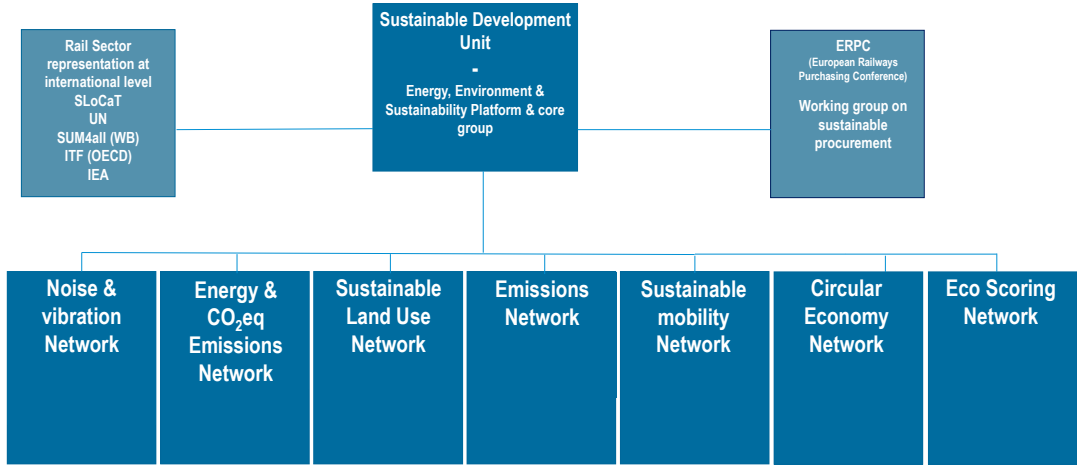


UIC MEMBERS ALL AROUND THE WORLD



UIC: SUSTAINABLE DEVELOPMENT UNIT

3



BUILDING A RESILIENT RAILWAY, AN EMERGENCY

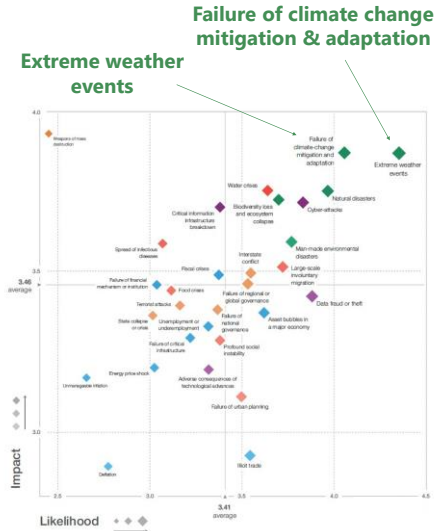
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Economic losses from extreme weather have been rising decade by decade since 1950.

- Economic losses from extreme weather have been rising decade by decade since 1950.
- Increased development of countries and regions, therefore individual events have greater effects.
- Many Extreme weather events are becoming more frequent or more intense.



BUILDING A RESILIENT RAILWAY, AN EMERGENCY



Source: The global risks report 2019 – 14th edition

According to projections from the Global Infrastructure Hub (GIH), created by the G20, infrastructure investment of US\$97 trillion is required by 2040 across 57 countries and seven sectors.

Compared to the current investment trend (US\$79 trillion), the global investment gap is about US\$18 trillion.

As for the railway sector, infrastructure investment of US\$11 trillion is required by 2040; compared to the current investment trend (US\$10 trillion), the global investment gap is about US\$1.1 trillion.



IMPACTS OF EXTREME WEATHER EVENTS

- Railway companies have experienced the impacts of extreme weather events in recent years;
- Consequences:
 - Cost of damage,
 - loss of traffic,
 - damage to reputation



Floods, Churchill, Manitoba, Spring 2017

ic/radio-cahads.ca, August 14, 2018; Photo: OmniTRAX



Jeju, near Osaka, Japan, September 2018

euronews.com, September 5, 2018



Heat, Britain, France, August 2018

FUTURA PLANET, August 8, 2018; © Laura Thome, HDR CC: BY-NC-ND 2.0



Southern California, USA, September 2016

DAILY SABAH AMERICAS - August 17, 2016



Typhoon Jeju Kansai airport, September 18

KYODO NEWS - Sep 18, 2018



Heavy rain in Karatsu, Japan, July 2018

DAILY EXPRESS - July 8, 2018



Permafrost melting, Siberia

© Le Grand Nord 2019



Floods in Paris, France, RER C, 2016

france3-regions.francetvinfo.fr, January 23, 2018; © IPS PRESS/MAXPPP



RAILADAPT PROJECT

- Rail Adapt project was created in partnership with: UIC, University of Birmingham, Consultants (JDCL)



- Workshops in Vienna, London and Beijing
- 90 people / 50 organisations / 20 countries



- Gave rise to a background document



RAILADAPT PROJECT

- Rail is part of a global transport system, which underpins trade;
- More globally, transport underpins society;
- Therefore, transport should be considered as a system;
- Needs on high level/wider thinking, multi-stakeholders cooperation.



RAILADAPT PROJECT: PRINCIPLES

- Railways are large, complex, adaptive systems, with many elements which have a dynamic set of interactions requiring evolving management techniques to maintain effectiveness:
 - supply chains, procurement,
 - finance,
 - human resources,
 - customer support.

- four stages of maturity, from reacting to events to long term planning.
- The RailAdapt framework aims to help railways
 - to understand where they are on this maturity scale
 - to help learning, embedding that learning, and improvement.

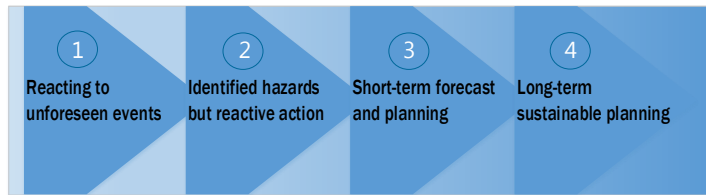


Figure 1: Maturity evolution stages

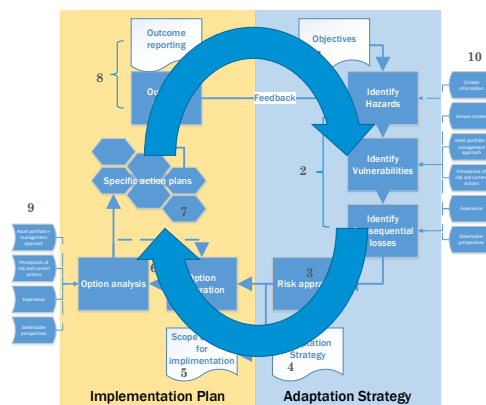


• An adaptive railway: understands how 'mature' it is with respect to adaptation.

RAILADAPT: THE ADAPTATION FRAMEWORK

The framework is divided into two sections – developing an **adaptation strategy** and its **implementation plan**.

The end goal, embodied in the vision statement, is an organisation that can change and adapt intelligently depending on the circumstances; adaptation actions become a part of normal business rather than a special project or process, all as an adaptive organisation would react.



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Thank you for your kind attention.