Ad Hoc Expert Meeting on

Climate Change Adaptation for International Transport: Preparing for the Future

16 to 17 April 2019

Preserving Road Infrastructure: A Focus on Adaptation to Climate Change

Presentation by

Susanna Zammataro
Director General
International Road Federation (IRF)

UNCTAD Ad Hoc Expert Meeting on Adaptation
Geneva, 16-17 April 2019

International Road Federation
Fédération Routière Internationale
Federación Internacional de Carreteras

Preserving Road Infrastructure: A Focus on Adaptation to Climate Change

Susanna Zammataro
IRF Director General

www.irfnet.ch

The International Road Federation

Global, Independent, Not-for-profit Organisation
Established in **1948.** Based in **Geneva**, Switzerland
UN Ecosoc status since 1951.

Assisting **public** and **private** stakeholders in Roads & Mobility sector for the past **70 years** with:

3 Strategic Pillars of Activities

1. **Knowledge**
2. **Connections**
3. **Advocacy**

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Thematic Streams

INTERNATIONAL ROAD FEDERATION
ENVIRONMENT

ROAD FINANCE & ECONOMICS

INTERNATIONAL ROAD FEDERATION
EDUCATION & TRAINING

ROAD SAFETY

INTERNATIONAL ROAD FEDERATION
Intelligent Transport Systems

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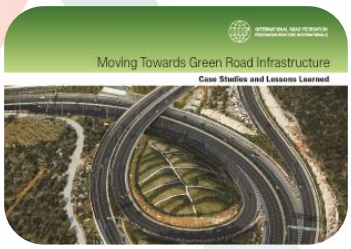
IRF Environment & Climate Change Work

IRF Manifesto on
Climate Change Adaptation

CHANGER
Greenhouse Gas Calculator

Green Public Procurement
GPP

IRF Policy Statement
Environment



Sustainable Asset Valuation Tool
ROADS

www.irfnet.ch

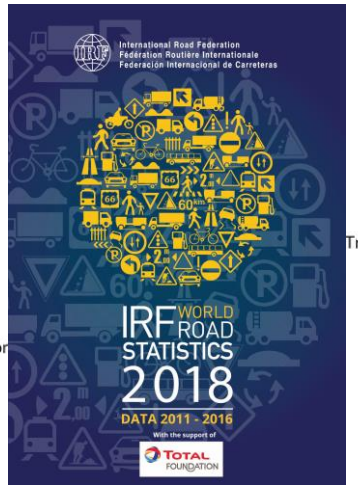
IRF World Road Statistics
WRS 2018

Road Networks

Country Profile

Production, Imports, First Registration & Export of Motor Vehicles

Road Traffic



Road Accidents

Multimodal Traffic Comparasions

Vehicles in Use

Road Expenditure & Revenue

www.worldroadstatistics.org

WRS in a nutshell

- Edited yearly since 1964 (**55 years**)
- More than **205 countries**, **45 indicators**, 9 sections
- Data collected from **primary statistical sources** (Ministries, Road Authorities, National Statistical Offices)
- **Definitions** based on the Glossary of Transport Statistics (ITF/EUROSTAT/UNECE) and The World Bank
- Data used by Governments, Investment & Development Banks, Public & Private Companies, Research Institutes & Universities, NGOs, International Organizations, etc.

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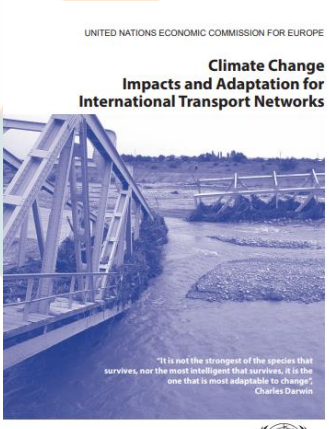

SUSTAINABLE mobility FOR ALL™

www.sum4all.org

Partnership on Sustainable Low Carbon Transport

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Impacts of climate change on infrastructure

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Impacts of climate change on infrastructure

Event	Impact on Road Infrastructure
Increased temperature Heat waves	Damage to concrete and bridge expansion joints; Buckling, fissuring of asphalt pavement Rutting
Fewer colder days and shorter winters	Reduced snow removal but increased freeze-thaw degradation of asphalt
Sea levels rise and tidal surges	Intermittent or permanent flooding Surface damaged Weakening of key infrastructure support (bridge pilings) Damage to critical drainage infrastructure Increased costal erosion – road collapse Exacerbate salinity (corrosive effect)
Extreme precipitations	May overwhelm drainage infrastructure Erosion, scouring, slop failure, flooding
Extreme winds and storms	Wind damages bridges, gantries, signs, electricity networks, lightning Storm surge means damage from increased wave height and strength

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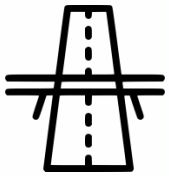
Increasing Climate Resiliance of Roads



1. Understand **vulnerabilities** of the network;
2. How **level of risk** changes over time;
3. Identifying potential **adaptation responses**;
4. **Actions** to reduce risk;
5. **Strategic planning** ⇢ **decisions on the ground**

(materials, design, maintenance procedures)

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Identify vulnerabilities and future risks

1. **High quality asset data** (incomplete or not adequate, difficult to access)

ASSESS RISK:

- General asset information (location, design, materials)
- Geology, topography, hydrology and use of adjacent land
- Climate thresholds of assets beyond which failure occurs
- Asset characteristics which increase vulnerability
- Climate change projections, future developments of the area

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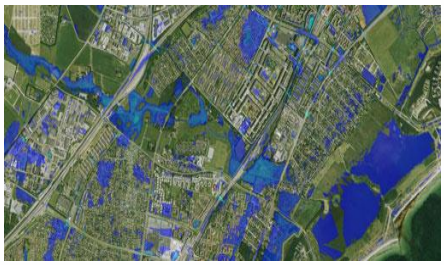
Example: Flooding

The Blue Spot Concept

Chain of procedures to systematically analyse, adapt and protect road network.



TWO PARTS:

A. Computer methods
B. Field inspections and action

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Barriers

1. Counterproductive policies

eg. EU Water Framework Directive: limit to the amount of water that can be discarded from a site.

2. Lack of funding (reduced budget for maintenance)

Barrier to introduction of new approaches

3. Challenges in developing general guidelines (local info)

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Adjusting standards: The French example

2015 Systematic **review of standards** and guidelines for design, maintenance and operations of transport infrastructure;

Revision of **800 standards** for roads;

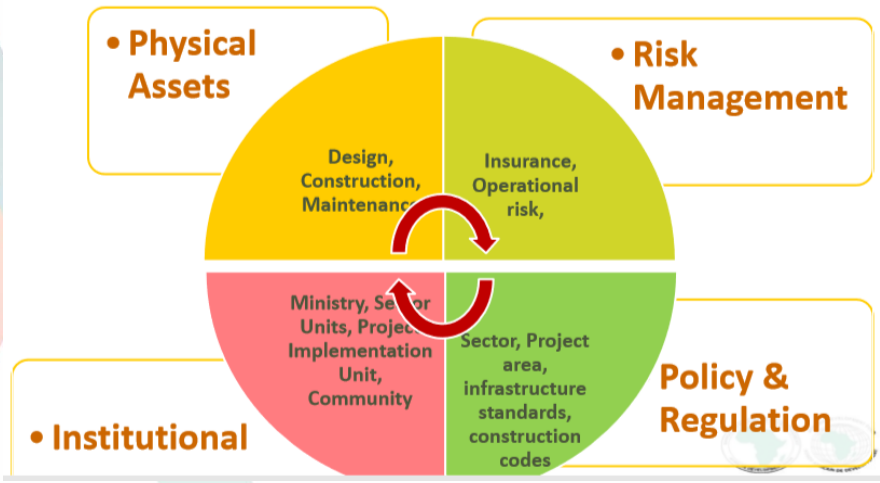
3 groups:

a) No need for revision (eg.Noise, landscaping design)

b) Need revision (eg. Pavement design)

c) Need for further climate parameters (maintenance of urban roads)

Standards for design, maintenance and operation are based on **specific values** of climate-related variables, whereas climate projections are often given as **ranges of values**.



Dr. Timothy Afful-Koomson
Principal Green Growth Officer,
African Development Bank

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FEDERATION ROUTIERE INTERNATIONALE

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IRF Manifesto
on
Climate Change Adaptation

It is now commonly recognized that **growth, economic development and transport are inextricably linked**. Just as development increases the demand for transport, the availability of transport stimulates economic development by enabling trade and economic specialization. Growth, poverty reduction, and a better quality of life cannot be realized without access to schools, hospitals, other amenities, jobs, and markets. Transport, thus, is the backbone of actions aimed at achieving the Sustainable Development Goals (SDGs), and providing sustainable transport infrastructure and services is fundamental to realize the sustainable development goals as described in the Post-2015 Development Agenda.

As climate change and the threats its poses become increasingly apparent, it is also becoming clear that the transport sector is likely to be heavily affected by the negative impacts of climate change and that measures to protect transport infrastructure and services have to be put in place. Much of this action involves adapting existing transport infrastructure to the threats posed by climate change, and building resilient new infrastructure.

The International Road Federation (IRF Geneva) and its members support global action aiming at proactively combat the potential adverse impacts of climate change on transport and make to this end the following recommendations:

- Adaptation in transport should not be viewed in isolation, nor reduced to just technical infrastructure fixes. On the contrary, adaptation should be seen as part of a **wider strategic approach**, reflecting the interrelationships between transport (infrastructure and network operations), the local/regional economy and land use.
- Despite our ability to forecast the impacts of climate change with a reasonable level of accuracy, our knowledge about the specific local impacts of climate change in a particular area or region remains uncertain and incomplete. Coordinated efforts to **document the knowledge base on adaptation** in the transport sector should be encouraged and supported;
- A degree of **uncertainty will** always remain in planning for adaptation. This uncertainty can, however, be taken into account by robust planning approaches and **adaptive policy/decision** making and should not be used as a false pretext not to plan for adaptation today.

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IRF Manifesto on Climate Change Adaptation

- **Released in 2016 at COP22**
- **13 recommendations for climate change adaptation**

Endorsed by

www.irfnet.ch

IRF Manifesto Recommendations
Data

- It is necessary to plan and make climate change adaptation policy based on **complete, relevant, accurate, and up-to-date data.**
- Asset inventories and asset management systems do not always contain the data required to assess resilience, or the **data is difficult to access**.
- **The establishment of a national data warehouse** containing data on all transport assets, land use, the regional economy, weather, and climate change data should be set as a priority in every country.

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IRF Manifesto Recommendations
A Global Infrastructure Database

The creation of an **open access global transport infrastructure database** of adaptation oriented policies, measures and projects would greatly help.

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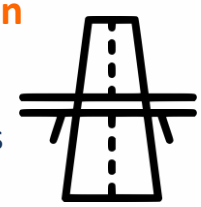
IRF Manifesto Recommendations
Prioritising Adaptation Action



1. Level of risk ⋯⋯▸ Budget constraints
   (monitoring asset/doing nothing)
2. Identify most cost-effective time for action
3. Decide on level of acceptance of risk
   (type of road, traffic volumes, strategic value, …)

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IRF Manifesto Recommendations
Cost-benefit analysis

Investors need to rethink traditional approaches to cost-benefit analysis so that investments capture as many of the different impacts of transport as possible.

SAVi Tool

IISD International Institute for Sustainable Development

MAVA FONDATION POUR LA NATURE

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IRF Manifesto Recommendations
Importance of Technology

Technology can deliver the transformation needed not only in terms of risk mapping and assessment but also when it comes to respond and manage risk in climate change adaptation.

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Wrapping up:

- The challenges posed by climate change **cannot** be adequately met using the **traditional approaches** (pure hard/soft engineering measures).
- Need **adaptive policy**/decision making.
- Need high quality **asset data**.
- Need **clear value management** (prioritise protection and spending).
- Need to develop **skills – people**
- Need to **create conditions for private sector** to invest.

Institutional arrangements are key and so is to connect Adaptation to the delivery on other SDGs

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Thank you
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