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In collaboration with

**Ministry of the Environment, Government of Japan
United Nations Economic and Social Commission for Asia & the Pacific**

**INTERGOVERNMENTAL 13th REGIONAL ENVIRONMENTALLY
SUSTAINABLE TRANSPORT (EST) FORUM IN ASIA**

10-11 NOVEMBER 2020

Virtual meeting via video conference in Webex platform

**Railways as the backbone of sustainable regional connectivity
and a green recovery**

(Background Paper for Joint ESCAP-UNCRD Policy Dialogue 2)

Final Draft

This background paper has been prepared by Lucie Anderton, UIC for the 13th Regional EST Forum in Asia. The views expressed herein are those of the author only and do not necessarily reflect the views of the United Nations.

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INTERNATIONAL UNION
OF RAILWAYS

BACKGROUND PAPER

13th Intergovernmental Regional Environmentally Sustainable Transport (EST) Forum in Asia

10 November 2020 - Bangkok, Thailand

Background paper

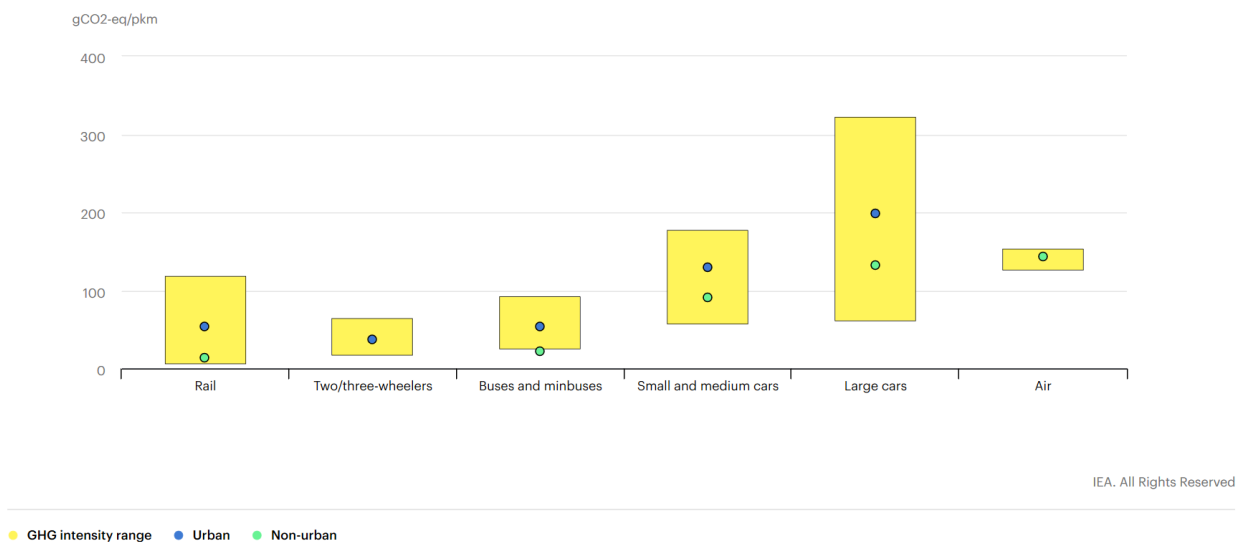
Title: *Railways as the backbone of
sustainable regional connectivity
and a green recovery*

Author: Lucie Anderton

Introduction

¹Rail is one of the most energy-efficient transport modes, responsible for 9% of global motorised passenger movement and 7% of freight but only 3% of transport energy use. Urban and high-speed rail infrastructure has expanded rapidly over the past decade, laying the foundation for convenient, low-emissions transport within and between cities. China is leading the way in deploying high-speed rail with unprecedented expansion: passenger activity increased about 13% in 2019, more than twice that of domestic aviation. Further rail investments in India and Southeast Asia in particular can help get the transport sector on track by displacing more emissions-intensive modes such as cars, trucks and airplanes.

Latest data published by the IEA shows rail still well ahead in efficiency for **GHG intensity of passenger transport modes, 2019**



Beyond CO₂ emissions reduction potential, many benefits recommend rail as a choice mode of sustainable transport.

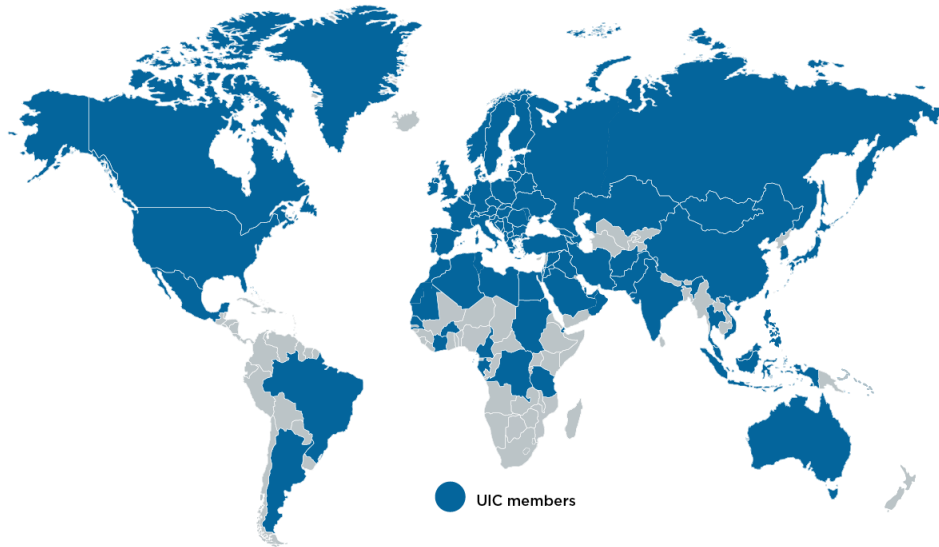
In **urban environments**, rail is unparalleled in its throughput capacity (i.e. the potential to move large volumes of passengers). Its use can therefore reduce congestion, save valuable and scarce space, and generate wider economic benefits such as agglomeration effects. Urban rail is also far safer than road transport and better for local air quality.

High-speed rail is the only established low-carbon alternative to aviation for short-distance trips, and freight rail the only alternative to long-distance inland road freight transport. Aviation and long-haul road freight account for large, rapidly growing shares of transport-related energy demand and emissions, and alternative technology options are currently limited.

¹ <https://www.iea.org/reports/rail>

What is UIC?

UIC MEMBERS ALL AROUND THE WORLD



UIC, the worldwide professional association representing the railway sector and promoting rail transport. UIC leads an innovative and dynamic sector, helping Members find continuing success and opportunities. Members are invited to take a proactive role in the UIC working groups and assemblies where the railways' position on regional/worldwide issues is shaped. Active participation in the working groups is a unique opportunity to voice opinions and benefit from the weight of the railway sector at a coordinated worldwide level. UIC is the association for technical cooperation amongst railways, and coordinates the sector's position as it negotiates its evolving relationship with the supply industry and research and develops needs in order to draw full advantage of potential interest to railway companies. Members are regularly informed of key developments on the dossiers UIC deals with and which impact on their activities. This allows Members to anticipate regulatory and technical changes and integrate them effectively and more smoothly into their own business operational processes.

Overall objectives for UIC To enable UIC to effectively fulfil its mission, 3 levels have been defined for international cooperation activities:

1. Strategic level: coordination with and between the 6 UIC Regions created as part of the new Governance (activities steered by the UIC Regional Assemblies for Africa, Asia Pacific, North America, South America, Europe and Middle-East).
2. Technical/professional cooperation level (structured around the following railway activities): Passenger, Freight, Rail System – including infrastructure, rolling stock, operations – and Fundamental Values including cross sector activities such as Sustainable Development, Research Coordination, Safety, Security, Expertise Development). Strategic priorities for technical cooperation activities are set out by forums and platforms composed of member representatives.
3. Support services level: (Finance, Human Resources, Legal, Communications and Institutional Relations).

Impact of Covid-19 on Rail

COVID-19 has highlighted how essential railways are to society.

While rail services have looked very different to business as usual, with passenger usage dropping dramatically in most countries, the network has kept essential services going. Freight services have kept supermarkets stocked and passenger services have enabled key workers to get to work. Our role in this pandemic has brought the railway family even closer together, and UIC has been delighted to coordinate and share best practice for managing the crisis. We convened 70 UIC members and 18 international organizations in the UIC Covid-19 Task Force.



UIC produced and shared practical guidance resources for members on COVID19 measures, how to restore confidence in railways and remaining 'RAILslient'.
<https://uic.org/covid-19/>

As we look forward to a 'new normal', it is time to consider how Railways can best serve society not just through the pandemic today, but beyond.

During the pandemic we have seen dramatic changes in the way people travel, with road traffic reducing dramatically and the use of bicycles being taken up in much higher numbers. The noise reduction and air quality improvements as a result of this change reminded us of the impact our travel behaviours can have on our health and wellbeing. The UIC sees this as an opportunity to attract more passengers to rail and help deliver on the vision of a green recovery.

Invest –In order Rail to take a larger market share for freight and passenger, infrastructure needs improving in reliability, capacity, and connectivity. There must be continued investment in new high-speed rail and upgrade rolling stock so that is electric, comfortable and accessible for all. Exploiting rail 's potential fully will require supportive government policies and long-term investments. Post-pandemic stimulus packages give governments the opportunity to accelerate and deliver of Paris accord and national commitments through the investment in sustainable transport infrastructure.

Innovate – find smart and innovative approaches to decarbonising and making rail even more sustainable e.g. green hydrogen battery technology and digital solutions for efficient logistics and mobility as a service digital platform.

Integrate - Railways and transport actors must now act in a coordinated way. The UIC and its members wish to build and strengthen relationships with stakeholders in other low-carbon forms of travel, to make use of digital platforms and co-create transport hubs that can contribute to a healthier society.

Rail was front and centre of the first industrial revolution with coal and steam. As we move on from coal and from oil, rail can be part of accelerating this next and latest industrial revolution embracing digitalisation and the renewable energy revolution.

Rail as part of a green recovery will create more highly skilled jobs, support healthy communities by connecting more people to work, education and recreation and help avert the worst of the much greater global catastrophe of climate change.

To really achieve the shift to rail, there must be a level playing field, Governments must ensure that all transport modes pay for both infrastructure use and any adverse impacts, for example through road-pricing and congestion charges.

Sustainable Development Goals

Sustainable transport is essential to achieving most, if not all, of the Sustainable Development Goals (SDGs). Although sustainable transport is not represented by a standalone SDG, it is mainstreamed across several SDGs and targets, especially those related to sustainable consumption and production, health, safety, energy, infrastructure and most notably cities and human settlements.

SDG 11 on inclusive, safe, resilient and sustainable cities includes a target on expanding sustainable public transport. This can only be achieved if we can foster a constructive dialogue among member states and the sustainable transport community. Most importantly, cities will play a critical role for a number of dimensions for effective and sustainable mobility: from the provision of access to safe, affordable, accessible and sustainable transport systems for all to improving and guaranteeing road safety. A lack of adequate access to transportation, especially in peripheral urban areas in developed countries and in marginalized neighbourhoods in developing countries, often aggravates economic and social isolation and segregation. Widespread congestion and traffic gridlocks have now become 'normal' in many cities, affecting the quality of urban life and the productivity of urban economies through an impactful set of negative externalities which can account for over 10% of a country's GDP.

With adequate support, however, cities and the transport sector can promote inclusive and integrated urban planning and policies in order to transform their transport systems – putting sustainable transport at the centre of their agendas, enhancing access for all and with special attention to the rights of women, youth, persons with disabilities, older persons and other vulnerable groups. Delivering a coherent and successful urban mobility system can facilitate access to education, jobs, markets and goods, as well as a full range of other services, with the aim of ensuring that no one is left behind. Efficient mobility systems enabled by sustainable transport reduce congestions, accidents, noise, pollution, greenhouse gas emissions, and the overall environmental impact of the system.

UIC's Role in a Green recovery and delivery of UN SDGs

UIC will use its key role as global coordinator and technical authority to accelerate a green recovery and empower the railway community in this region and the regions it connects with. Our key activities:

1. **To set a vision and pathway to a low emission railway that is both biodiverse and a good neighbour.**
2. **To promote and facilitate collaborative partnerships that support a multimodal vision of public transport and the logistics chain with rail as the backbone.**
3. **To Convene expert networks and develop innovative projects to raise sustainable performance, improve transparency and better attract sustainable financing.**

UIC sustainability Unit hosts 5 expert groups:



Air Quality



Energy & CO₂



Circular Economy



Noise & Vibration



Sustainable Land-use

UIC Sustainability Unit will continue to update technical international standards and host tools for our members to improve their sustainability Performance.

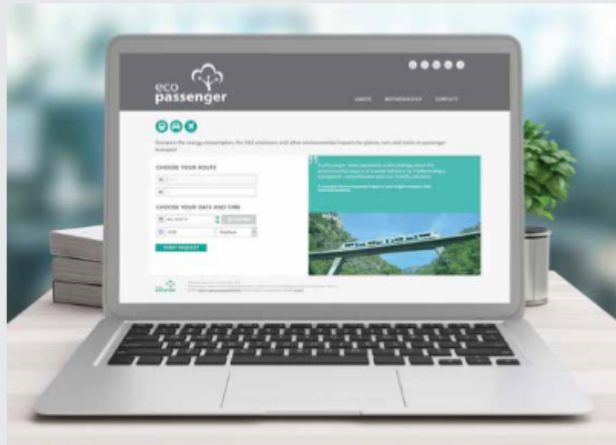
SDG Rail Index

The SDG RAIL INDEX aims to facilitate easier access to green bonds and sustainable finance instruments for railway undertakings and infrastructure managers.

It is intended to provide UIC members with a brand-new rating system and will serve as an online reporting tool based on 7 key United Nations Sustainable Development Goals (UN SDGs), assessing each railway undertaking's or infrastructure manager's contribution to the SDGs. It collates both quantitative and qualitative data across 24 key performance indicators for which data is either collected in UIC databases or provided by companies. SDGs rated as priority areas for action in Railways have a higher weighting in scoring and scores will be generated both against industry benchmarks as well as against the companies previous performance, rewarding companies that are improving. The tool will be web-based and will be made accessible to UIC members via a secure portal. Several members have already submitted some data to test out the scoring methodology and the first version of the reporting tool is in development. The following are key features being developed in the tool, inter alia:

- Secure company login;
- 7 reporting forms for each of the SDGs;
- % Data completed;
- The company's performance over the previous three years;
- Rating A-D Beginner to Leader;
- A sector rating distribution, allowing recipients to understand how their companies perform against the sector average;
- The company's key strengths and weaknesses in terms of performance.





More than a quarter of greenhouse gases emissions come from the transportation sector, showing the highest growth in these emissions on the last decades and it is not stopping. UIC has recently launched a new version of EcoPassenger – first created in 2005 - in order to increase awareness among users.

The new EcoPassenger calculator aims to spread knowledge about the consequences of our travel choices and to give support to decision makers on how to facilitate sustainable choices. A new methodological report produced by IFEU and Hacon is published on the website containing all the data and sources used to perform the calculations. The new version of EcoPassenger shows that it is possible to have right information and data through international and technical cooperation. With the energy consumption information provided by this tool, everyone can take decisions in order to mitigate GHG emissions, and it enables the environmental advantages of the railways – compared to main competitors – to be highlighted.

UIC invites you to check emissions at <http://ecopassenger.org>



For Freight transport, have a look at Ecotransit, a very sophisticated tool, developed by a consortium of shippers and transport companies and technical consultants.

<http://www.ecotransit.org>

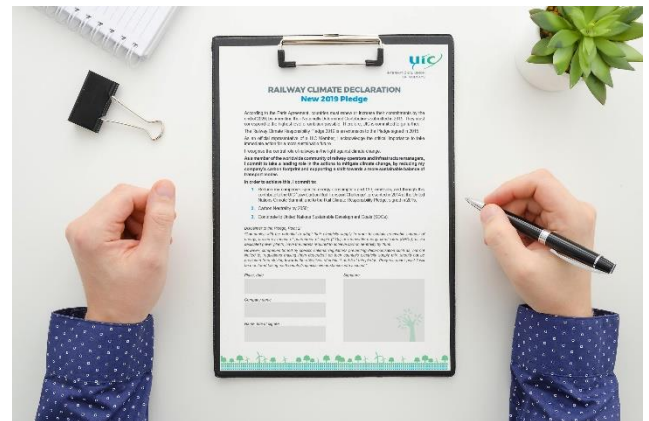


UIC Climate Declaration

34 UIC members have committed as signatories to the Climate declaration, including for this region JR East and RZD. As signatories, they commit to take a leading role in the actions to mitigate climate change, by reducing my company's carbon footprint and supporting a shift towards a more sustainable balance of transport modes.

In order to achieve this, each company has committed to:

1. Reduce my company's specific energy consumption and CO₂ emission, and through this contribute to the UIC "Low Carbon Rail Transport Challenge", presented in 2014 at the United Nations Climate Summit, and to the Rail Climate Responsibility Pledge, signed in 2015;
2. Carbon Neutrality by 2050;
3. Contribute to United Nations Sustainable Development Goals (SDGs).

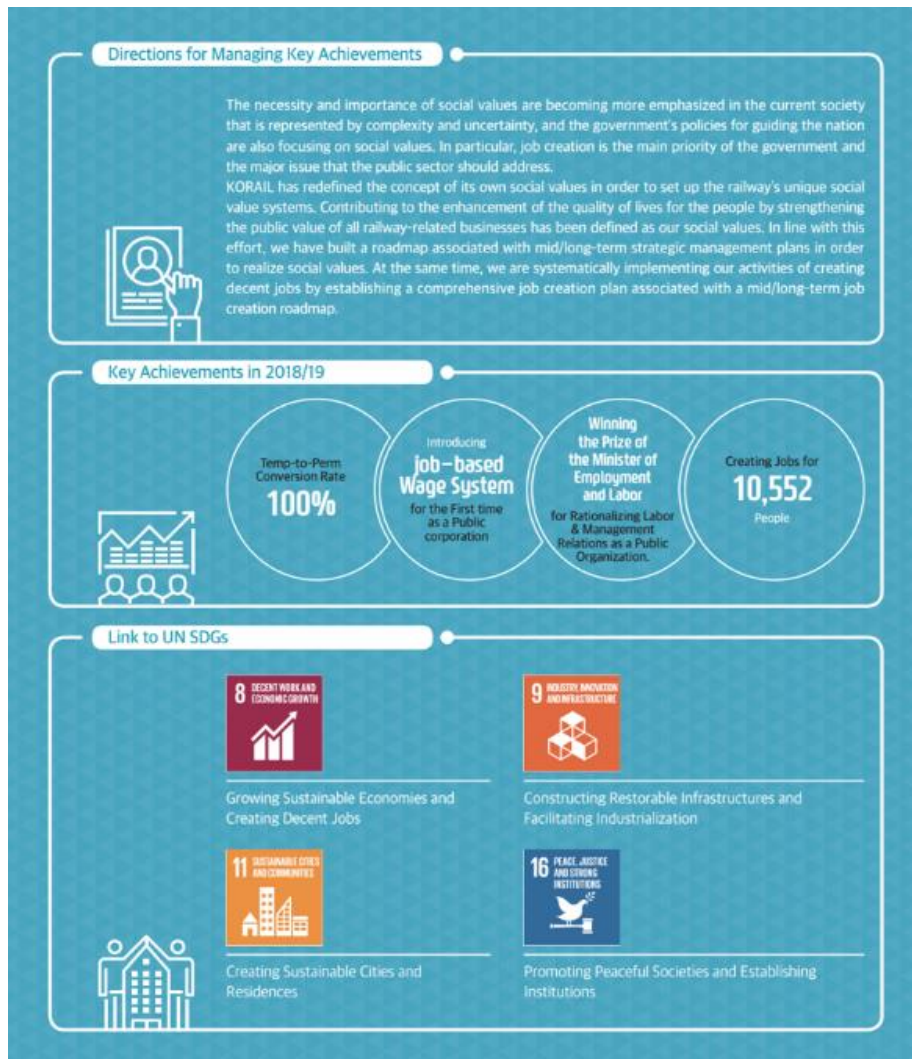


UIC has joined the Race to Zero campaign as official supporters and will work with our members to build momentum and action un the lead up to COP26.

Sustainability Taskforce

In the coming year, UIC will launch a new Sustainability Taskforce, which will be a leadership group that will primarily aim to champion both rail as a sustainable form of transport and a pathway to decarbonise rail.

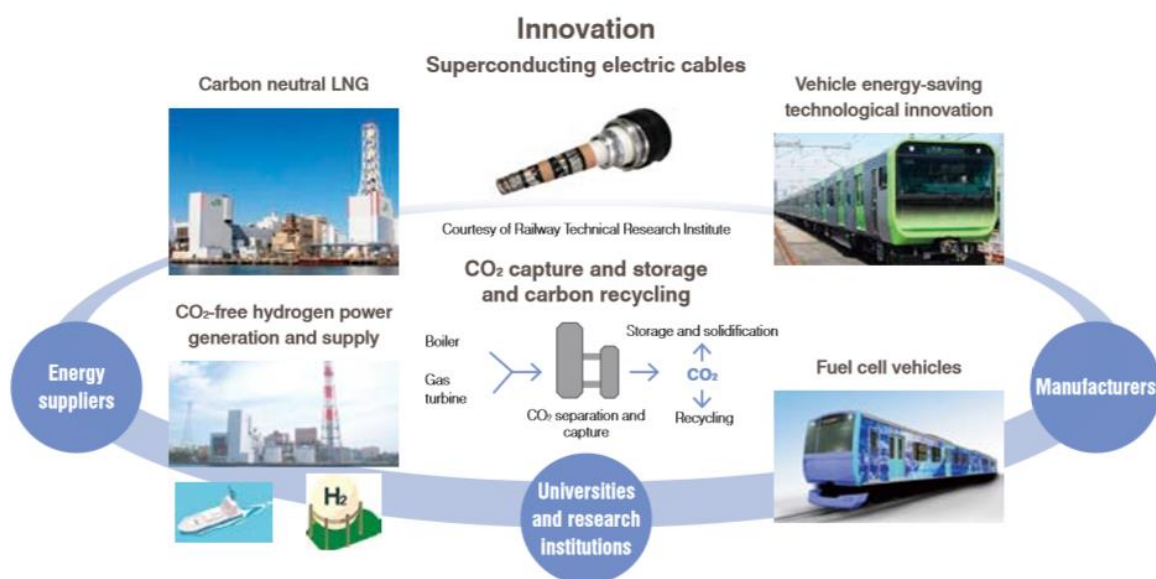
ASIA PACIFIC member examples of best practice: KORAIL and JR East



To highlight one of our members work from the Asia Pacific Region, KORAIL are making great strides in their social sustainability efforts. KORAIL are keen to create social value from their Railway assets. One of their focus areas is decent employment and have amongst other initiatives been working to move more jobs into permanent secure employment as well as employ homeless and other under-represented groups.



The JR East Group is one of the 34 signatories to the UIC Railway Climate declaration. Their strategy “Zero carbon Challenge 2050” was launched in May 2020, and aims to enhance rail as a leader in environmental performance and remain the mode of choice. The strategy focuses on technological innovation in collaboration with other companies and research institutions. They are proactively incorporating new technologies in every phase of its energy network, from generation through transmission and from storage through consumption.



Collaboration with Toyota Motor

JR East signed a basic agreement with Toyota on a comprehensive business partnership centered on hydrogen-based mobility collaboration between railways and automobiles. The two companies will aim to help build attractive, low-carbon communities by combining their resources to undertake feasibility studies for a variety of approaches to hydrogen utilization and application, coordinating with our numerous stakeholders, including local governments, businesses, and community citizens, and building a railway station-based hydrogen supply chain.

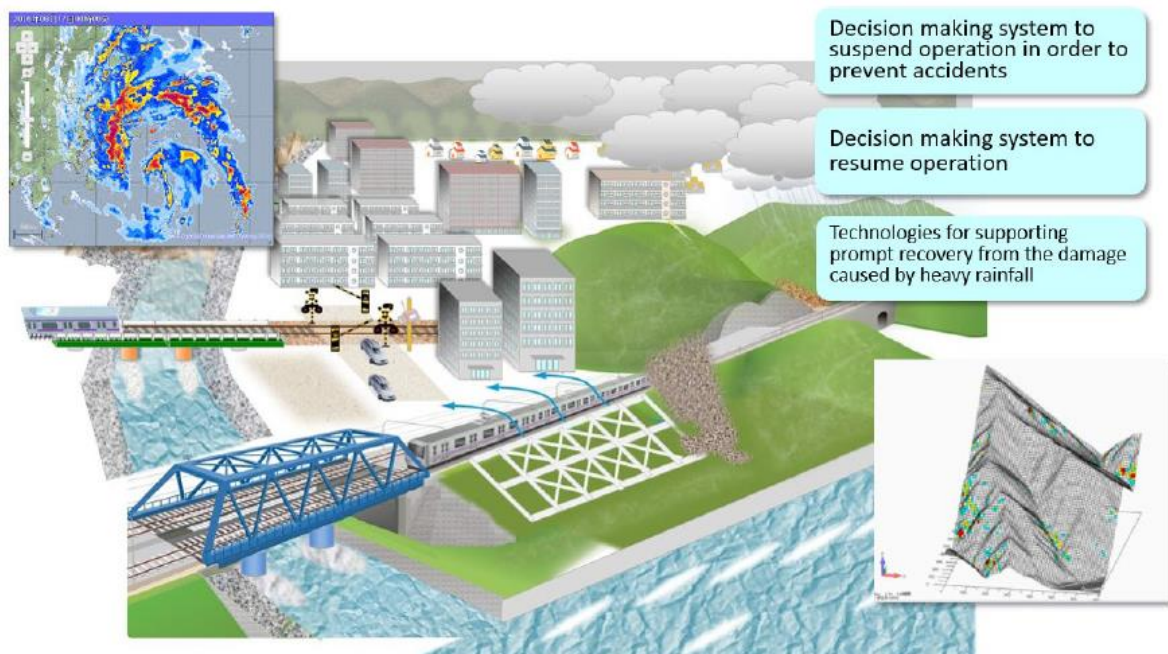
Hydrogen Station Opening

JR East plans to open a hydrogen station on land neighboring Takanawa Gateway Station. The station will feature a presentation room for information on the utilization of application of hydrogen, and we will use the station to promote proliferation and knowledge of hydrogen energy. We are also conducting feasibility studies on installing stationary fuel cells in railway stations in Fukushima Prefecture, and using the CO₂-free hydrogen-generated electricity to power railway station services. We anticipate that such fuel sources will play a role in business continuity planning (BCP) in the case of disasters, such as by providing power supply services to local citizens for charging their mobile phones and other needs.

Railway Technical Research Institute

The RTRI is working towards the UN SDGs². Through the research activities based on the master plan “RESEARCH 2025”, RTRI will contribute to achieving 9 goals among the 17 SDGs, focusing on “Goal 9: Industry, Innovation and Infrastructure” where RTRI has advantage and enhance its presence as a research institute.

The RTRI is working on building resilient railway systems against increasingly severe weather disaster.



² https://www.rtri.or.jp/eng/press/2020/nr202007_detail.html