ENSURING CLIMATE-RESILIENT RAILWAY INFRASTRUCTURE

OBJECTIVE

Operation and construction measures to ensure climate-resilient railway infrastructure.

DESCRIPTION

Incorporate climate change projections into the design and capacity of drainage to cope with projected future flooding frequency and magnitude.
Install spare and emergency capacity for the safety and operational systems (pass-by trucks, switches, operation on opposite lane) to back up the capacity affected by extreme weather.
Develop strategies minimizing the impact of operational failures caused by extreme weather conditions (special timetables, rerouting models), and provide replacement of services if needed (e.g. bus transport).
Provide real-time information to passengers and maintain communication with important institutions.

EXPECTED RESULTS

Adaptation responses should combine technical solutions (e.g. increased heat resistance of switches and safety system), ecosystem-based measures (e.g. vegetation protecting from direct sun) and monitoring and early warning systems. Measures like dikes and embankments may have multiple benefits as they may protect also settlements or other infrastructure such as roads or energy supply networks. As the implementation of structural measures for the whole railway system of mountain countries is often not feasible for both economic reasons and aspects of nature and landscape protection, there is a strong need for additional (non-structural) risk reduction measures, such as the provision of early warning systems, traffic redirection, etc.

RESULT INDICATORS

Percentage of guaranteed rail transport [%]

INVOLVED ACTORS

Railway companies, public administrations, design and construction companies specialized in transport, research institutions and consultancy, actors delivering weather forecasting and early warning systems.

EXPECTED TIMELINE FOR ACTION

- Short term (1-4 years)

BEST PRACTICES

- Austria
- UK
- Slovakia
- Grimsel – Swiss
- France

CRITICALITIES

Lack of funds, conflicts with environmental protection goals, mainly related to landscape fragmentation, and possible conflicts with local communities concerned about increased noise pollution and land take.

SCOPE OF THE ACTION

- Adaptation

TYPE OF PROPOSED ACTIONS

- Grey

SECTOR OF ACTION

- Transport and infrastructure

CLIMATE IMPACTS

- Change or loss of biodiversity
- Extreme precipitation
- Extreme temperatures
- Strong winds

IMPLEMENTATION SCALE

- Municipality
- Region / Country

SOURCE

https://climate-adapt.eea.europa.eu/help/share-your-info/general/operation-and-construction-measures-for-ensuring-climate-resilient-railway-infrastructure