Extreme weather events impact on Romanian railway transport

Ștefan Roșeanu, Club Feroviar

Group of Experts on Climate Change impacts and adaptation for transport networks and nodes, 7th session, UNECE, Geneva
AGENDA

1. About Club Feroviar
2. Romanian climate change policy
3. Floods impact on railway network
4. Blizzards impact on railway network
5. Network effect
6. Railways can cope with some weather events
1. About Club Feroviar

Railway and multimodal transport business consultancy services

Railway Business Club networking business-matchmaking

Institutional & governmental advocacy cross-media communication

Member of:

- Club Feroviar
- ROMANIAN RAILWAY INDUSTRY ASSOCIATION
- AmM
- European Rail Freight Association
AGENDA

1. About Club Feroviar
2. Romanian climate change policy
3. Floods impact on railway network
4. Blizzards impact on railway network
5. Network effect
6. Railways can cope with some weather events
2. Romanian climate change policy

Earth surface is warmer and warmer, according to a study performed by Berkeley Earth Surface Temperature

Source: Meteo.ro
2. Romanian climate change policy

Climate Change Strategy 2013 - 2020  
(Government Decision 529/2013)  
- Main policy for transport sector -

Promote railways as an alternative to road transport; switch road freight transport to railways  
Private cars on low emission internal combustion engines; Private cars on alternative fuels internal combustion engines; Private cars on alternative energy source; Improve flight management; Optimize flight routes; Develop multimodal transport solutions; Promote non-motorized transport means; Develop a reliable cycling infrastructure

Fall 2013 – Climate Change Strategy to be updated for Horizon 2050
2. Romanian climate change policy

1954, winter: Bucharest tramway runs though heavy snow

2. Romanian climate change policy

Romania:
Main climate characteristics

Source: Meteo Romania

Club Feroviar
June 3, 2015, Geneva
2. Romanian climate change policy

Extreme weather events in Romania, Jan 2011 – Jan 2015

No. of severe weather warning codes per region

Club Feroviar chart based on Meteo.ro data
2. Romanian climate change policy

Extreme weather events in Romania, Jan 2011 – Jan 2015

Type of events per region

*Club Feroviar chart based on Meteo.ro data*
2. Romanian climate change policy

Extreme weather events in Romania, Jan 2011 – Jan 2015

No. of events per region and month of the year

*Club Feroviar chart based on Meteo.ro data*
2. Romanian climate change policy

Romania:
Areas with highest flood risk

Source: Meteo.ro
2. Romanian climate change policy

‘While GHG emissions percentage (11.8%) is smaller than the EU’s average of 20.2 percent, it is rising more quickly than the EU average, driven in part by the declining modal share of rail and increased motorization. Among the different transport modes, road transport is the source of the great majority of GHG emissions in the transport sector, being responsible for 93 percent of domestic transport emissions. This is a similar proportion to the EU-27 average of 94 percent.’ (p. 21)

2. Romanian climate change policy

‘Although car mode share in Romania is at a similar level to the EU average, the motorization (or car ownership) rate in Romania is the lowest in the EU at 201 cars per 1000 inhabitants in 2010, but has grown significantly in recent years, up from 150 cars per 1000 inhabitants in 2004. Experience across the world suggests that as the Romanian economy grows, it will continue to grow in future. Without intervention to provide better transport alternatives and encourage their use, as car ownership grows, car use is also likely to grow.’ (p. 23)

AGENDA

1. About Club Feroviar
2. Romanian climate change policy
3. Floods impact on railway network
4. Blizzards impact on railway network
5. Network effect
6. Railways can cope with some weather events
3. Floods impact on railway network

08/2005:
Heavy rain South of Romania (Danube plain, 30 km south of Bucharest, Pan-European Corridor IX, TEN-T Core Network)

Source: Club Feroviar
3. Floods impact on railway network

08/2005:
Heavy rain East of Romania (Moldova region, Pan European Corridor IX, TEN-T Core Network)

Source: Club Feroviar
3. Floods impact on railway network

2008:
Heavy rain East of Romania (Moldova region, Pan-European Corridor IX, TEN-T Core Network)

Source: Youtube
3. Floods impact on railway network

08/2009:
Heavy rain SW of Romania (Jiu Valley, TEN-T Comprehensive Network)

Source: Gandul, http://storage0.dms.mpinteractiv.ro/media/1/186/3927/4798534/1/viitura-mediafax-foto-resize.jpg
3. Floods impact on railway network

06/2012:
Floods effects
Center of Romania
(Olt Valley, TEN-T
Comprehensive
Network)

Source: Bambuser
3. Floods impact on railway network

02/2013:
Land fall effects East of Romania (Galati-Barlad railway line)

Source: Romania Libera
3. Floods impact on railway network

02/2013:
Land fall effects East of Romania (Galati-Barlad railway line)

Source: Vremea Noua
3. Floods impact on railway network

06/2013:
Floods effects North of Romania (Salva-Viseu)

Source: Mesagerul de BN
3. Floods impact on railway network

06/2013: Floods effects in the North-East of Romania (Vatra Dornei, TEN-T Core Network)

Source: Adevarul
3. Floods impact on railway network

09/2013:
Floods effects East of Romania (Galati-Barlad)

Source: Viata Libera
3. Floods impact on railway network

07/2014:
Floods effects
South-West of Romania (Banat Area)

Source: National
3. Floods impact on railway network

07/2014:
Floods effects
South-West of Romania (Banat Area, Pan-European Corridor IV, TEN-T Core Network)

Source: Opinia Timisoarei
3. Floods impact on railway network

09/2014:
Floods effects
South-West of Romania (Banat Area, Pan-European Corridor IV, TEN-T Core Network)

Source: de Banat
AGENDA

1. About Club Feroviar
2. Romanian climate change policy
3. Floods impact on railway network
4. Blizzards impact on railway network
5. Network effect
6. Railways can cope with some weather events
4. Blizzards impact on railway network

01/2012:
Heavy snow in South-East of Romania (Constanta Area, Medgidia-Tulcea line)

Source: Antena1, Youtube
4. Blizzards impact on railway network

02/2012:
Heavy snow in South-West of Romania (Banat Area)

Source: ProTV
4. Blizzards impact on railway network

02/2012: Heavy snow in South-East of Romania (Bucharest-Constanta main line)

*Source: Youtube*
4. Blizzards impact on railway network

02/2012:
Heavy snow in South-East of Romania (Constanta Area, Pan-European Corridor IV, TEN-T Core Network)
4. Blizzards impact on railway network

10/2013:
Heavy snow in Center of Romania (Bucharest-Brasov main line, Pan-European Corridor IV, TEN-T Core Network)

Source: B1TV, Youtube
4. Blizzards impact on railway network

01/2014:
Heavy wind in
Center of Romania
(Prahova Valley,
Pan-European
Corridor IV, TEN-T
Core Network)

Source: News BV
4. Blizzards impact on railway network

01/2014: Heavy snow in South of Romania (Nucet, Dambovita Area)

Source: Ziar Dambovita
4. Blizzards impact on railway network

01/2014:
Heavy snow in
South-East of
Romania (Calarasi
Area)

Source: Incomod Media
4. Blizzards impact on railway network

12/2014:
Low temperature in
East of Romania
(Constanta Area,
Pan-European
Corridor IV, TEN-T
Core Network)

Source: Radio Romania Constanta
AGENDA

1. About Club Feroviar
2. Romanian climate change policy
3. Floods impact on railway network
4. Blizzards impact on railway network
5. Network effect
6. Railways can cope with some weather events
5. Network effect

Extreme weather events impact on Romanian sector of TEN-T railway network. Highlighted points in our study.
AGENDA

1. About Club Feroviar
2. Romanian climate change policy
3. Floods impact on railway network
4. Blizzards impact on railway network
5. Network effect
6. Railways can cope with some weather events
6. Railways can cope with some weather events

09/2009:
Heavy rain SW of Romania (Banat area, Pan-European Corridor IV, TEN-T Core Network)

6. Railways can cope with some weather events

07/2010:
Heavy rain SE of Romania (Galati area, Galati-Barbosi main line, TEN-T Comprehensive Network)

Source: Youtube
6. Railways can cope with some weather events

01/2012:
Heavy rain SW of Romania (Jiu Valley, TEN-T Comprehensive Network)

Source: Youtube
Thank you for your attention!

Stefan Roseanu
stefan.roseanu@clubferoviar.ro