

# ÖBB-Infrastruktur AG

We want to get as many people as possible excited about railway travel!



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# Weed control within the tracks – status quo and developments

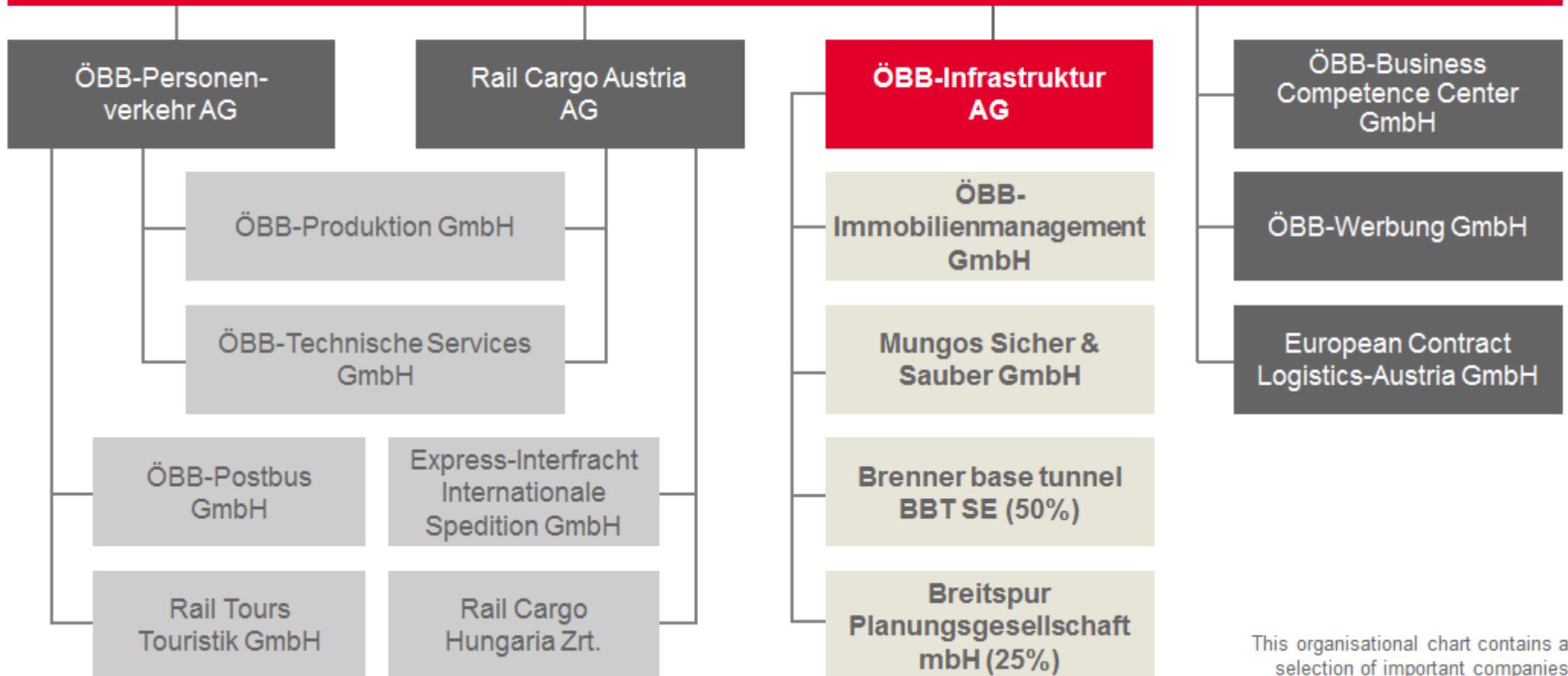
## Contents:

- ÖBB Infra Corp. – company profile, key figures and assets
- Regulations and legal framework for weed control
- ÖBB internal guiding principles
- Methods used by ÖBB
- Herbicide reduction and optimization
- Backup – further information

# The ÖBB Group

Republic of Austria

## ÖBB-Holding AG



This organisational chart contains a selection of important companies of the ÖBB Group.

# Key figures and assets

**17,700**  
employees  
(of which 1,500 apprentices)



6,350 trains daily  
145 million  
train kilometres per year

235 million  
passengers

Over 1,100  
stations and stops

**Climate protection:**  
Power from  
10 hydroelectric power stations

**4,865 kilometre**  
rail network

8 rail freight  
terminals



31 railway companies  
on the network

More than  
**2 billion Euro**  
investment each year

**21 billion Euro**  
balance sheet total

**3 billion Euro**  
total earnings

35 million Euro  
earnings before tax (EBT)

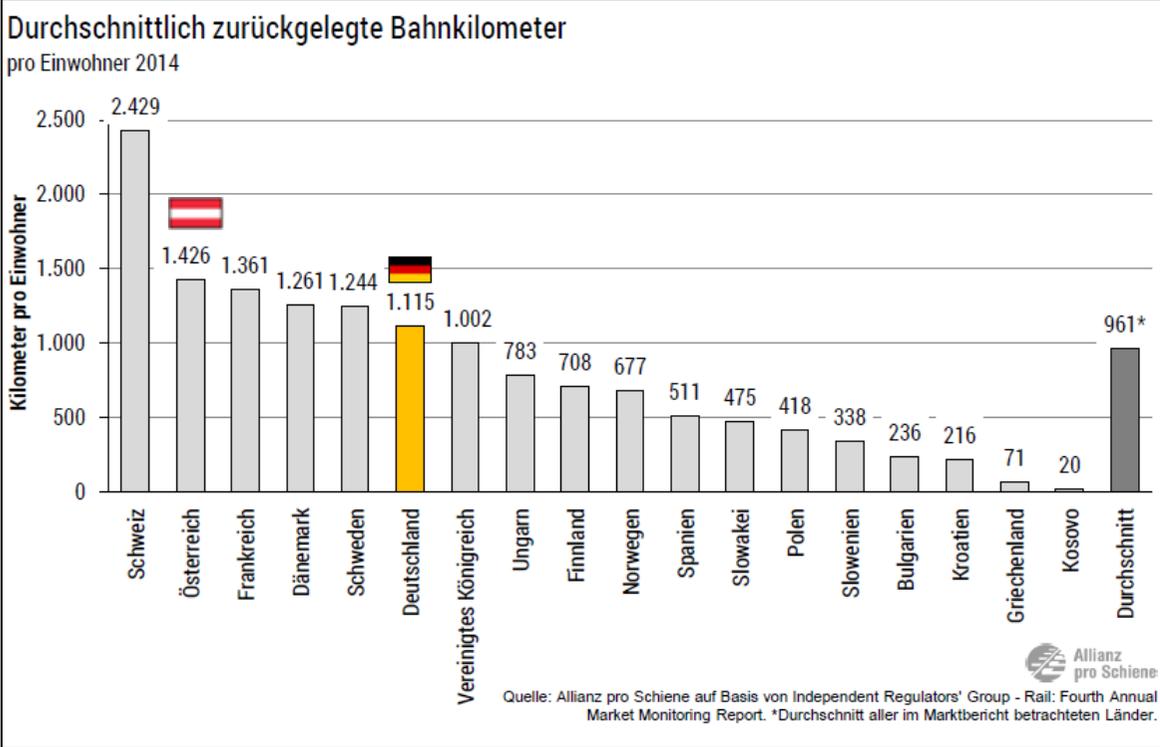
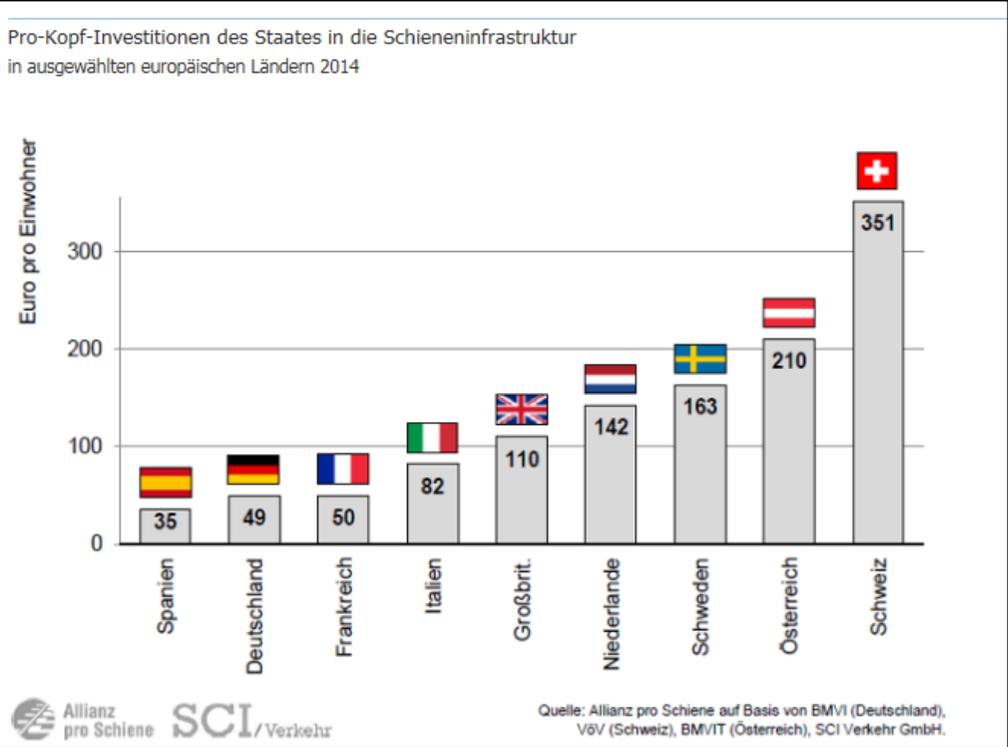
# Railway Infrastructure in Austria

## A success-story!



Per capita investments into railway infrastructure 2014.

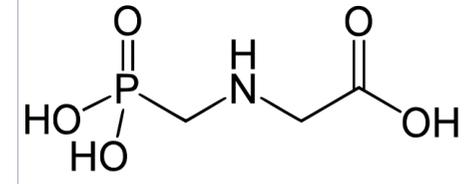
Per capita travel – kilometers on railway infrastructure 2014.



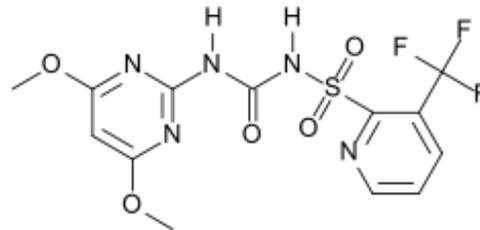
- Herbicides have to be **registered and approved by the Federal Office for Food Safety (BAES)** on the basis of evaluation reports and surveys from the **Austrian Agency for Health and Food Safety (AGES)** <http://www.baes.gv.at/baes/>
- Application on railway infrastructure is regulated by specified issues of the **plant-protection product register** (listing type of product, active agent, max. application amounts, application periods etc.)
- Railways are **obliged to follow that register**. Staff has to be **trained accordingly and verifiable**.
- AGES is entiteled to collect data and publish statistics concerning herbicide use in Austria
- In the past only data about **annual herbicide sales** were available!
- In the future AGES will also publish data about the **actual annual use!**

# Regulations and legal framework for weed control in Austria

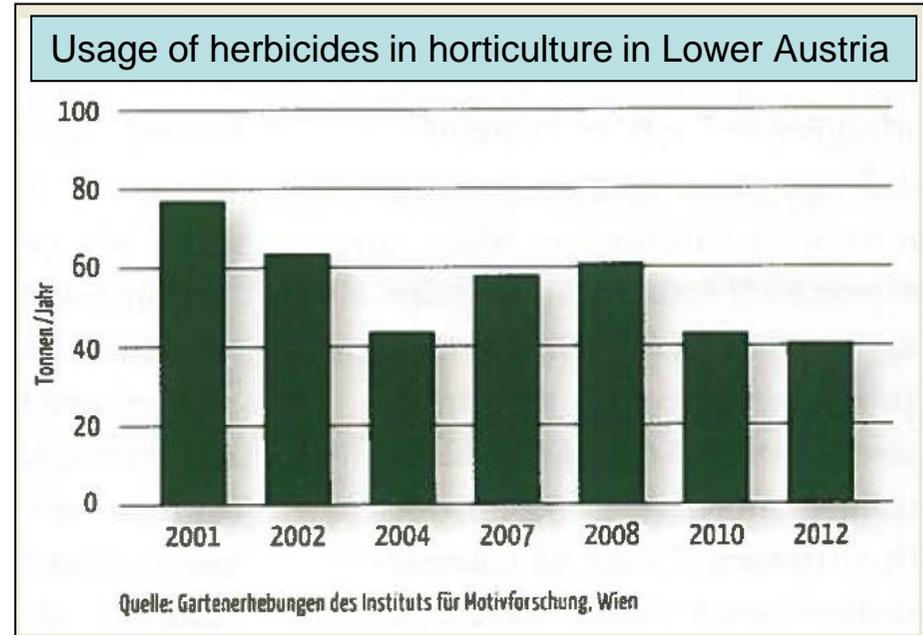
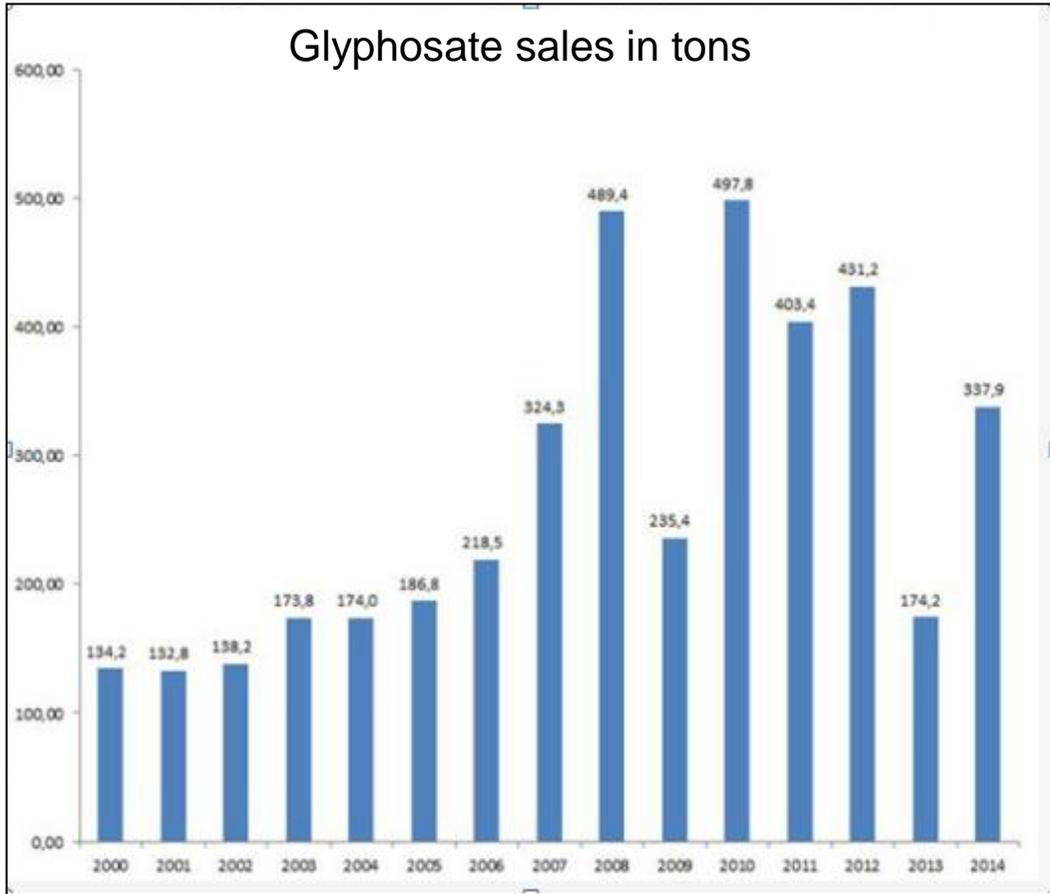
- Currently 20 different products are available for railway application in Austria ([http://pmg.ages.at/pls/psmlfrz/pmgweb2\\$PMG\\_WEB\\_STAMMINFO.ActionQuery](http://pmg.ages.at/pls/psmlfrz/pmgweb2$PMG_WEB_STAMMINFO.ActionQuery))
- All of them are different formulations containing only **three active agents** (Glyphosate, Flazasulfuron and Flumioxazin)
- ÖBB is only using products containing **Glyphosate**



- and **Flazasulfuron**



# Usage of Glyphosate in Austria??

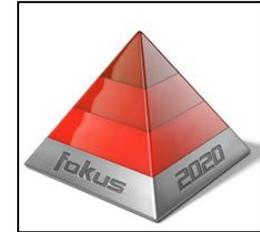


ÖBB Glyphosate usage: 8-10 t/a

Source: <http://www.ages.at/service/service-presse/presse-meldungen/verbraucherinnen-information-zu-glyphosat/tab/3/>

Acc. to a recently publ. CER paper, the railway sector represents less than 0,5% of the EU - herbicide market!

- **New company strategy – FOKUS 2020, states that ÖBB wants to be a leader in corporate social responsibility**
- **„Herbicide reduction programm“ started in 2015, in cooperation with an external NGO**
- **Environmental management system (ISO 14001) in place, since 2009**



# Methods used by ÖBB sprayingtrain – Tersus Multi-Modul Train



videoclip

# Methods used by ÖBB

## Multi Modul Train (Spraying train)

- ÖBB owned MMT in use since 2011
- controlling 6000-7000km/a of railtracks
- green detection system (sensing chlorophyll) for selective application
- Herbicide consumption could be reduced by 70-80%
- Application area is segmented, hence herbicides can be applied to selected segments only, if needed
- Variation of specific pressure and switching between different nozzles can be done, according to velocity
- No application is done if it is raining or under strong winds
- 2015: total area 4865ha controlled by MMT, only 1254 have actually been sprayed



# Methods used by the ÖBB

Spraying on the tracks



Control unit

Crossing a bridge



# Methods used by ÖBB

- additionally to the MMT, ÖBB uses trailers with spraying equipment mounted on rail-vehicles and two-lane vehicles (operated by sub-contractors)
- Some trailers are operating automatically and applying constant concentrations of herbicide (depending on the vehicle speed)
- some are operated manually (speed needs to be constant)
- Application comparable to the standard in agriculture

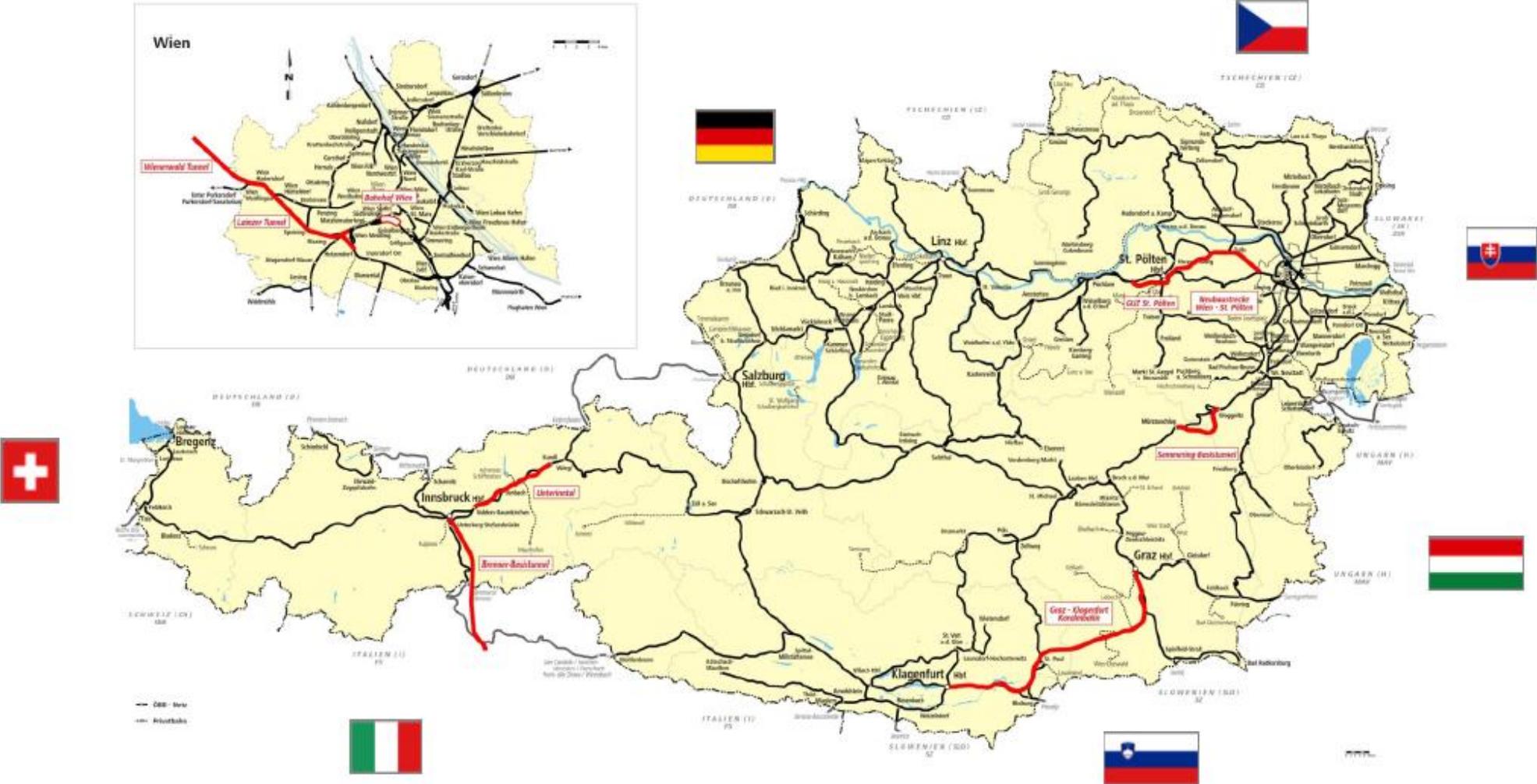




**Thank you for your attention!**

# Back-up

# Current network (2015: 4.846 km; 2009: 5.600 km) and major projects (red lines)



# References to environmental protection in the Austrian Railway law



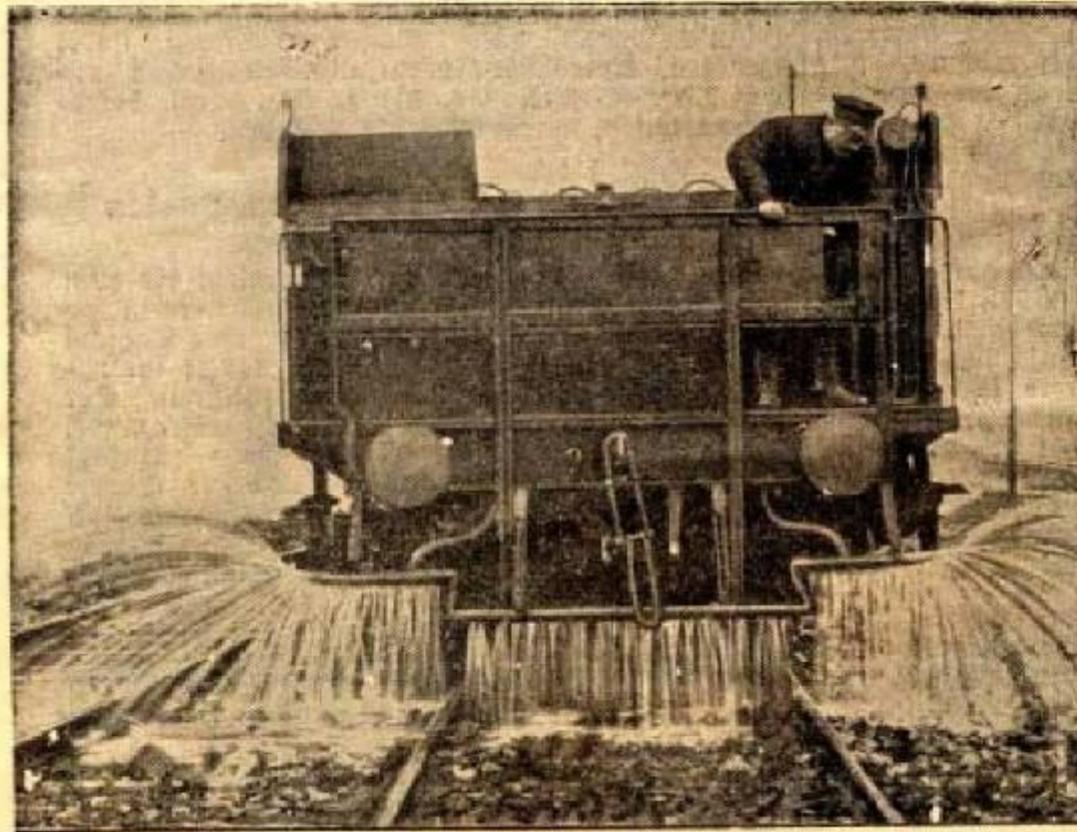
## Austrian Railway law 1957, BGBl I 125 2006

Text passage	Subject of protection	article
...the railwaycompany has to take care that construction, stock or operation of the railway lead <b>to no damages to private and public goods</b>	privat and public goods	§19 (2)
Obligation to <b>protect neighbours</b>	neighbours	§19 (5), duties of a railway company
<b>Watercourses</b> which have been damaged or can't be used anymore due to construction works, have to be restored on the costs of the railwaycompany.... Costs for conservation and restoration have to be accepted by the railway company	water	§20 (1), traffic facilities, water courses
Restored <b>Watercourses</b> have to be handed over for future conservation and restoration, to the original obliged institution, in an official, formal way	water	§20 (2), ), traffic facilities, water courses
Plans have to show the position of <b>watercourses</b>	Water	§31b (1) 1, construction plan
Plans have to include entitled <b>waterusers</b> (stakeholders)	Water	§31b (1) 4, construction plan
<b>Entitled waterusers</b> have to be accepted as a party in the approval process	Water	§31 e, Parties
Within the surrounding <b>hazard area</b> (surroundings of railwayinfrastructure) all natural hazards which are endagering the railway (e.g.: avalanches, landslides, rockfall) have to be managed by the railway company	Landscape, humans, public and private goods	§45, abatement of prevailling risks

## History:

### Herbizidapplikation auf Gleisanlagen

Zeitungsausschnitt 1934



#### Ein Giftsprengwagen der Reichsbahn.

Die Instandhaltung der Eisenbahnstrecken, insbesondere die Vertilgung von sprossendem Unkraut auf dem Gleiskörper, ist ein wichtiger Posten im Betriebe der Reichsbahn. Die Unkrautausrottung geschieht, wie unser Bild zeigt, mit einem Sprengwagen, der Giftlösungen (Pflanzentöndendes Natrium- oder Kaliumchlorat) aussprüht. Mit dem Giftsprengwagen, der von einer Lokomotive geschoben wird, reinigt die Reichsbahn in jedem Jahre etwa 60 000 Kilometer Streckenlänge.

- Railway-infrastructure as part of the **modern „commons“**
- Railway-infrastructure as part of the **green zones and recreation areas** in urban and semi-urban areas (NIMBY-conflicts)
- Railway-infrastructure as a **green-corridor, step-stone or migration route biotope** and as a **provider of ecosystem services**
- Railway-infrastructure as a part of the **cultural landscape and cultural heritage** (UNESCO world heritage site – Semmering)
- Noise, herbicides, waste dumps as well as lack of funds, transparency and participation are some of the **major challenges** concerning sustainable land use of railway infrastructure