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da las alps**

# The Alps – A Sensitive Area

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Conference on sustainable freight transport in sensitive areas

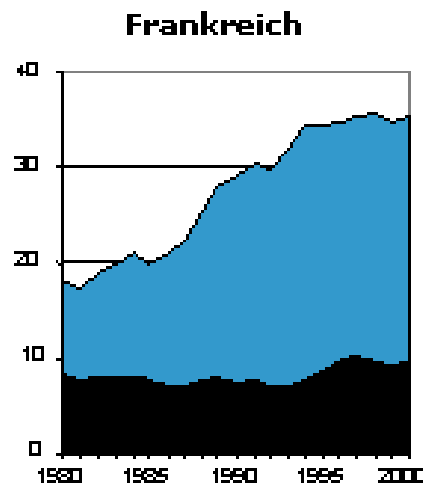
Vitoria-Gasteiz, 7th April 2005

# Increase of transport of goods through the Alps 1980-2000

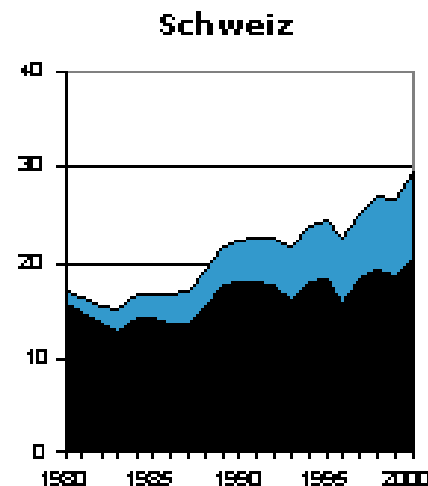


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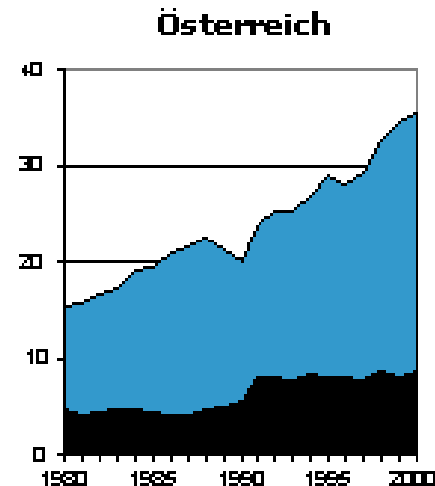
**Alpenquerender Güterverkehr 1980-2000**  
Mont Cenis/Fréjus - Brenner Mio. Tonnen/Jahr (Netto)



**2000**  
Strasse 73,3%  
Schiene 26,7%  
**Total 35,2 Mio. t**



**2000**  
Strasse 30,2%  
Schiene 69,8%  
**Total 29,5 Mio. t**



**2000**  
Strasse 75,4%  
Schiene 24,6%  
**Total 35,3 Mio. t**

**Legende:**

 Strasse

 Schiene inkl. Kombiverkehr

# Why are mountain systems sensitive and vulnerable?



## **Limited space**

Only 10-20% of the Alps can be used (inhabited permanently)

## **Topography /**

**Forces of gravity** Mosaic of high peaks and deep valleys

Permanent movement from the top to the ground

# Mountain ecosystems are very dynamic environments



- **Intensive rain and snow**
  - floods
  - snow/ice avalanches
  - mud slides
- **Extreme temperatures**
- **Strong winds**
- **Erosion**
- **Rock falls**
- + human mismanagement**

# Extreme living conditions in mountain regions



- Soil movement
- Short vegetation period
- Strong winds
- Dry air
- Extreme temperatures

# Survival strategies (of plants) in extreme living conditions



- Nanism
- Large root-systems
- Longevity
- Protection against evaporation  
hairiness,  
wax-coating,  
leathery leaves, succulence

# Air Pollution brings additional nutrients to mountain landscapes



- Alpine plants and wetlands are particularly endangered through atmospheric nutrients
- Tall-growing herbs invade the habitats of nutrient-poor plants which disappear
- Some Mountain lakes become so acidic that their life-forms have been destroyed

# Pollutants are concentrated in mountain valley bottoms



- Thermal inversion keeps pollutants in the valleys
- In mountain valleys one lorry has the same impact
  - as 3 lorries in flat areas during a winter day;
  - as 6 lorries in flat areas during the night

# Noise, habitat loss and fragmentation are other negative impacts of (road) traffic



- Echo-effect of noise in narrow valleys
- Loss and fragmentation of habitats through the construction of roads
- Interruption of migrating corridors of large herbivores and large carnivores

# Air pollution has negative impacts on human health



Air pollutions causes:

- Pulmonary disease
- Heart disease
- Stress

➔ increases mortality

# Risk of accidents: The black chronic



- **Mont Blanc**  
24th March 1999  
39 deaths
- **Tauern**  
29th May 1999  
12 deaths
- **Gotthard**  
24th October 2001  
11 deaths

# Lorries are rolling bombs with a highly destructive potential



- In case of an incident a lorry puts free 30 to 50 times as much energy as a car, an enormous destructive power.

# One possible instrument: Alpine Crossing Exchange



- Combines ecological objective with a market-economy tool.
- To reduce heavy goods traffic to level that is acceptable for both people and nature.
- Reinforce transfer from road to rail.

[www.alpine-crossing-exchange.ch](http://www.alpine-crossing-exchange.ch)



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# Thank you for your attention.

More information:

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