



Cost-benefit analysis in ZHZ

Thematic seminar Aveiro October 2011



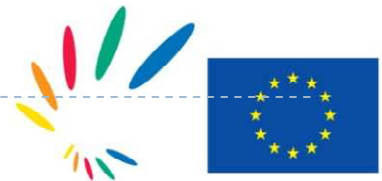
- Lack of transparent accountability
- Dramatic consequences





Desirable

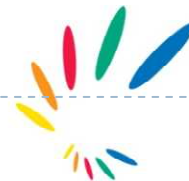
- Prosperity of dangerous goods
- A safely live, work and free time





Required

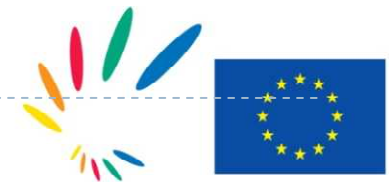
- Critical attitude politicians
- Societal risk caused by
 - Environmental permit
 - Spatial plan
 - Transport route dangerous goods





Reality

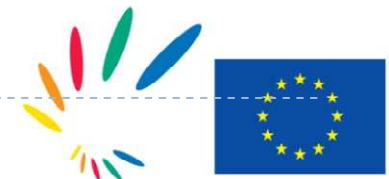
- Unawareness
 - Is it necessary to reduce risk?
 - Is level of risk acceptable?





Societal risk

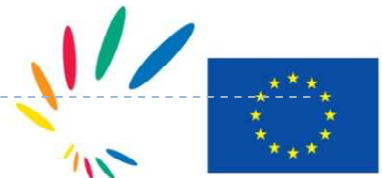
- A balance between
 - Economy
 - Society
 - Aid demand
- Different for each location or risk source





Solution

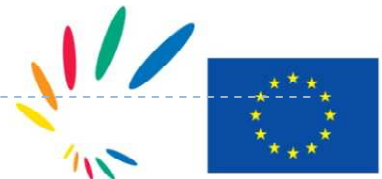
- Mal Groepsrisico
(societal risk template)
- Performing a SCBA
 - Relationship between aid demand and aid supply
- Result is a balance between economy, society and aid demand





Reasons for Societal Risk

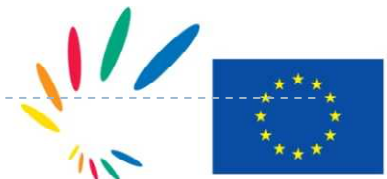
- Risky business
- Transporting hazardous goods
- Spatial development near risk source





Bottleneck risks

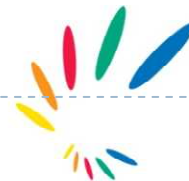
- Different alternatives to reduce the risk
- Different costs
- Different choices





Measures

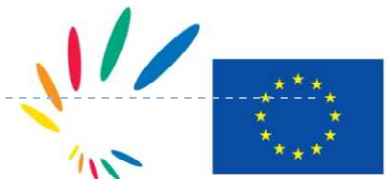
- Protection of the resource risk
- Protection of the recipients
- Targeted approach to spatial planning
- Rerouting transport
- More emergency response





MiSRaR Comparison

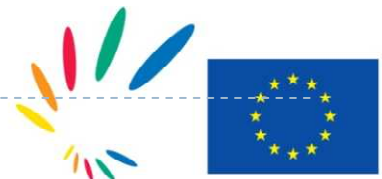
- Multiple alternatives to reduce risks
- Zero situation
- Reference situation





Mal groepsrisico

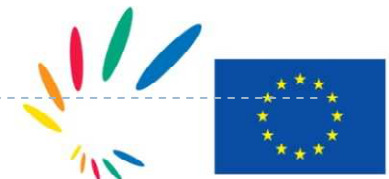
- A catalogue of measures
 - At the source
 - Risk mitigation
 - Impact reducing
 - Inherent safety





Mal groepsrisico-2

- The investments costs
- The effects on the environment

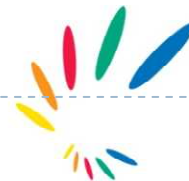


- **Seven categories of criteria**
 - Cost of measures
 - Costs of disaster relief and emergency response
 - Expected number of casualties
 - Expected loss
 - Economic benefits
 - Effects on spatial development
 - Effects on quality of life



Cost of the measures

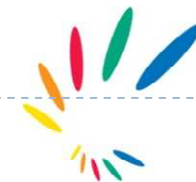
- Mandatory
- Monetized
- Investments and annual costs





Costs of disaster relief and emergency response

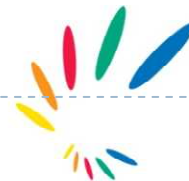
- Voluntarily
- Monetized or qualified
- Investments and annual costs or
- Valuing the positive and negative results





Expected number of casualties

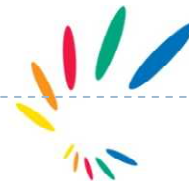
- Mandatory
- Quantified
- Numbers of seriously injured and lethal victims





Expected loss

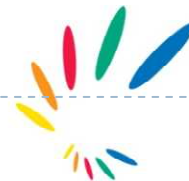
- Voluntarily
- Monetized or qualified
- Expectation physical harm or
- Valuing the positive and negative results





Economic benefits

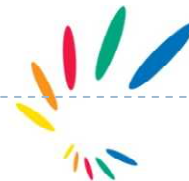
- Voluntarily
- Qualified
- E.g. number of jobs, increase revenue





Effects on the spatial development

- Voluntarily
- Monetized or quantified
- Costs of space or
- Profit or loss of the number of square meters





Effects on quality of life

- Voluntarily
- Qualified
- Influence of measures on environmental elements

