Deutsches Zentrum für Luft- und Raumfahrt e.V.

SEA and Sustainable Development

OECD-Conference on
Strategic Environmental Assessment (SEA) for Transport
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Issues

1. Environmental **goals and indicators** reflecting Sustainable Development are necessary for SEA.
2. Environmental Impacts have to be integrated into **direct evaluation techniques.**
3. Strategic Assessment with the **Backcasting Approach** improves the integration of environmental issues into transport planning.

Sustainable Transportation

Ideal - Sustainable Development:

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." *(Brundtland)*

Guidelines - environmental, economic, social goals

e.g. "biodiversity should be protected" *(Baltic 21)*

Quality Standards

e.g. critical loads, critical levels, WHO-standards

⇒ **Indicators**

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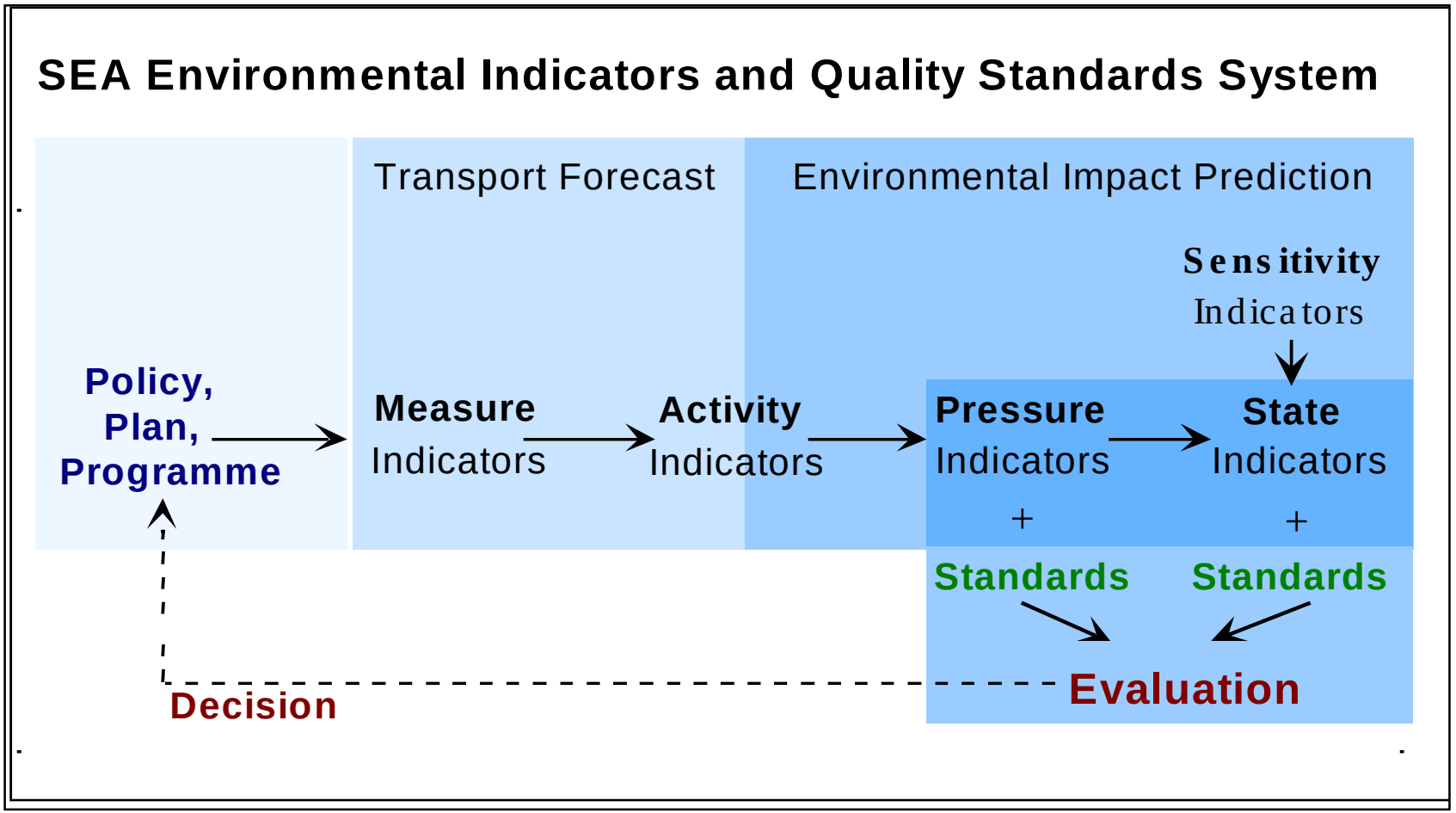
Indicators and Quality Standards



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Application at European Level

Activity Indicator:
Road Traffic Flows

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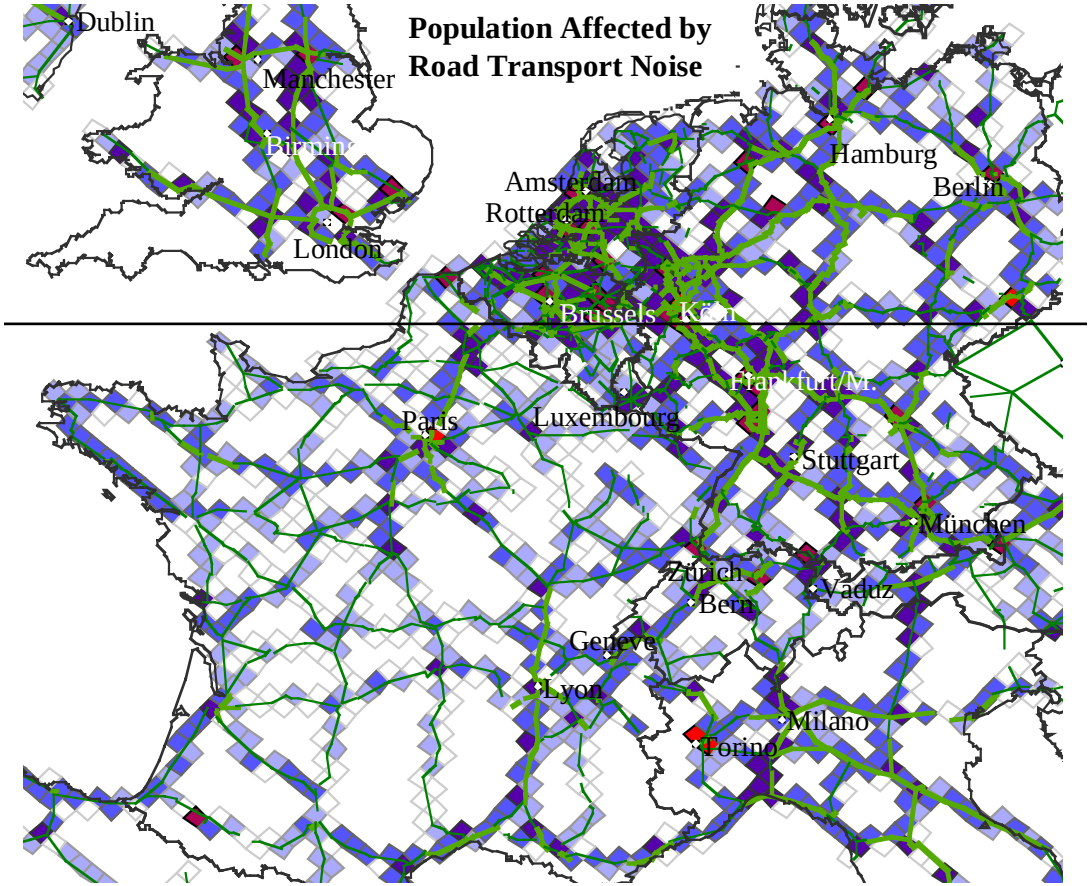
Pressure Indicator:
Noise Level

↓

Quality **Standard**:
55 dB(A) nighttime



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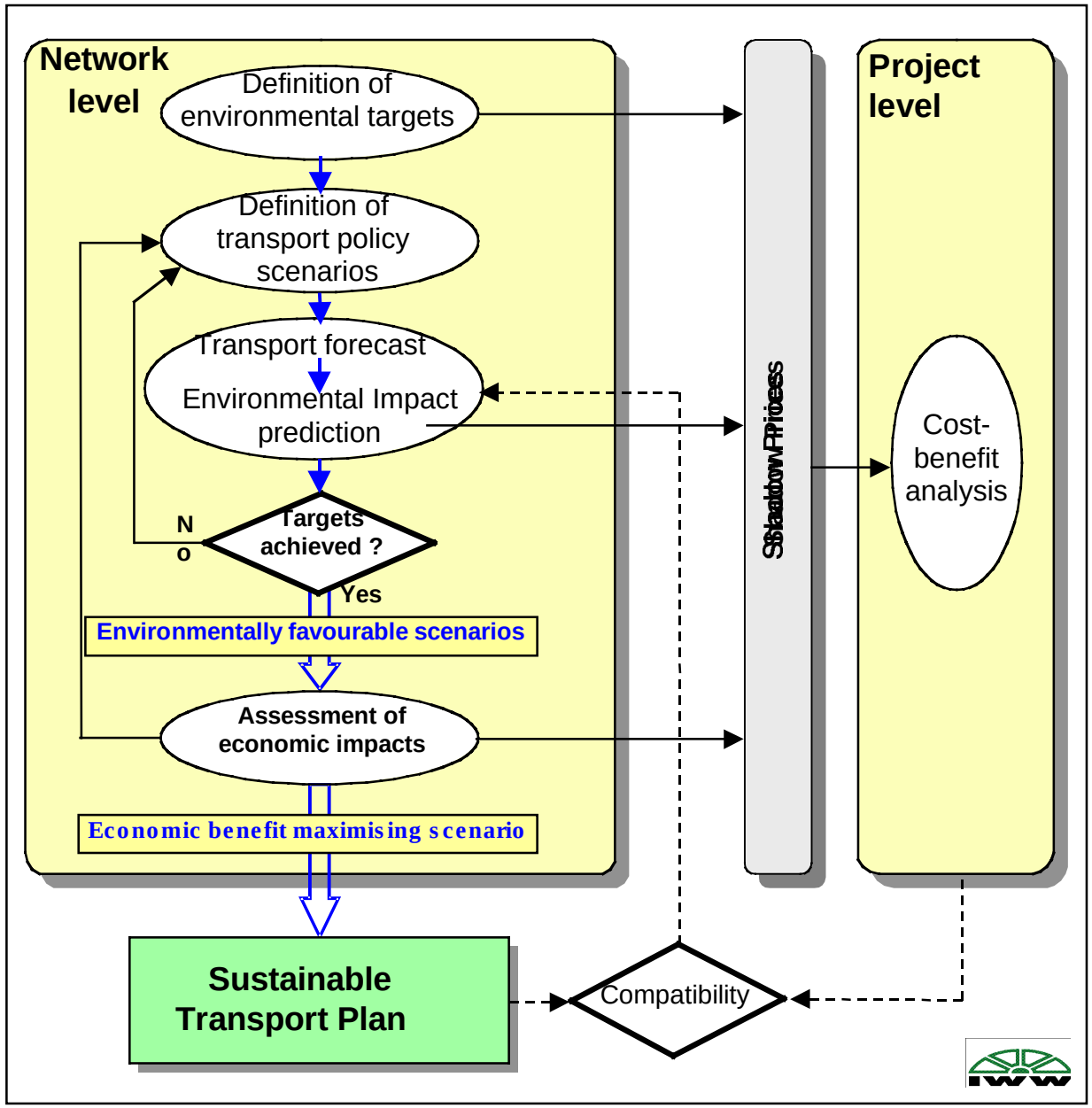
Integrating Environmental Impacts into Cost-Benefit-Analysis

Additional Impacts

- Tropospheric Ozone
- Carcinogenic Air Pollutants
- Anthropogenic Greenhouse Effect
- Outdoor Noise
- Nature and Landscape



Integrated Strategic Assessment

with the

Backcasting Approach

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Example Calculation Shadow Price

Scarce Resources:

CO_2 emissions:	1,001,000 t/a
CO_2 target:	1,000,000 t/a
Additional reduction:	- 1,000 t/a
Reduction costs:	500,000 DM
Shadow Price	500 DM*a/t

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Environmental Indicators and Target Values

Environmental Impact	Indicator	Environmental Target Case Study 1992 - 2010	CEEC Target
Global warming	CO_2 emissions in transport	-30%	?
Tropospheric ozone	transport related emissions of NO_x VOC	 -80% -70%	 ? ?
Atmospheric pollution	ambient concentration of benzene particulate matter	 2.5 µg/m³ 1.5 µg/m³	 ? ?
Noise	daytime level for noise exposure of inhabitants	≤ 65 dB(A)	?
Nature protection	further fragmentation of protected areas additional sealing	not allowed not allowed	? ?

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Definition of Transport Policy Scenarios

- **Framework Scenario 1**
  - **Regulatory Instruments**
  - **Technology**
  - **Pricing**

- **Framework Scenario 2**
  - **Reduced Infrastructure Construction**
  - **Less Regulatory + Pricing Measures**
  - **Improved Traffic Management/Organization**

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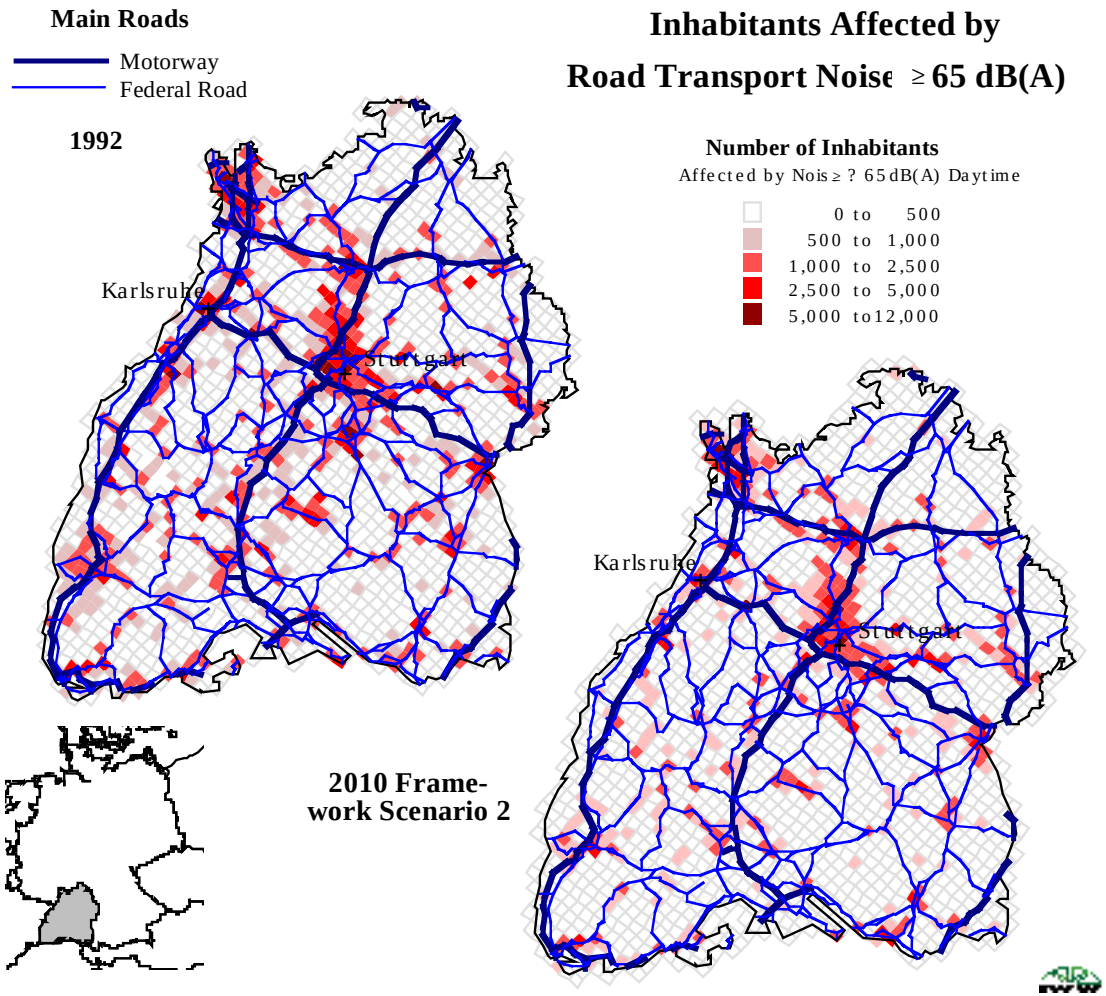
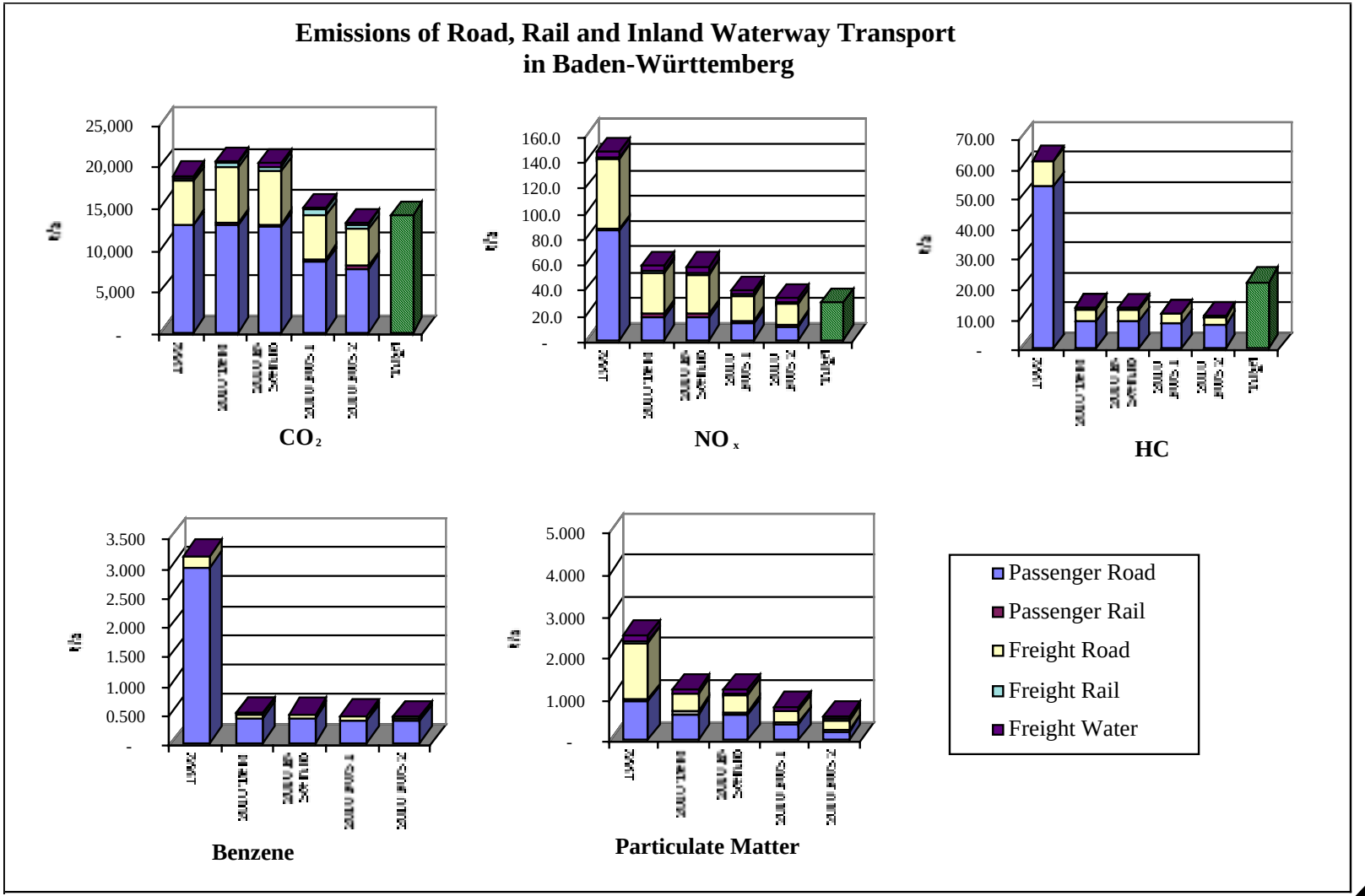
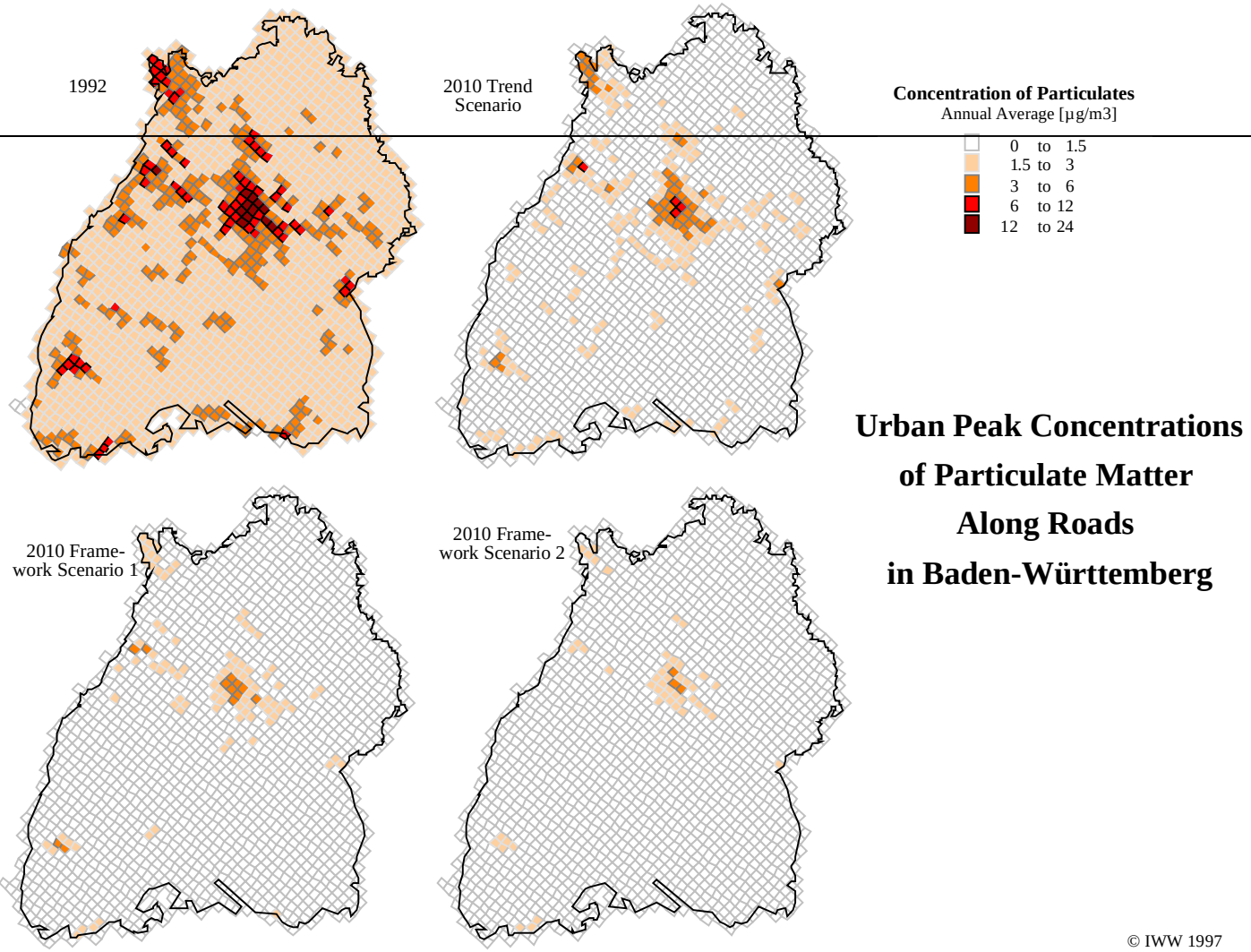
Noise Disturbance



Transport Emissions



Ambient Air Quality



Urban Peak Concentrations of Particulate Matter Along Roads in Baden-Württemberg

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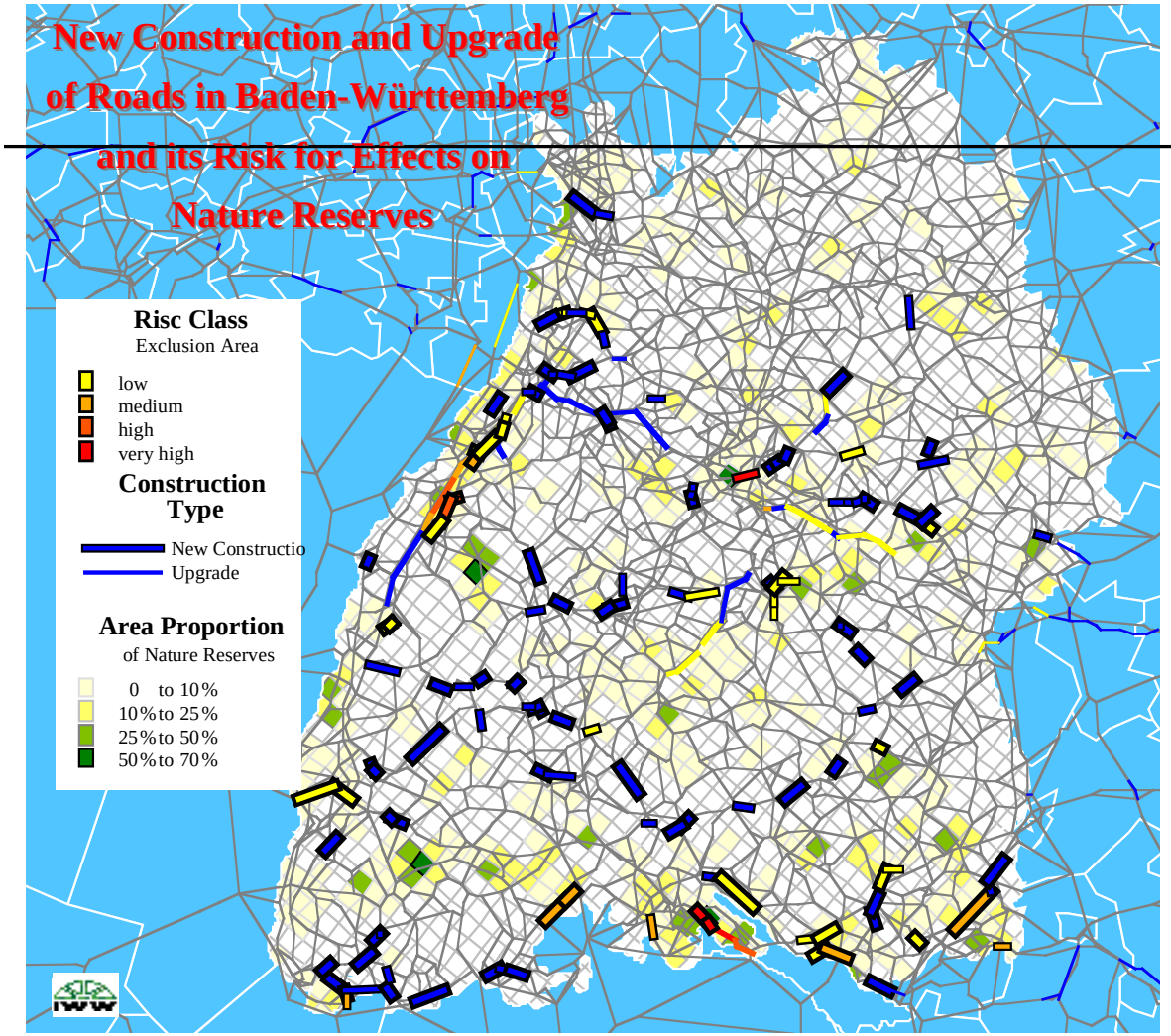
Nature and Landscape Conservation



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Cost Values for Project Appraisal

Environmental Theme	Differentiation			Cost Values	Unit
CO_2	global			**400**	DM/tonne
NO_x	global			**17,850**	DM/tonne
VOC	global			**525**	DM/tonne
Diesel Soot Particles	grid squares, where target is	achieved in trend scenario		**1,750**	DM/(tonne inner-urban* Mio. inhabitants)
		achieved in framework scenario 2		**2,550**	
		exceeded in framework scenario 2		**4,050**	
Benzene	grid squares, where target is	achieved in trend scenario		**100**	DM/(tonne inner-urban* Mio. inhabitants)
		achieved in framework scenario 2		**2,000**	
Noise	Road	> 65 to 67 dB(A)		**41**	DM per inhabitant exposed to noise above 65 dB(A)
		> 67 to 70 dB(A)		**109**	
		> 70 dB(A)	motorways	**2,321**	
			rural roads	**3,656**	
			urban roads	**5,324**	
	Rail	> 65 to 67 dB(A)		**4,420**	
		> 67 to 70 dB(A)		**9,665**	
		> 70 dB(A)		**20,680**	

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Conclusions

Strong link between SEA and Sustainable Development:

- SEA is objective-driven: Integration of goals from Agenda21 process
- Full integration of SEA into strategic planning process
- Backcasting approach integrates environmental, economic and social issues into a common assessment framework, based on sustainability goals

⇒ Commitment to and definition of sustainability goals is mandatory

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