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Integrated Infrastructure Planning

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Basic considerations

- Resources required for a society and its economy to function
- Infrastructure planning - new infrastructure creation and phasing out of outdated one when cost-effective
- Physical fixed assets → Information systems and knowledge bases
- Infrastructure integration → Efficient resources use ← Sustainable infrastructure → INTEGRATED ECONOMIC DEVELOPMENT
- many of the individual components of infrastructure planning and design are often inter-related, impacting each upon another - an integrated approach is required to deliver successful solutions

Infrastructure Integration Dimensions

- National infrastructures integration (economy of scale, security of infrastructure products and services, regional competitiveness) EnC, TrC 
- part of infrastructure developed in the territory of one country can be used to meet infrastructure requirements of other(s)
- Inter-operability and inter-connectivity; Inter-modality (Tr)
- Multi-level and multi-stakeholder inclusion (different interests to reconcile to reach balanced development)
- Integration with related economic sectors
- Multi-sector integration (integrated development planning and design tool for optimizing the overall infrastructure development)

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Multi-sector integration benefits

-coordinated and integrated infrastructure planning and management and concentrating different infrastructures (en, tr, env)-

- Decreased expropriation costs and less land occupied
- Easier and cheaper maintenance and operation
- More effective physical and IT control over the integrated infrastructure
- Easier adaptation to changed climate conditions and reaching the intelligent disaster-resilient infrastructure

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Multi-sector integration benefits

- Avoiding inefficient investments (f.e. unnecessary parallel development of infrastructure) and securing the most efficient use of existing infrastructure
- Cheaper and more environmentally friendly transportation and diversification of transport fuels
- Reduced overall damaging environmental impacts arising from construction, exploitation and maintenance of infrastructure
- Some of the environmental infrastructure by-products and waste could be used as energy carriers

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Multi-sector integration benefits

- Decreased habitat fragmentation and increased biodiversity to restore functioning ecosystems and provide the foundation for sustainable living
- More effective development of green infrastructure to connect different bio-geographic regions and habitats as eco-bridges, eco-ducts
- Innovative approach - more collaboration between regional sectoral initiatives
- Regional infrastructure outdated, bad maintained and inefficient

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Regional needs

- to extend the service life of existing infrastructure
- to build and rehabilitate infrastructure minimizing the impact of construction activities on already congested infrastructure, optimizing the overall cost/benefit for the improved infrastructure, facilitating future adaptation to accommodate changing demands
- to effectively address the infrastructure challenges posed by natural or man-made extreme events and hazards—including earthquakes, floods, operation interruptions due to different reasons, and acts of terrorism—by designing and constructing less vulnerable infrastructure to minimize loss, and employing rapid restoration techniques to restore functionality after a disaster occurs

Integrated infrastructure planning (relevant inputs)

- Objective: safe, environmentally-friendly, long-lasting, disaster-resilient, and cost-effective infrastructure with high level of services and products depending on economic, social and environmental goals
- Major factors:

  - Socio-demographic change – total population, ageing, population distribution

  - Economic change – size and mix of the economy, growth, globalization, labour markets

  - Climate change – the impact of change in climate patterns such as temperature, run-off projections, sea level rise and storm surge probabilities on the demand for infrastructure and the maintenance of existing infrastructure networks

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Integrated infrastructure planning (relevant inputs)

- Major factors:

  - Energy change - secure, sustainable and competitive energy leading towards a low-carbon economy; and

  - Technological change - whether change in technology will reduce or increase the demand for certain infrastructure systems, create entirely new demands; and/or change the way infrastructure systems are built, managed and operated

- Time horizon (20,30 ys or more) - long-term implications (CC, energy prices & availability); infrastructure networks tend to have long lives

- Governments at all levels ⟺ industry ⟺ private sector and enterprise

``bottom-up`` approach

- Orchestrated development of necessary social infrastructure (schools, playgrounds, kindergartens, medical facilities), physical infrastructure (water supply and sanitation, roads and transport, electricity, drainage, communication) and green infrastructure (parks, rivers, street trees) is required for sustainable communities creation

- LAs and partners – service providers

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Thank you

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