

SOUTH EAST EUROPE
Transnational Cooperation Programme

WP4 ANALYSIS COMPLETION

**GENERAL SCHEME
TRANSPORT AND TECHNICAL
INFRASTRUCTURE**

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**DONAUREGIONEN+
STRUCTURE**

WP1 PROJECT MANAGEMENT AND COORDINATION **WP2 COMMUNICATION AND DISSEMINATION** **WP3 PROJECT DATA AND GIS DEVELOPMENT**

WP4 ANALYSIS COMPLETION **WP5 SECTORAL STRATEGIES DEVELOPMENT** **WP6 CROSS-DANUBE STRATEGIES DEVELOPMENT** **WP7 COMPREHENSIVE STRATEGY**

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GS TTI Development Process

- Information & Data Sources
- Methodology
- Content Analysis
- Proposed Schedule

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**GS TTI Information & Data Sources
TRANSPORT**

International & EU Agreements, Policies and Strategies	National and Regional Strategies and Spatial Plans	Relevant Subregional, Metropolitan and Other Documents
<ul style="list-style-type: none"> • European Agreement on main international traffic services (Acras) • European Agreement on Main International Railway Lines (AGC) • European Agreement on Inland Waterways of International Importance (AIE) • European Agreement on Important International Combined Transport Lines and Related Installations (AGTC) • etc... 	<ul style="list-style-type: none"> • National Policy and Plans (Complex or sector) • National Statistics • National or Regional transport policies • National or Regional (NUTS 4) Spatial Plans • Intra-urban • etc... 	<ul style="list-style-type: none"> • NUTS 4 Statistics, significant data and information • etc...

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**GS TTI Information & Data Sources
TECHNICAL INFRASTRUCTURE**

International & EU Agreements, Policies and Strategies	National and Regional Strategies and Spatial Plans	Relevant Subregional, Metropolitan and Other Documents
<ul style="list-style-type: none"> • EU 2009 ENER in a European Strategy for Sustainable, Competitive and Secure Energy • EU WHITE PAPER Energy For The Future: Renewable Sources Of Energy • Joint Programme for Sustainable Flood Protection on the Danube Basin, International Commission for the Protection of the Danube River (ICPDR) • etc... 	<ul style="list-style-type: none"> • National Policy and Plans (Complex or sector) • National Statistics • National or Regional Energy Policies and IIR N Strategies • National or Regional Water Management Policies • National or Regional Flood Prevention Policies • Regional (NUTS 4) Spatial Plans • etc... 	<ul style="list-style-type: none"> • NUTS 4 Statistics, significant data and information e.g.: • Electric Energy Supply and Distribution • Natural Gas Supply • Drinking Water Supply • Wastewater Treatment • etc...

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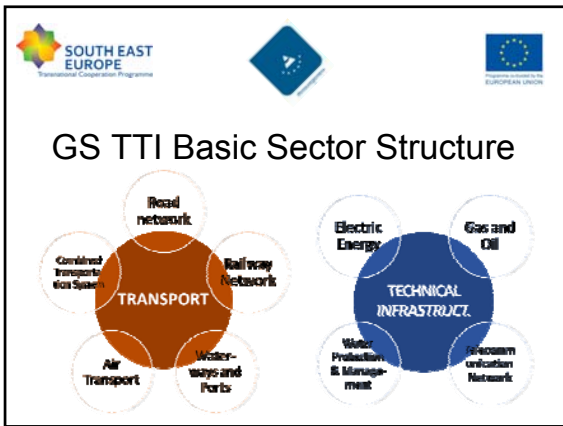
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GS TTI Methodology

- Sector Structure
- GIS Data Structure
- Indicators Selection
- Graphic Output

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Detailed Sector Structure TECHNICAL INFRASTRUCTURE

- Electric Energy Network and Installations
 - A. Electric Energy Sources
 - B. Electric Energy Transmission
 - C. Renewable Energy Potential
- Gas and Oil Supply and Distribution
 - A. Natural Gas Sources
 - B. Natural Gas Network
 - C. Natural Gas Supply
- Telecommunication Network
- Water Protection and Management
 - A. Drinking Water
 - B. Wastewater Treatment
 - C. Flood Prevention

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Basic GIS Data Structure TRANSPORT

- Road
- Railway
- Waterway
- Port
- Airport
- Terminal
- Multimodal routes

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Detailed GIS Data Structure TRANSPORT

Entity	Code	Type	Field Name	Description	Field Name
Road	ROAD	Character	36	Description according field TYPE value	ROAD
	ROAD	Character	36	Description according field TYPE value	ROAD
	ROAD	Character	36	Description according field TYPE value	ROAD
	ROAD	Character	36	Description according field TYPE value	ROAD
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	ROAD	Character	36	Description according field TYPE value	ROAD
	ROAD	Character	36	Description according field TYPE value	ROAD
	ROAD	Character	36	Description according field TYPE value	ROAD
Railway	RAILWAY	Character	36	Description according field TYPE value	RAILWAY
	RAILWAY	Character	36	Description according field TYPE value	RAILWAY
	RAILWAY	Character	36	Description according field TYPE value	RAILWAY
	RAILWAY	Character	36	Description according field TYPE value	RAILWAY
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	RAILWAY	Character	36	Description according field TYPE value	RAILWAY

15th-16th July, 2009 1st Workshop, Senec 10

Detailed GIS Data Structure TRANSPORT

Entity	Code	Type	Field Name	Description	Field Name
Waterway	WATERWAY	Character	36	Description according field TYPE value	WATERWAY
	WATERWAY	Character	36	Description according field TYPE value	WATERWAY
	WATERWAY	Character	36	Description according field TYPE value	WATERWAY
	WATERWAY	Character	36	Description according field TYPE value	WATERWAY
	WATERWAY	Character	36	Description according field TYPE value	WATERWAY
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	WATERWAY	Character	36	Description according field TYPE value	WATERWAY
	WATERWAY	Character	36	Description according field TYPE value	WATERWAY
	WATERWAY	Character	36	Description according field TYPE value	WATERWAY
Port	PORT	Character	36	Description according field TYPE value	PORT
	PORT	Character	36	Description according field TYPE value	PORT
	PORT	Character	36	Description according field TYPE value	PORT
	PORT	Character	36	Description according field TYPE value	PORT
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	PORT	Character	36	Description according field TYPE value	PORT

15th-16th July, 2009 1st Workshop, Senec 11

Detailed GIS Data Structure TRANSPORT

Entity	Code	Type	Field Name	Description	Field Name
Airport	AIRPORT	Character	36	Description according field TYPE value	AIRPORT
	AIRPORT	Character	36	Description according field TYPE value	AIRPORT
	AIRPORT	Character	36	Description according field TYPE value	AIRPORT
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	AIRPORT	Character	36	Description according field TYPE value	AIRPORT
	AIRPORT	Character	36	Description according field TYPE value	AIRPORT
Terminal	TERMINAL	Character	36	Description according field TYPE value	TERMINAL
	TERMINAL	Character	36	Description according field TYPE value	TERMINAL
	TERMINAL	Character	36	Description according field TYPE value	TERMINAL
	TERMINAL	Character	36	Description according field TYPE value	TERMINAL
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	TERMINAL	Character	36	Description according field TYPE value	TERMINAL
	TERMINAL	Character	36	Description according field TYPE value	TERMINAL
	TERMINAL	Character	36	Description according field TYPE value	TERMINAL
Multimodal route	MULTIMODAL_ROUTE	Character	36	Description according field TYPE value	MULTIMODAL_ROUTE
	MULTIMODAL_ROUTE	Character	36	Description according field TYPE value	MULTIMODAL_ROUTE
	MULTIMODAL_ROUTE	Character	36	Description according field TYPE value	MULTIMODAL_ROUTE
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	MULTIMODAL_ROUTE	Character	36	Description according field TYPE value	MULTIMODAL_ROUTE

15th-16th July, 2009 1st Workshop, Senec 12

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Basic GIS Data Structure
TECHNICAL INFRASTRUCTURE

- Electric Energy Network
 - Power Plants
 - Transmission Lines
 - Electric Substations
- Gas and Oil Supply
 - Natural Gas Facilities
 - Natural Gas Pipelines
 - Hydrocarbon (Natural Gas) Production Regions
 - Refineries
 - Oil Pipelines
- Telecommunication Network
 - Telecommunication Nodes
 - Telecommunication Network
- Water Management
 - Drinking Water Pipelines
 - Drinking Water Units
 - Sewer System
 - Sewer Units
 - Flood Protection (point, line)
 - Flood Risk Areas

Inconsistent or missing data

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Detailed GIS Data Structure
TECHNICAL INFRASTRUCTURE

Category	Type	Code	Thematic Code	Thematic Code Description
Power Plants	type	PL1, PL2, PL3, PL4, PL5, PL6, PL7, PL8, PL9, PL10	C15	
	description	Nuclear Power Station, Hydroelectric Power Station, Conventional Power Station, Wind Power Station, Solar Power Station, Combined Cycle Power Station, etc.	C03	Thermal Power Station (Coal, Gas, Oil, Biomass, etc.) with various fuels.
	status	active	C15	
	type	PL1, PL2, PL3, PL4, PL5, PL6, PL7, PL8, PL9, PL10	C15	
Transmission Lines	type	TL1, TL2, TL3, TL4, TL5, TL6, TL7, TL8, TL9, TL10	C15	
	description	High Voltage Transmission Line, Low Voltage Transmission Line, etc.	C03	HV > 220 kV - 110 kV, LV < 110 kV
	status	active	C15	
	type	TL1, TL2, TL3, TL4, TL5, TL6, TL7, TL8, TL9, TL10	C15	
Electric Substations	type	ES1, ES2, ES3, ES4, ES5, ES6, ES7, ES8, ES9, ES10	C15	
	description	Electric Substation, etc.	C03	110 & Conventional Substation, etc.
	status	active	C15	
	type	ES1, ES2, ES3, ES4, ES5, ES6, ES7, ES8, ES9, ES10	C15	

14

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Category	Type	Code	Thematic Code	Thematic Code Description
Natural Gas Facilities	type	GF1, GF2, GF3, GF4, GF5, GF6, GF7, GF8, GF9, GF10	C15	
	description	Natural Gas Compressor Station, Natural Gas Processing Station, Natural Gas Storage, LNG Terminal, etc.	C03	
	status	active	C15	
	type	GF1, GF2, GF3, GF4, GF5, GF6, GF7, GF8, GF9, GF10	C15	
Natural Gas Pipelines	type	GP1, GP2, GP3, GP4, GP5, GP6, GP7, GP8, GP9, GP10	C15	
	description	Transit High Pressure Gas Pipeline, Very High Pressure Gas Pipeline, High Pressure Gas Pipeline, etc.	C03	
	status	active	C15	
	type	GP1, GP2, GP3, GP4, GP5, GP6, GP7, GP8, GP9, GP10	C15	
Hydrocarbon Production Regions	type	PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, PR9, PR10	C15	
	description	Natural Gas Deposit, Oil Deposit, etc.	C03	
	status	active	C15	
	type	PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, PR9, PR10	C15	
Refineries	type	RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10	C15	
	description	Oil Refinery, etc.	C03	
	status	active	C15	
	type	RF1, RF2, RF3, RF4, RF5, RF6, RF7, RF8, RF9, RF10	C15	
Oil Pipelines	type	OP1, OP2, OP3, OP4, OP5, OP6, OP7, OP8, OP9, OP10	C15	
	description	Crude Oil Pipeline, Refined Products Pipeline, etc.	C03	
	status	active	C15	
	type	OP1, OP2, OP3, OP4, OP5, OP6, OP7, OP8, OP9, OP10	C15	
Telecommunication Nodes	type	TN1, TN2, TN3, TN4, TN5, TN6, TN7, TN8, TN9, TN10	C15	
	description	Main Station, Substation, etc.	C03	
	status	active	C15	
	type	TN1, TN2, TN3, TN4, TN5, TN6, TN7, TN8, TN9, TN10	C15	
Telecommunication Network	type	TN1, TN2, TN3, TN4, TN5, TN6, TN7, TN8, TN9, TN10	C15	
	description	Terrestrial Network, etc.	C03	Terrestrial Network (Fiber Optic, Wireless, etc.)
	status	active	C15	
	type	TN1, TN2, TN3, TN4, TN5, TN6, TN7, TN8, TN9, TN10	C15	

15

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Category	Type	Code	Thematic Code	Thematic Code Description
Drinking Water Pipelines	type	DWP1, DWP2, DWP3, DWP4, DWP5, DWP6, DWP7, DWP8, DWP9, DWP10	C15	
	description	Regional Drinking Water Pipeline, etc.	C03	Main Drinking Water Pipeline
	status	active	C15	
	type	DWP1, DWP2, DWP3, DWP4, DWP5, DWP6, DWP7, DWP8, DWP9, DWP10	C15	
Drinking Water Units	type	DWU1, DWU2, DWU3, DWU4, DWU5, DWU6, DWU7, DWU8, DWU9, DWU10	C15	
	description	Drinking Water Reservoir, etc.	C03	Main Drinking Water Units
	status	active	C15	
	type	DWU1, DWU2, DWU3, DWU4, DWU5, DWU6, DWU7, DWU8, DWU9, DWU10	C15	
Sewer System	type	SS1, SS2, SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10	C15	
	description	Regional Sewer Pipeline, etc.	C03	Main Sewer Pipeline
	status	active	C15	
	type	SS1, SS2, SS3, SS4, SS5, SS6, SS7, SS8, SS9, SS10	C15	
Sewer Units	type	SU1, SU2, SU3, SU4, SU5, SU6, SU7, SU8, SU9, SU10	C15	
	description	Wastewater Treatment Plant, etc.	C03	Main Wastewater Treatment Plant
	status	active	C15	
	type	SU1, SU2, SU3, SU4, SU5, SU6, SU7, SU8, SU9, SU10	C15	
Flood Protection point	type	FPP1, FPP2, FPP3, FPP4, FPP5, FPP6, FPP7, FPP8, FPP9, FPP10	C15	
	description	Emergency Retention Pond, etc.	C03	
	status	active	C15	
	type	FPP1, FPP2, FPP3, FPP4, FPP5, FPP6, FPP7, FPP8, FPP9, FPP10	C15	
Flood Protection line	type	FPL1, FPL2, FPL3, FPL4, FPL5, FPL6, FPL7, FPL8, FPL9, FPL10	C15	
	description	Channel, etc.	C03	
	status	active	C15	
	type	FPL1, FPL2, FPL3, FPL4, FPL5, FPL6, FPL7, FPL8, FPL9, FPL10	C15	
Flood Risk Area	type	FRA1, FRA2, FRA3, FRA4, FRA5, FRA6, FRA7, FRA8, FRA9, FRA10	C15	
	description	Flood Plain, etc.	C03	Flood Risk Area (Inundation Area)
	status	active	C15	
	type	FRA1, FRA2, FRA3, FRA4, FRA5, FRA6, FRA7, FRA8, FRA9, FRA10	C15	

16

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Indicators Selection
TRANSPORT

Statistical data for years 1996, 2001, 2005 (+1/-1 year)

- USED INDICATORS
 1. Share of Highways
 2. Density of Highways
 3. Share of Railways
 4. Density of Railways
 5. Air Transport - Passengers
 6. Air Transport - Freight
 7. TEN-T Corridors
- UNUSED INDICATORS
 1. Water Transport

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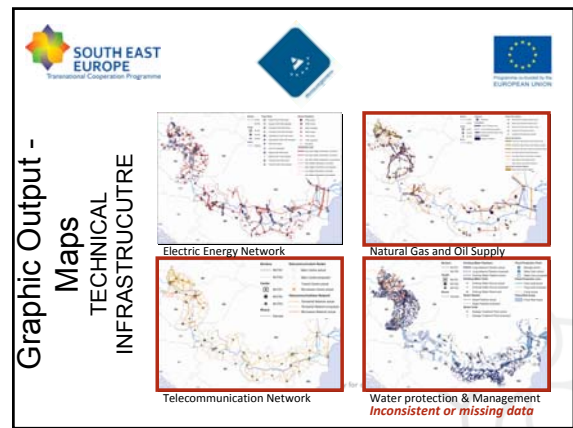
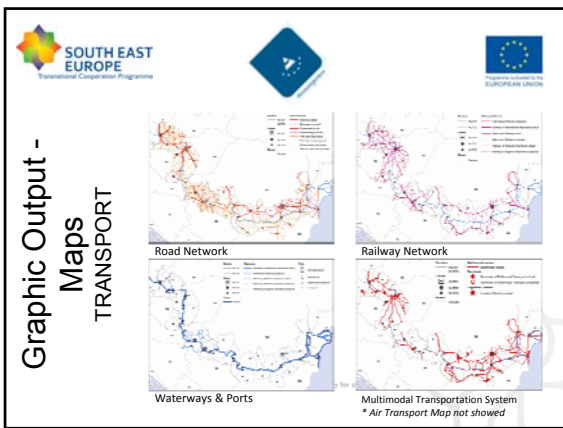
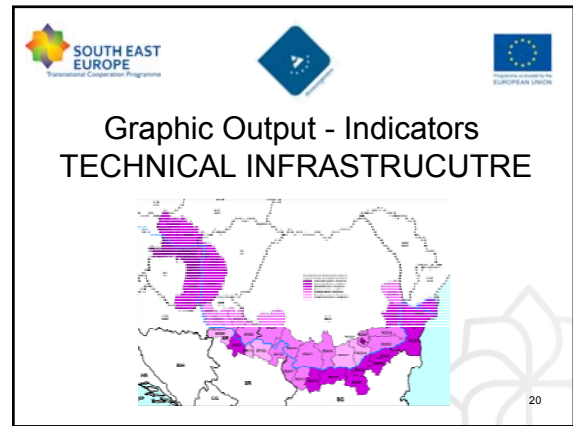
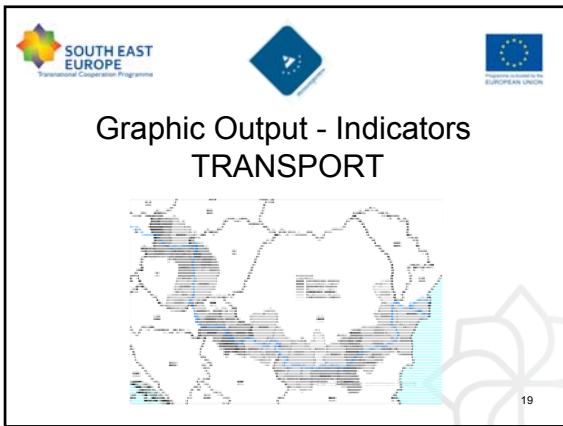
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Indicators Selection
TECHNICAL INFRASTRUCTURE

Statistical data for years 1996, 2001, 2005 (+1/-1 year)

- USED INDICATORS
 1. Natural gas supply
 2. Drinking water supply
 3. Wastewater treatment
- UNUSED INDICATORS
 1. Renewable energy sources
 2. Broadband penetration

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Content Analysis TRANSPORT

	Status	Proposed Action	Action - New
Methodology	OK	Update if necessary	Update if necessary
Report	OK	Update if necessary	Provide information
GIS Data	OK	Update if necessary	Provide data
• Content	Missing superior data*	Completion	Provide data
• Topology	Cleaning needed - in order to create transport accessibility scheme		
Indicators	Water Transport	Update if possible	Provide data
Graphic Output	OK	No action needed	Bounds enlargement

* Relevant international and national data out of Danube region

23

Content Analysis TECHNICAL INFRASTRUCTURE

	Status	Proposed Action	Action - New
Methodology	OK	Update if necessary	Update if necessary
Report	OK	Update if necessary	Provide information
GIS Data	OK	Update if necessary	Provide data
• Content	Missing superior data*	Completion & Synchronization	Provide data
Indicators	RES & Broadband penetration missing	Update if possible	Provide data
Graphic Output	Inconsistent (except Electric Energy Network)	Synchronization needed	Bounds enlargement

* Relevant international and national data out of Danube region



WP4 GS TTI Proposed Schedule

<p>Update 2nd WORKSHOP</p> <ul style="list-style-type: none"> • Methodology • Data & Information • Indicators 	<p>New regions 2nd – 3rd WORKSHOP</p> <ul style="list-style-type: none"> • UA • MD • HR 	<p>Output (draft) 3rd – WORKSHOP</p> <ul style="list-style-type: none"> • Basis for: • WPS • WPG
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Thank you for your attention.

Mária Krumpolcová
Juraj Krumpolec
Aleš Baláži

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