

The EU and Investments in Environmental Infrastructure in Turkey

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EU Requirements



- Transposition
- Institutional Structures and Human Capacity
- Investments
- Enforcement

Directive Specific Investment Plan (DSIP)

- The “Soft Component”
 - A plan for who shall implement and enforce regulations (institutional responsibilities)
 - A plan for how to make responsible institutions capable of implementation and enforcement (training and resources)
- The Investment Component
 - A plan for how and when to implement required measures (investments)
 - A plan for financing of required investments

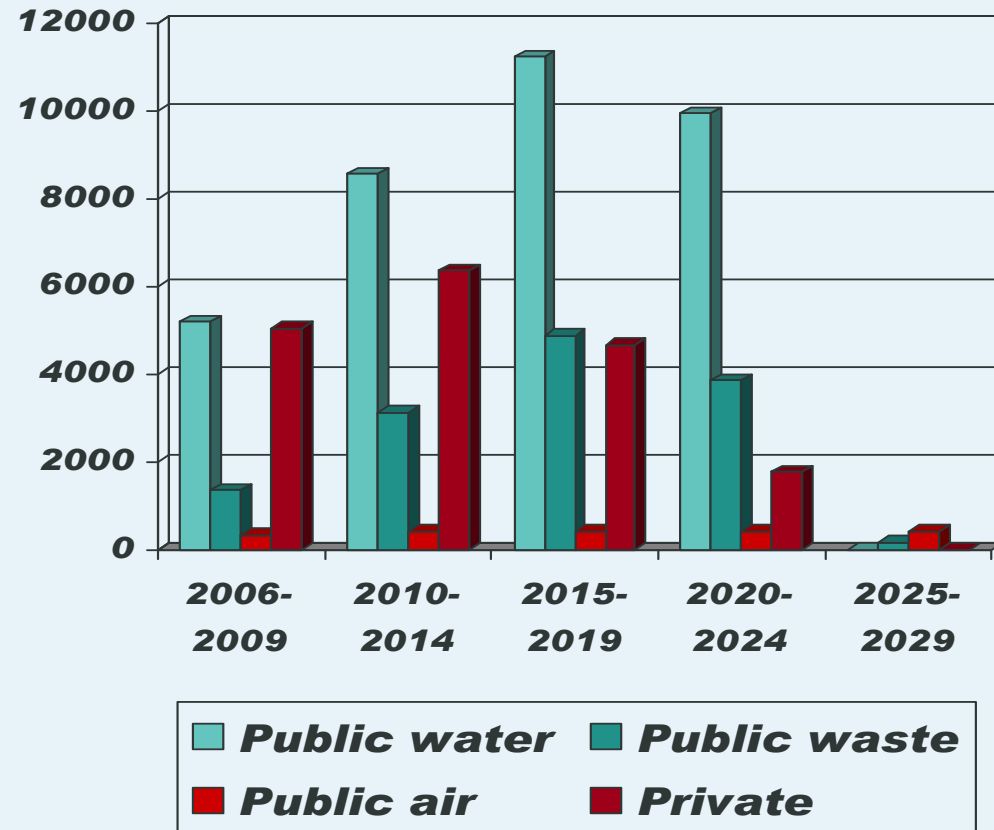
Summary of investment plans

New investment costs (million Euro)

Plans should be

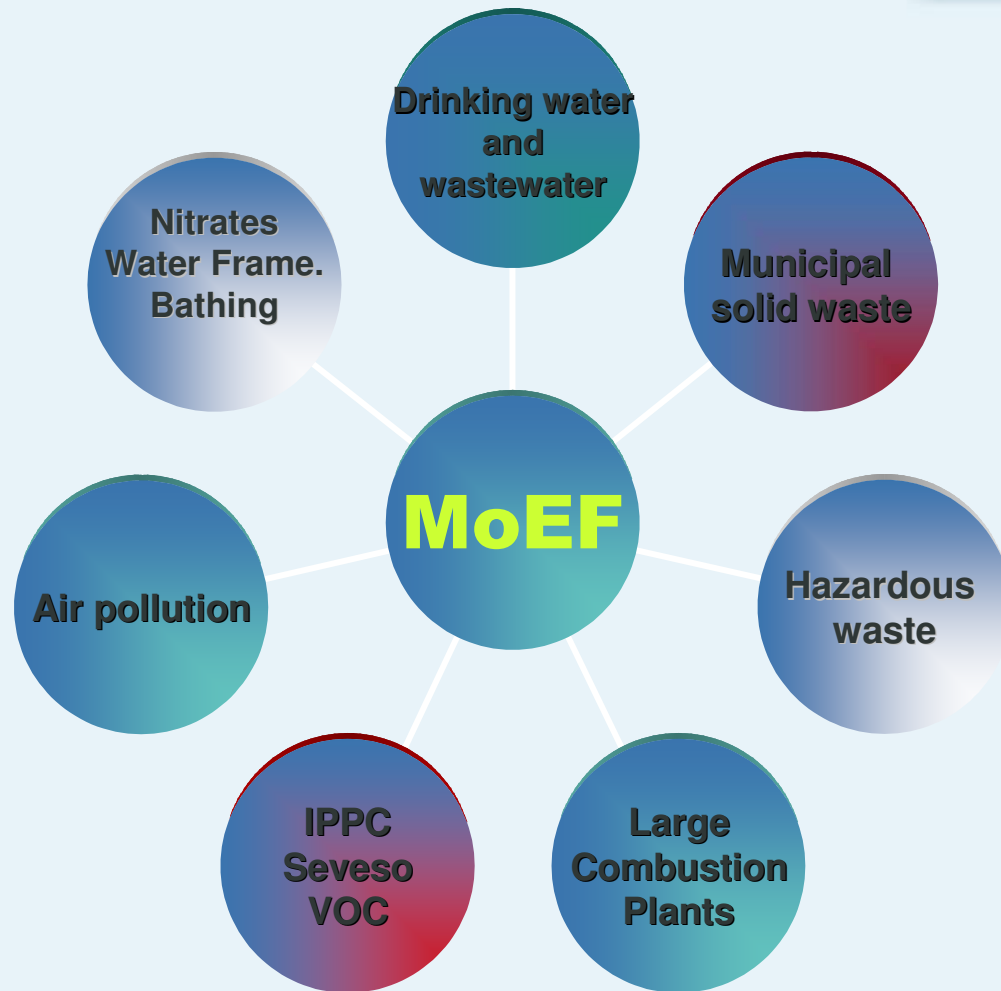
- Specific
- Measurable
- Approved
- Realistic
- Time-bound

SMART



How have investment plans been made?

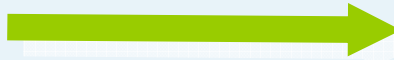
- Consultation process
- Seven Technical Working Groups
- Participation of all key stakeholders



A stepwise approach

TWG No. 1

Describe existing situation

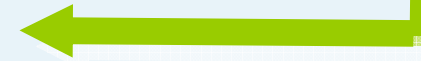


TWG No. 2

Describe requirements and make assumptions (e.g. sensitive waters)

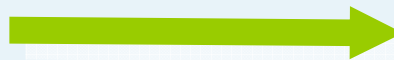
TWG No. 3

Measures needed and cost hereof



TWG No. 4

Plan for investments and financing



An Approved Directive Specific Investment Plan

Key policy issues - Institutional

- Absorptive capacity
 - Ability of municipalities to identify, prepare and manage project implementation
- Authority responsible for water basins – and definitions of sensitive areas
- Enforcement of regulation
 - Less overlaps in responsibilities
 - More resources at regional / local level for enforcement

Urban Wastewater Treatment and Drinking Water Supply

- Upgrade/construction of water and wastewater treatment plants
- Extension of sewerage systems
(investments & re-investments)

Financing from public budget, grants and loans, user charges

Implementation up to 2024



Landfill and Packaging Waste

- Waste collection systems
- Treatment and recovery facilities: landfills, incinerators, composting plants, MRFs, biogasification (investments & re-investments)

Financing from public budget, grants and loans, user charges; producers' responsibility

Implementation up to 2023



Hazardous Waste

- Five large scale facilities including incineration plant and landfill
- Collection and transfer stations including pre-treatment covering all country

Financing from public budget, grants, loans, user charges

Implementation up to 2028



Industrial Pollution Control

- Various air, water pollution control and waste management measures in different industrial branches
- 27 industrial branches investigated
- Questionnaires and visits to 40 associations + 80 individual experts



Financing from private sources

Implementation by 2022

Approximation investment needs for public and private sectors, billion EUR

	2006-2013	From 2014	Total
Public sector	16	34	50
Drinking water and ww	12	23	35
Solid waste	3	10	13
Air (Large combustion plants)	1	1	2
Private sector	11	7	18
Industrial wastewater	2	0	2
Industrial air	1	0	1
Integrated pollution prevention and control	7	7	14
Farms	1	0	1
TOTAL	27	41	68

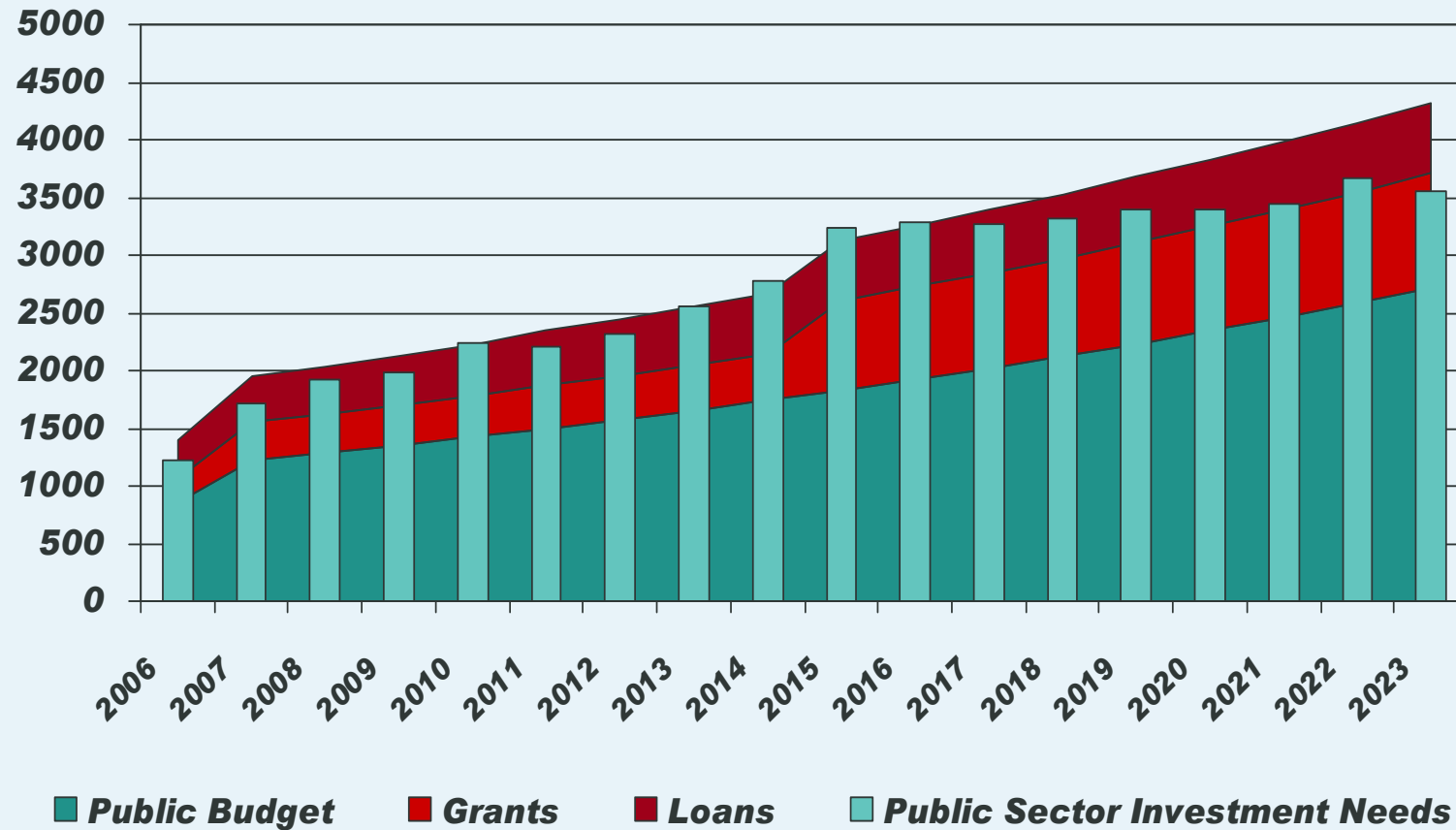
Approximation investment needs per directive, maximum, billion Euro (1 of 2)

Directive	New investments	Reinvestments	Total
Urban wastewater	9.7	10.5	20
Drinking water	2.7	10.4	13
Water Framework	1.55	-	1.5
Bathing water	0.02	-	0.02
Nitrates	0.96	-	0.96
Landfill	5.7	2.8	8.5
Packaging wastes	2.8	0.97	3.8
Hazardous waste	1	-	1

Approximation investment needs per directive, maximum, billion Euro (2 of 2)

Directive	New investments	Reinvestments	Total
Air quality framework	0.01	-	0.01
Fuel quality	0.05	-	0.05
Solvents	0.7	-	0.7
VOCs	0.1	-	0.1
IPPC	14	-	14
Dangerous substances to water	1.7	-	1.7
Large combustion plants	1.9	-	1.9
Seveso	0.16	-	0.16

Public sector investment needs and total supply of finance, million EUR



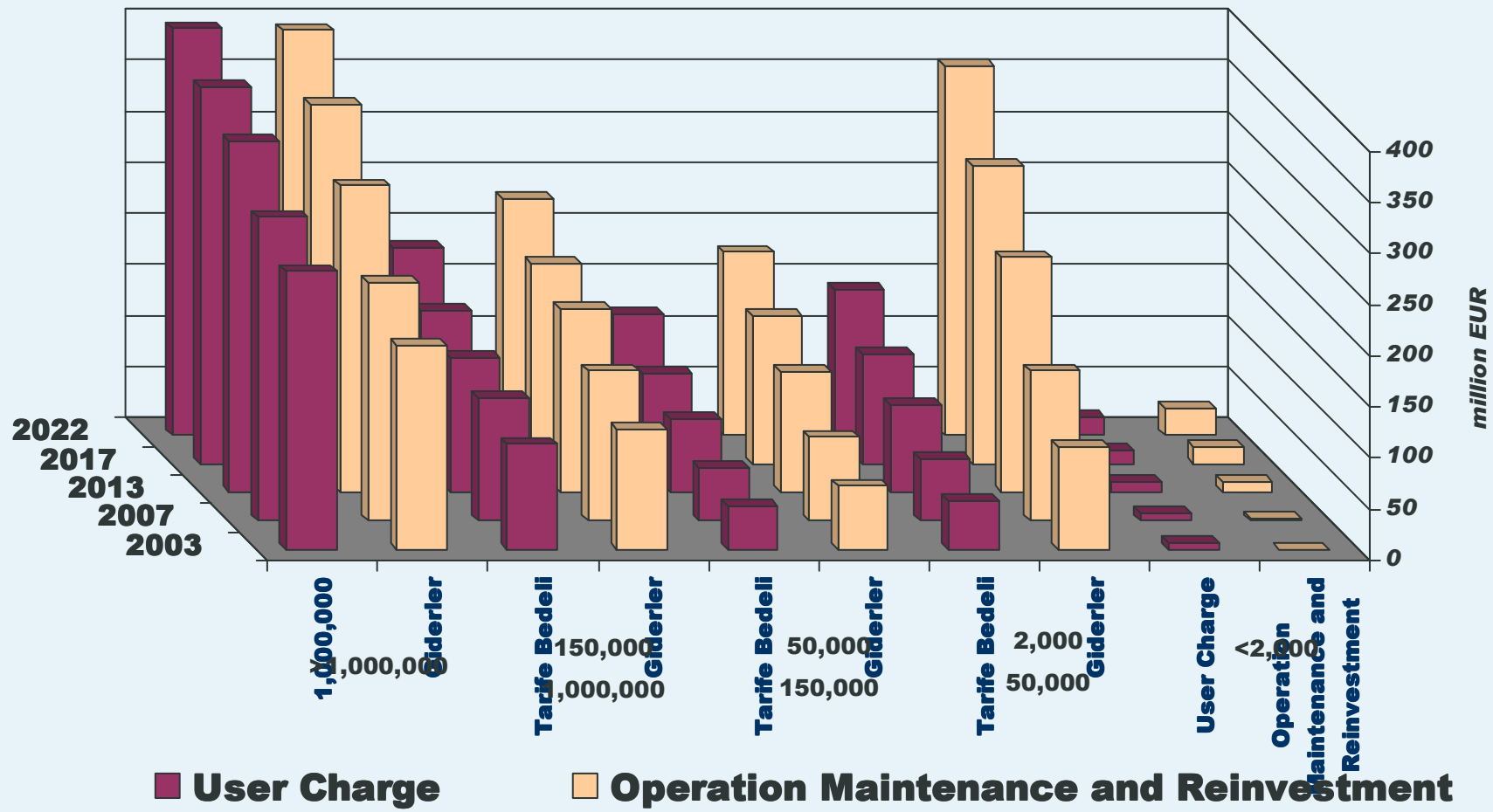
Country	Investment Need (Million EURO)	Population	Per capita cost
Bulgaria	8.610	7.500.000	1.150 EURO
Czech Republic	6.600 - 9.400	10.200.000	650 - 925 EURO
Estonia	4.406	1.300.000	3.400 EURO
Hungary	4.118 - 10.000	10.000.000	400 - 1.000 EURO
Latvia	1.480 - 2.360	2.300.000	650 - 1.050 EURO
Lithuania	1.600	3.600.000	450 EURO
Poland	22.100 - 42.800	38.600.000	575 - 1.100 EURO
Romania	22.000	22.300.000	1.000 EURO
Slovakia	4.809	5.400.000	900 EURO
Slovenia	2.430	2.000.000	1.200 EURO
TURKEY	65.000 - 68.000	69.700.000	925 - 975 EURO

Country	ISPA grants 7 year (Million EURO)	Population	Per capita cost (EURO/cap/year)
Bulgaria	291 - 437	7.500.000	6 - 8
Czech Republic	200 - 291	10.200.000	3 - 4
Estonia	73 - 127	1.300.000	8 - 14
Hungary	255 - 364	10.000.000	4 - 5
Latvia	127 - 200	2.300.000	8 - 12
Lithuania	146 - 218	3.600.000	6 - 9
Poland	1.092 - 1.347	38.600.000	4 - 5
Romania	728 - 946	22.300.000	5 - 6
Slovakia	127 - 200	5.400.000	3 - 5
Slovenia	36 - 73	2.000.000	3 - 5
TURKEY	2.100 - 2.800	69.700.000	4 - 6

Country	Cohesion funds 10 year (Million EURO)	Population	Per capita cost (EURO/cap/year)
Bulgaria	1.248 - 1.872	7.500.000	17 - 25
Czech Republic	858 - 1.248	10.200.000	8 - 12
Estonia	312 - 546	1.300.000	24 - 42
Hungary	1.092 - 1.560	10.000.000	11 - 16
Latvia	546 - 858	2.300.000	24 - 37
Lithuania	624 - 936	3.600.000	17 - 26
Poland	4.680 - 5.772	38.600.000	12 - 15
Romania	3.120 - 4.056	22.300.000	14 - 18
Slovakia	546 - 858	5.400.000	10 - 16
Slovenia	156 - 312	2.000.000	8 - 16
TURKEY	6.000 - 12.000	69.700.000	9 - 17

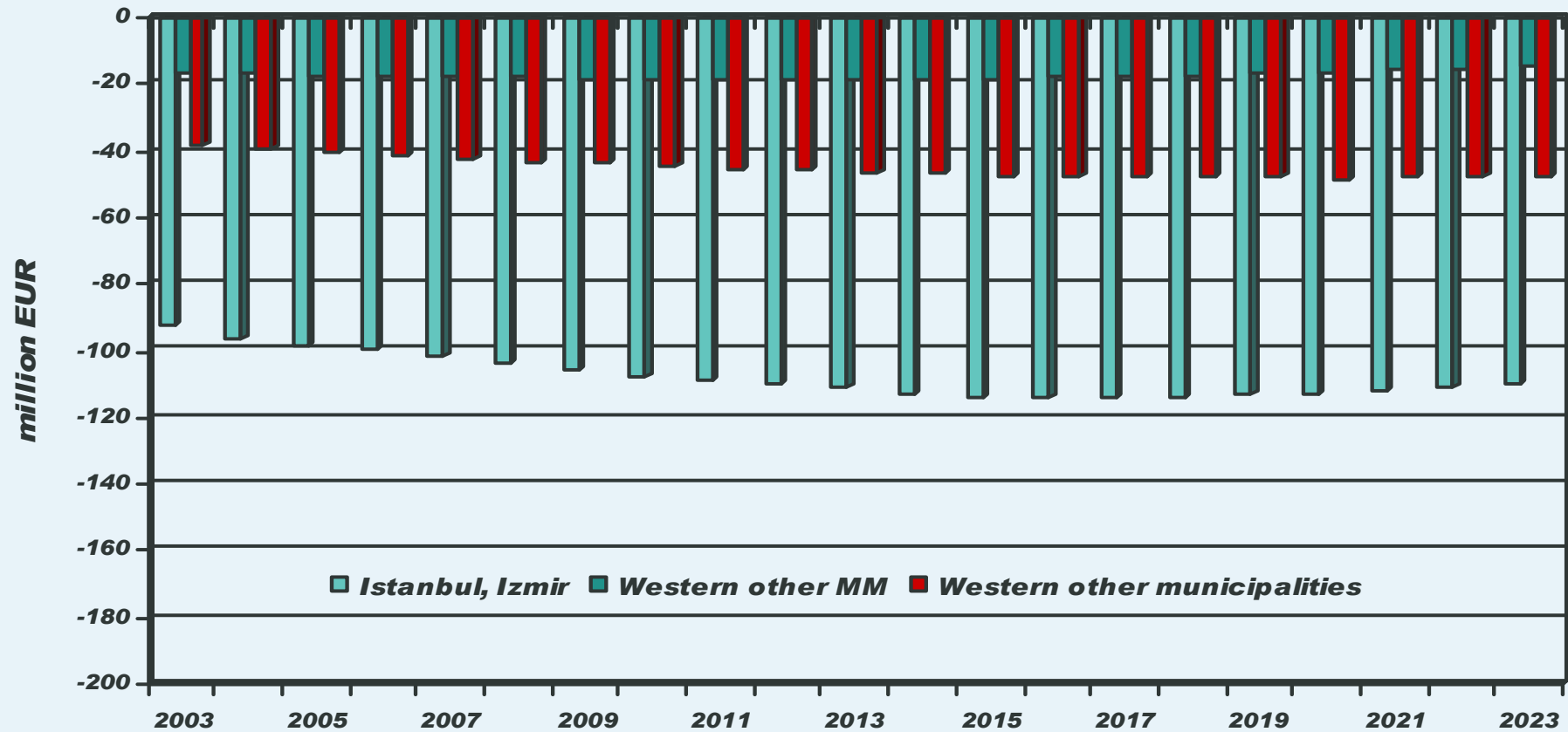
Country	Investment need (Million EURO)	Grant share minimum	Grant share maximum
Bulgaria	8.610	18%	27%
Czech Republic	6.600 – 9.400	11%	23%
Estonia	4.406	9%	15%
Hungary	4.118 – 10.000	13%	47%
Latvia	1.480 - 2.360	29%	72%
Lithuania	1.600	48%	72%
Poland	22.100 – 42.800	13%	32%
Romania	22.000	17%	23%
Slovakia	4.809	14%	22%
Slovenia	2.430	8%	16%
TURKEY	65.000 – 68.000	12%	23%

Urban Wastewater Treatment Directive: Only large towns can cover their O&M and depreciation expenditure – approximation (tariffs increase according to GDP).



Municipal solid waste sector Situation with existing "cleansing tax"

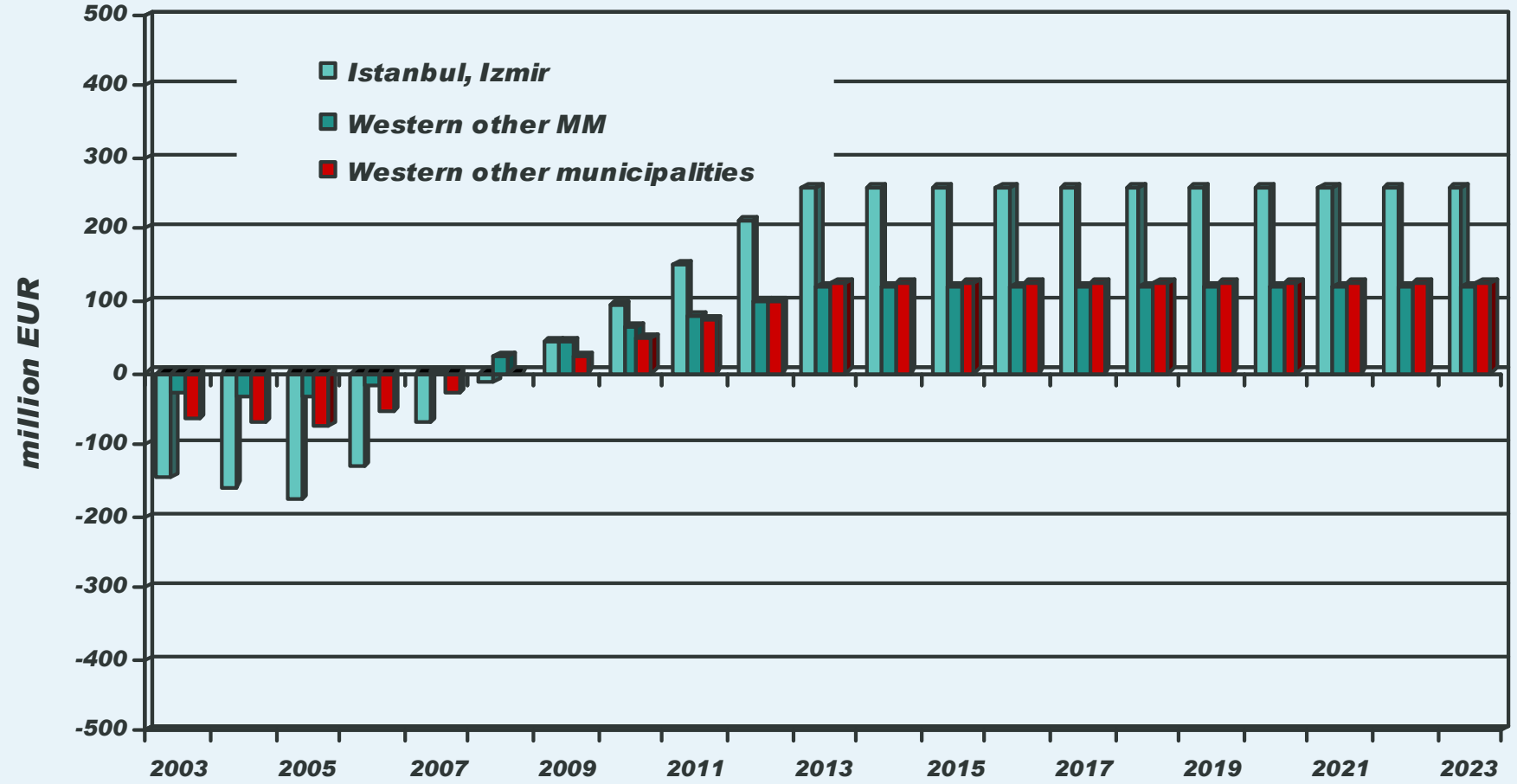
Financing gap for municipal solid waste sector
User charges minus cost of operation and maintenance of existing systems



Municipal solid waste sector

Full cost recovery tariff

Financing gap for municipal solid waste sector
 User charges minus cost of operation and maintenance of systems in EU standards



Environmental Investment Programme

Environment Operational Program

Priority Axis 1: Improvement of water supply, sewerage system and wastewater treatment

Measure 1.1: Improvement of water supply quality

Measure 1.2: Improvement of receiving body quality

Priority Axis 2: Development of integrated solid waste management

Measure 2: Increasing of waste recycling and improvement of sanitary landfill systems

Environmental Operational Program Cont.

Priority 3: Technical Assistance

Measure 3.1: Enhancing the management of Environment Operational Program

Measure 3.2: Enhancing the planning capacities of the Final Beneficiaries

Financial Picture 2007-2009 /EOP

PRIORITY AXES	EOP (%)	EU IPA (MEUR) (%75)	NATIONAL CO_FINANCE (MEUR) (%25)	TOTAL (MEUR)
Priority 1 (Water Supply + Wastewater Treatment)	65.80	134.3	44.8	179.1
Priority 2 (Integrated SWM)	28.20	57.5	19.2	76.7
Priority 3 (Technical Assistance)	6.00	12.3	4	16.3
TOTAL	100	204.1	68.0	272.1

Priority Axis 1.1

Project Name	City/ Province	Estimated Cost
Akçaabat Drinking Water Transmission Line Project	Akçaabat	23.500.720
Bulancak Drinking Water Supply Project	Bulancak	23.921.503
Doğubayazıt Drinking Water Treatment, Transmission, Storage Tank, and Water Distribution Network Project	Doğubeyazıt	61.669.165
Erciş Drinking Water Supply Project	Erciş	49.414.619
Erzincan Cansuyu Drinking Water Supply Project	Erzincan	43.453.858
Manavgat Drinking Water Supply, Renewal and Capacity Increase Project	Manavgat	21.604.704
Nizip Pumping Line, Storage and Distribution Network Project	Nizip	30.998.093
Silvan Drinking Water Modernization Project	Silvan	19.472.679
TOTAL		274.035.341

Pirority Axis 1.2

Project Name	Estimated Cost
Aksaray Waste Water Project	34.220.000
Seydişehir Waste Water Project	7.440.000
Polatlı Waste Water Project	26.270.000
Erdemli Waste Water Project	11.780.000
Soma Waste Water Project	9.265.000
Lüleburgaz Waste Water Project	14.195.000
Bartın Waste Water Project	15.308.000
Diyarbakır Waste Water Project	80.245.000
Siverek Waste Water Project	31.956.000
Adıyaman Waste Water Project	37.870.000
Akşehir Waste Water Project	22.766.000
Merzifon Waste Water Project	10.965.000
Çarşamba Waste Water Project	11.050.000
Erzurum Waste Water Project	75.200.000
Ceyhan Waste Water Project	20.599.000
Total	409.129.000

Priority Axis 2

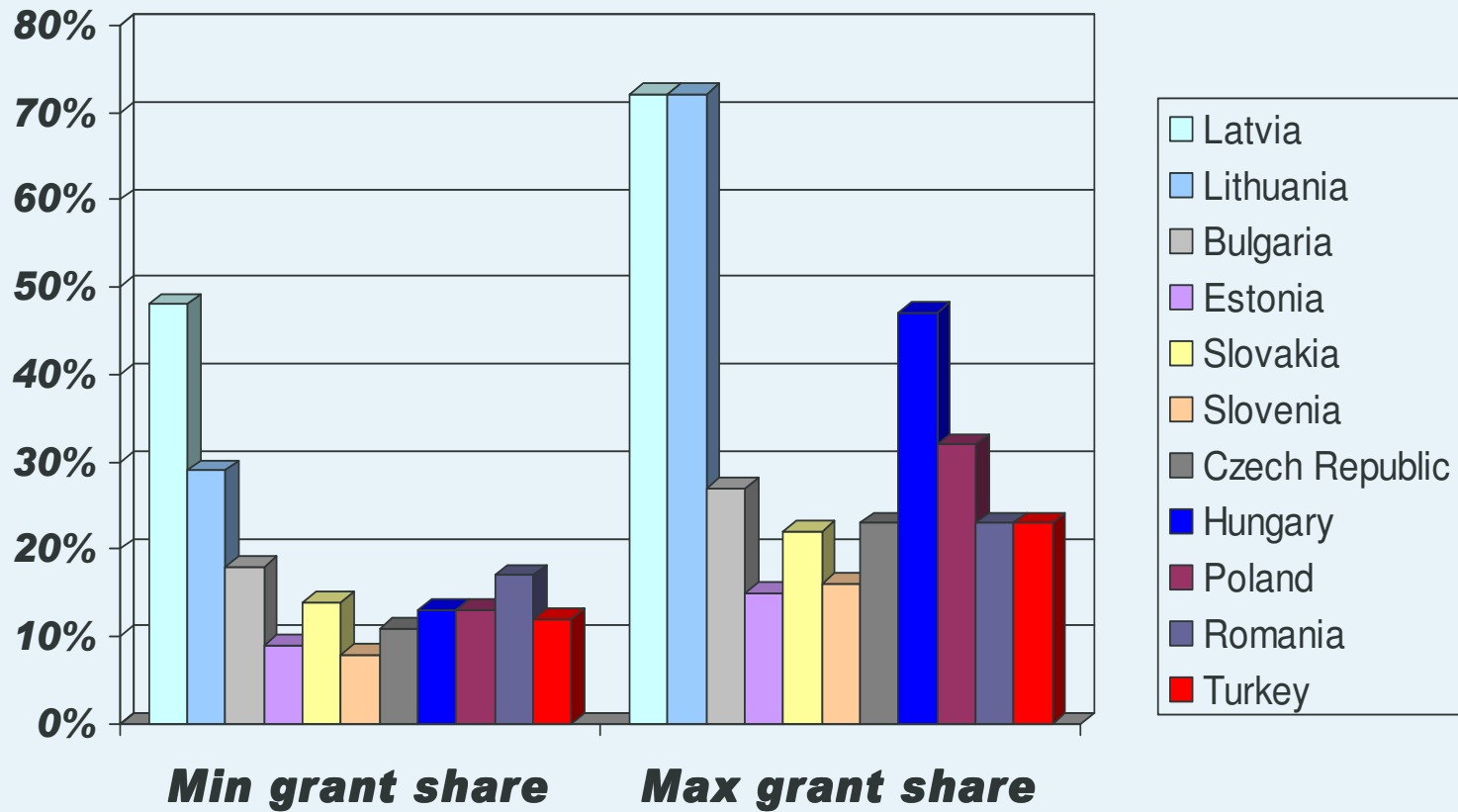
List of major integrated solid waste management projects		
Ranking	Name of the project	Indicative Cost (EUR)
1	Kayseri Integrated SWM Project	30 387 500
2	Çorum Integrated SWM Project	21 815 497
3	Konya Integrated SWM Project	22 936 200
4	Balıkesir Integrated SWM Project	14 224 000
5	Artvin-Rize Integrated SWM Project	14 500 000
6	İzmir-Harmandalı Integrated SWM Project	10 850000
7	Van Integrated SWM Project	20 600 000
8	Batman Integrated SWM Project	18 000 000
9	Malatya Integrated SWM Project	23 000 000
10	Ereğli Integrated SWM Project	10 000 000
	TOTAL	186 313 197

Proposed transition periods starting from 2014

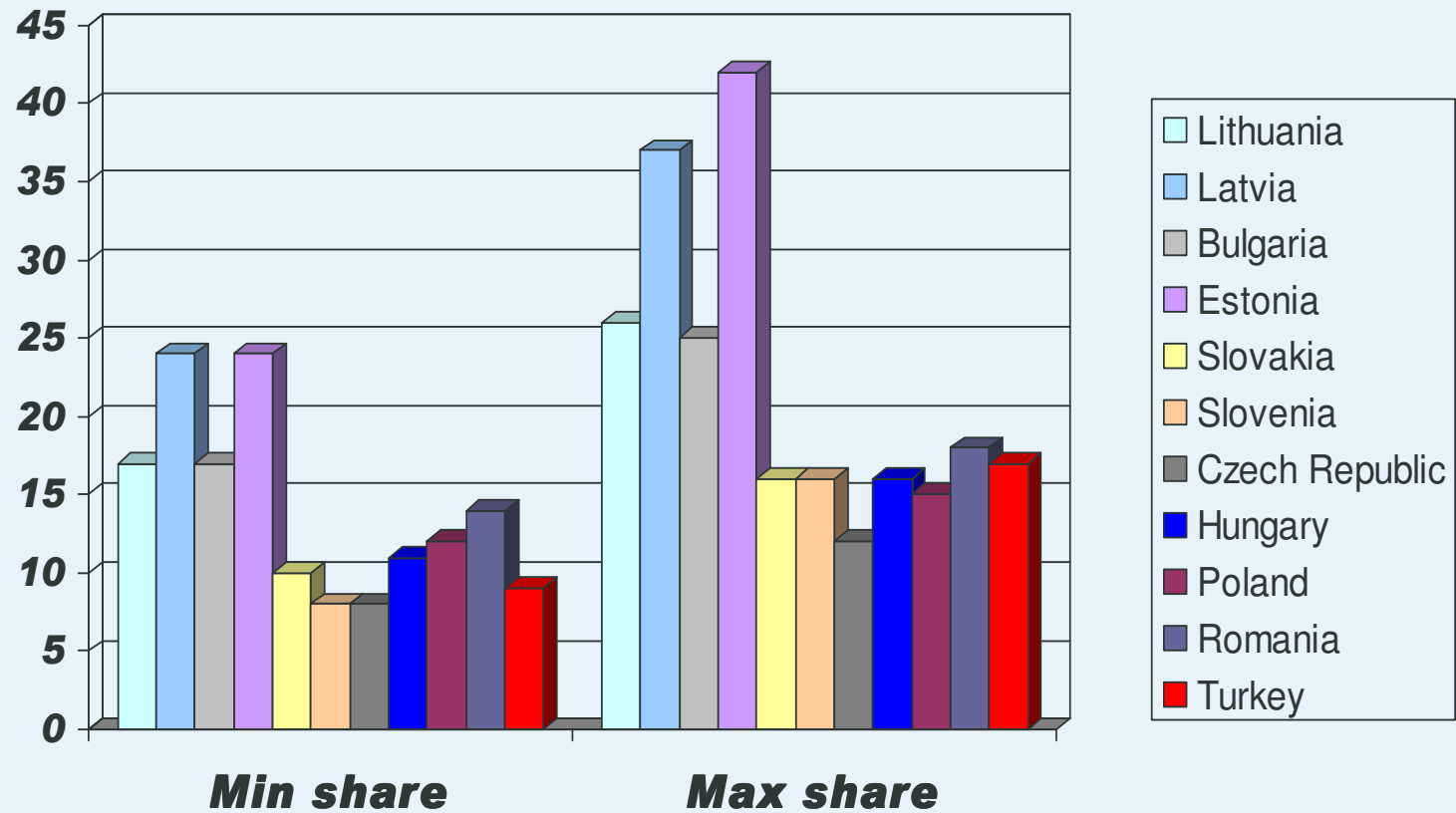
- Hazardous Waste 14 years
- Landfill 9 years
- Packaging Wastes 6 years
- Urban Wastewater Treatment 10 years
- Drinking Water 10 years
- Water Framework at least 10 years
- IPPC 7 years

Thanks for your attention

Share of environmental investments expected to be financed by EU grants



Expected share of EU grant for environmental investments per capita per year (EURO)



Assignations of ISPA grants in environmental sector in former accession countries up to 2004

Country	% grant
Bulgaria	74
Czech Republic	67
Estonia	72
Hungary	60
Latvia	66
Lithuania	58
Poland	62
Romania	74
Slovakia	56
Slovenia	51

Delineation of Turkey into agglomeration groups

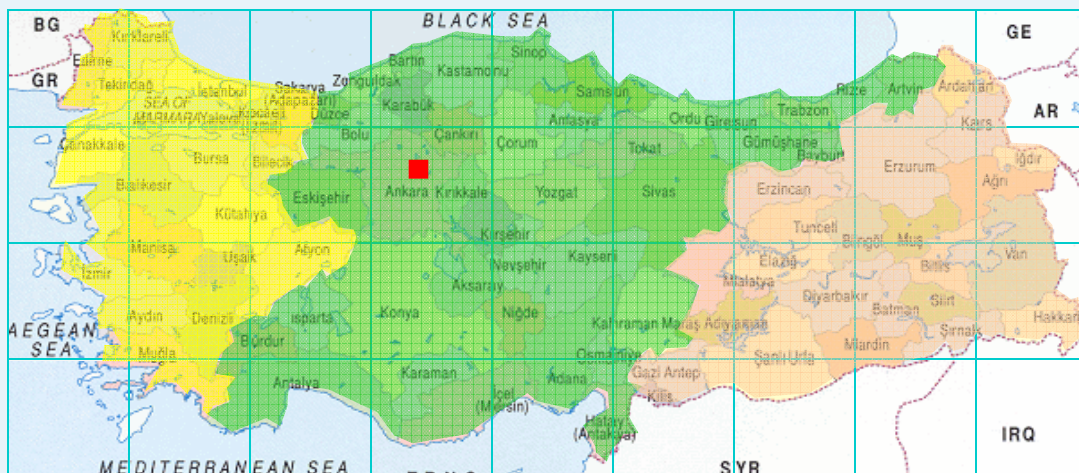
	Region 1	Region 2	Region 3
	Izmir	Ankara	Diyarbakir
	Bursa	Adana	Gaziantep
	Sakarya	Eskişehir	Erzurum
	İstanbul (10 districts)	Kayseri	
	Kocaeli	Konya	
		Antalya	
		İçel	
		Samsun	
150,000-500,000	4	8	6
50,000-150,000	26	40	27
10,000-50,000	116	181	77
2,000-10,000	735	1,254	580
2,000 den küçük	7,862	16,974	10,278

Zoning of Turkey by income level

Region 1: Marmara/ Aegean, high GDP/capita

Region 2: Mediterranean/ Black Sea/ Central Anatolia, avg GDP/capita

Region 3: Eastern Anatolia /South Eastern Anatolia, low GDP/capita



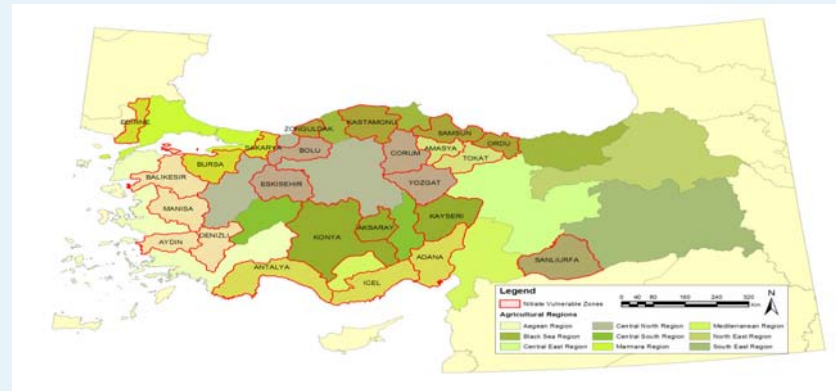
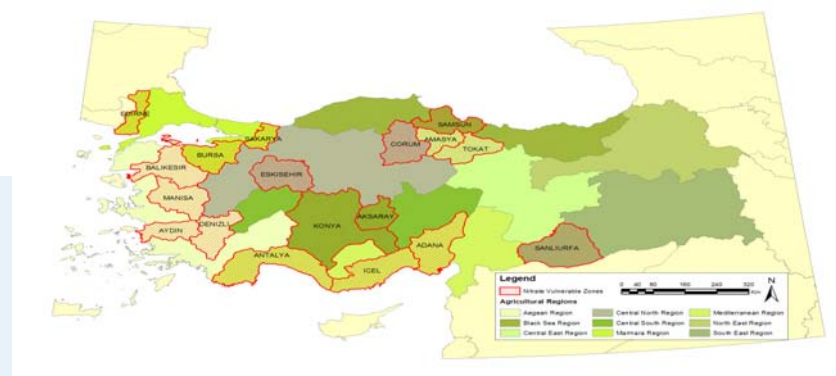
Nitrates Directive

- Manure storages
- Manure spreaders

Three scenarios based on vulnerability

Financing mainly by farmers

Implementation by 2014

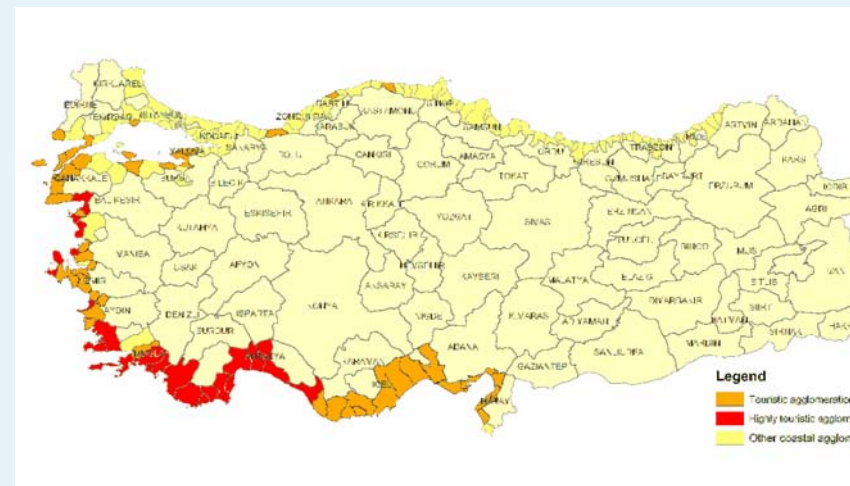


Bathing Waters Directive

- Agglomerations within 10 km wide coastal zone
 - Disinfection of effluents
- AND/OR
- Construction of sea outfalls

Financing from public budget, grants and loans, user charges

Implementation by 2014

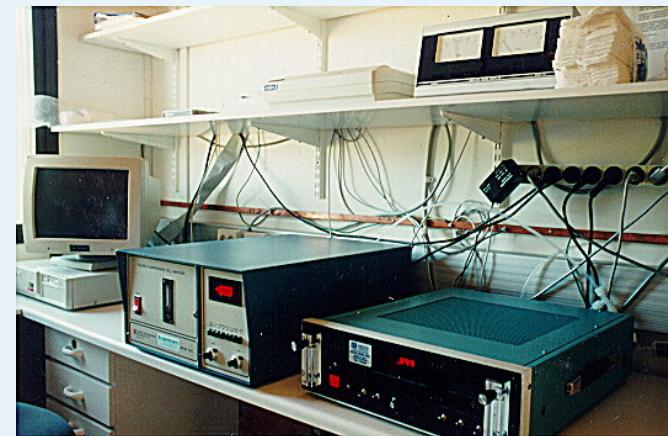
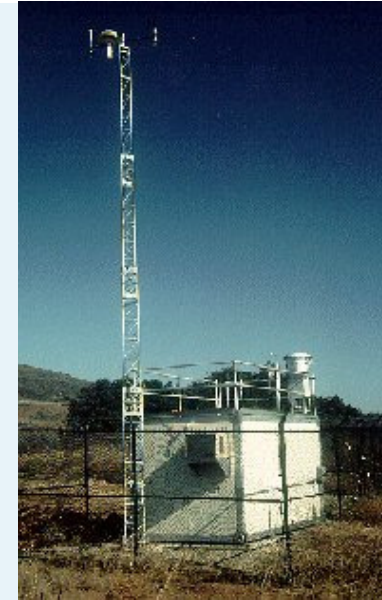


Air Quality Framework Directive

Establishing and maintaining a network of air quality monitoring stations and associated quality assurance equipment

Financing from public budget, grants

Implementation up to 2010



VOCs from petrol distribution

Measures for roof tanks, vapour recovery systems, gantries, mobile containers

Problems of public sector identified by questionnaires and visits

Financing from private sources

Implementation by 2014



New Fuel Distribution bottom loading

Solvents Directive

Modification of the production process, and/or improvement of the management practices; solvent substitution; add-on techniques

Questionnaires and visits

Financing from private sources

Implementation by 2014



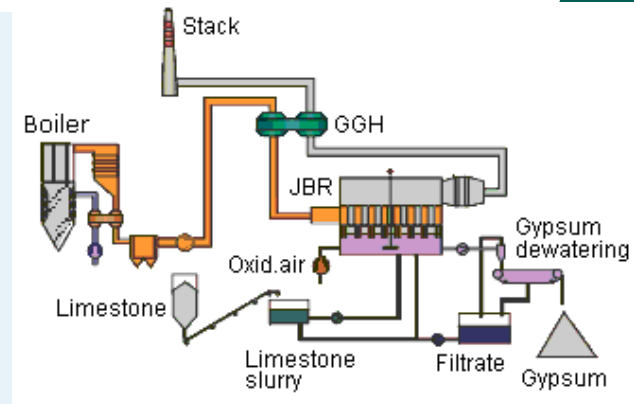
Large Combustion Plants Directive

- FGD and boiler rehabilitation, alternative: CFB (change of boiler technology)
- low-NOx burners

Questionnaires and visits

Financing from public budget, grants and loans, some private

Implementation up to 2020 or 2030



FGD diagram



CFB boiler

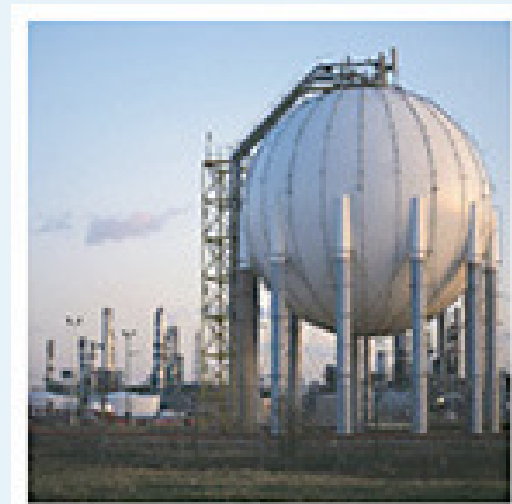
Fuel Quality Directive

- **FCC gasoline desulphurization**
- **DHPS diesel desulphurization**
- **use of MTBE and other high octane oxygenates or alkylates**

Questionnaires and visits

Financing from private sources

Implementation by 2007



COWI