



2017 KOREAN-HELLENIC COOPERATION FORUM

Plan of addressing waste management of the Hellenic Republic

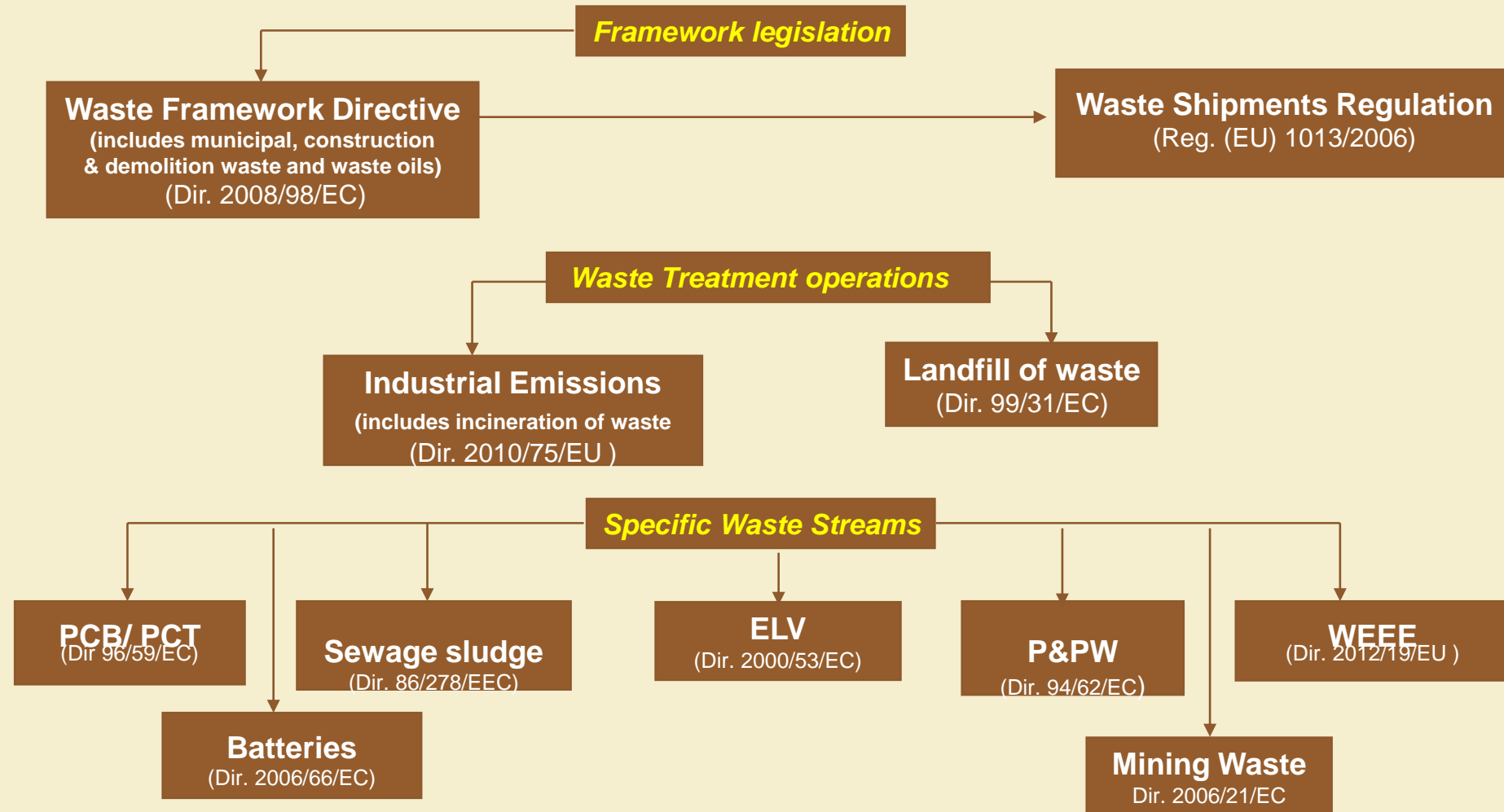
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ΥΠΟΥΡΓΕΙΟ
ΠΕΡΙΒΑΛΛΟΝΤΟΣ
ΕΝΕΡΓΕΙΑΣ &
ΚΛΙΜΑΤΙΚΗΣ
ΑΛΛΑΓΗΣ

EU Waste Management Policy



Developing a circular economy and improving resource efficiency

The 7th EAP highlights that turning waste into a resource requires:

- Full implementation of EU waste legislation, which includes the waste hierarchy; the need to ensure separate collection of waste; the landfill diversion targets etc.
- Reducing per capita waste generation and waste generation in absolute terms.
- Limiting energy recovery to non-recyclable materials.
- Phasing out landfilling of recyclable or recoverable waste.

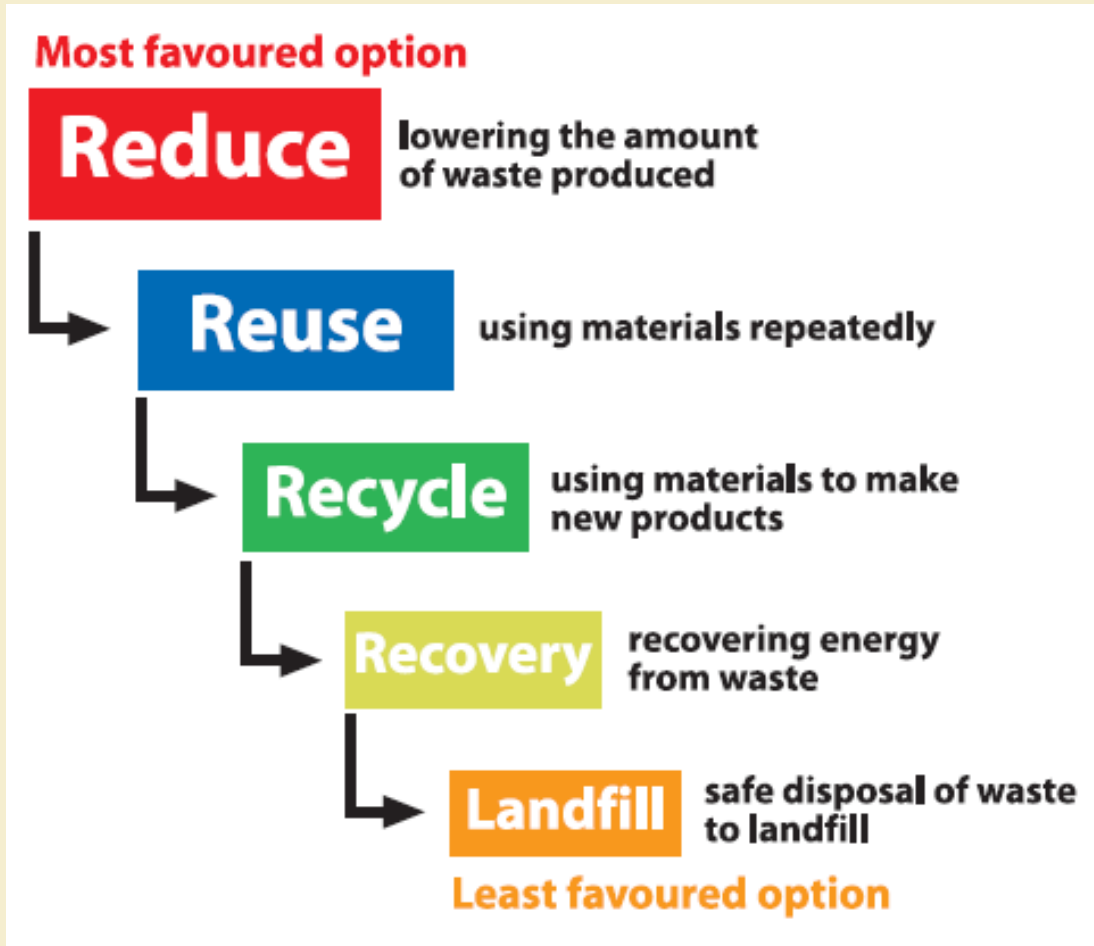
SDG 12 invites countries to substantially reduce waste generation through prevention, reduction, recycling and reuse, by 2030.

Closing the Loop : An EU Action Plan for the Circular Economy

Actions and measures:

- ❖ **PRODUCTION.** Ecodesign, incentives, product requirements, industrial symbiosis, BATs
- ❖ **CONSUMPTION.** Durability, Reuse, Green Public Procurement, Energy Labelling
- ❖ **WASTE MANAGEMENT.** Recycling targets, reduce landfilling, EPR schemes
- ❖ **WASTE TO RESOURCES:** Secondary raw materials, Water reuse
- ❖ **PRIORITY AREAS.** Plastics, Food waste, Critical raw materials, C & D, Biomass
- ❖ **HORIZONTAL:** Innovation, 650 M€ Horizon 2020 (waste prevention and management, food waste, remanufacturing, sustainable process industry, industrial symbiosis, and the bioeconomy)
- ❖ **PROGRESS MONITORING**

Waste management hierarchy



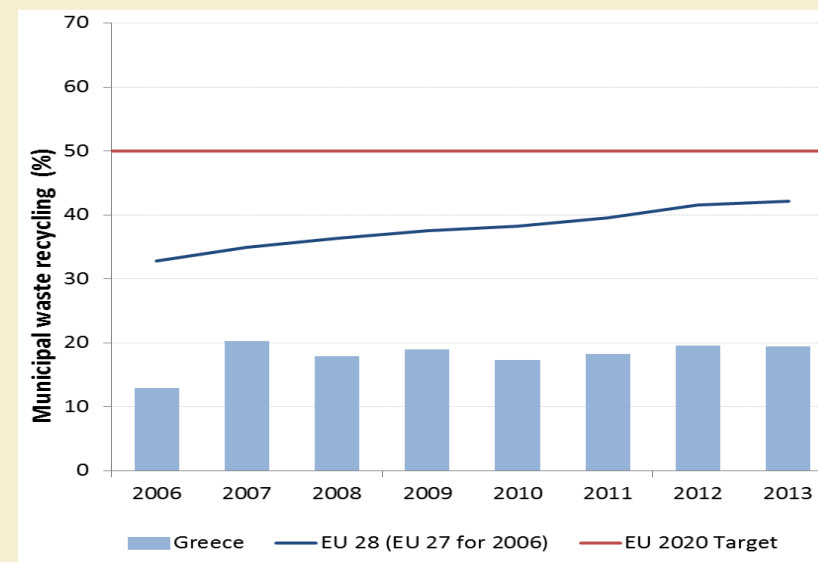
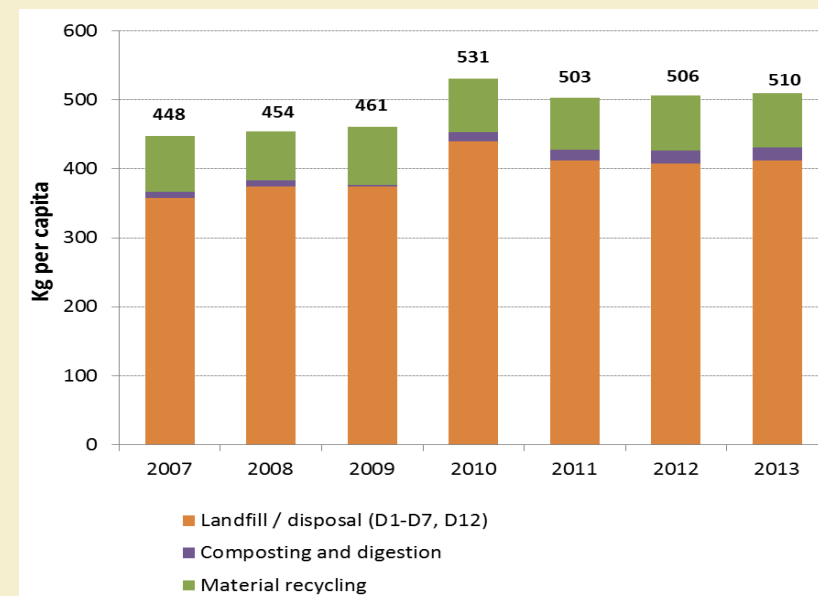
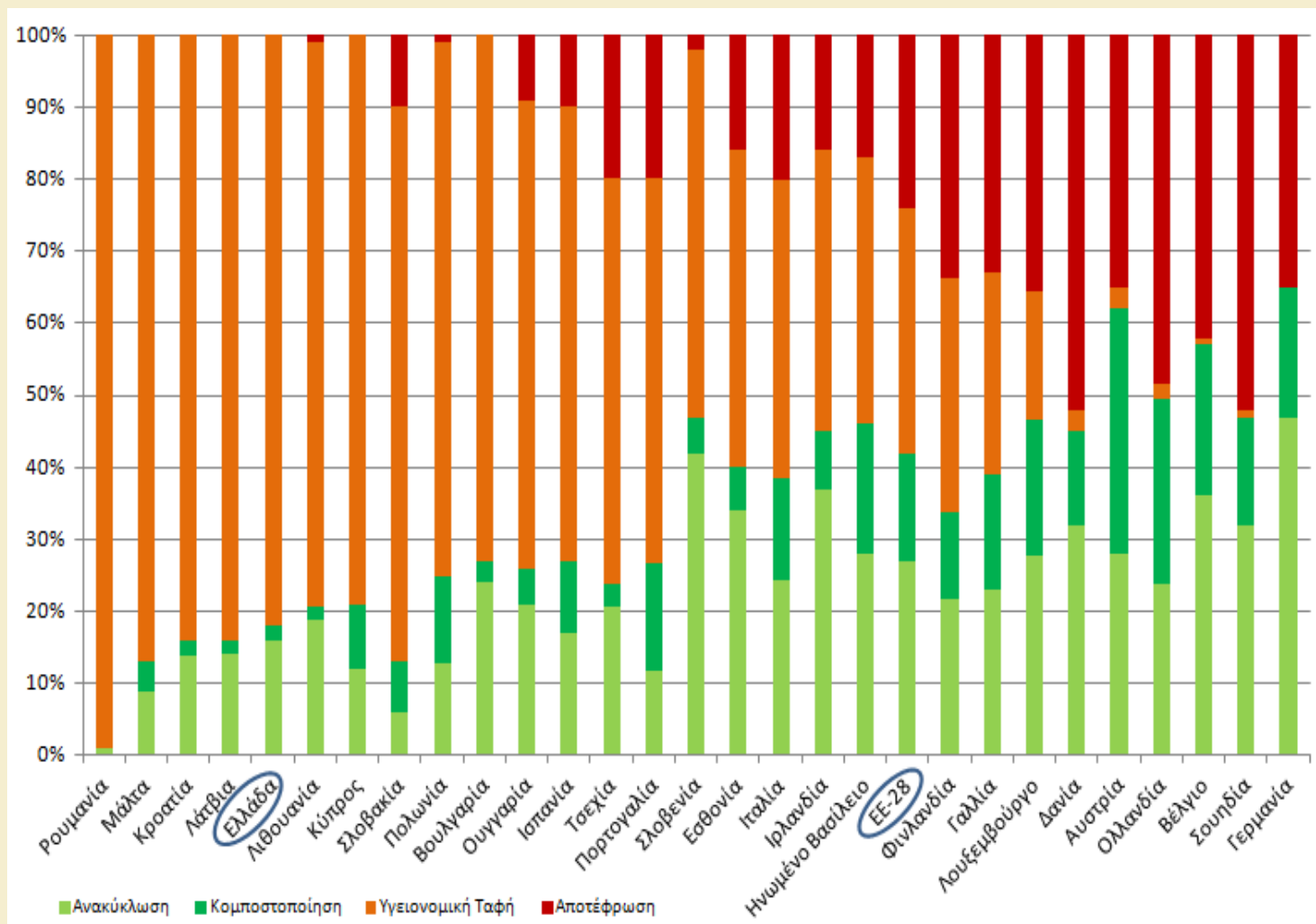
The solution to the waste «problem»

The effective solution of the «waste problem» depends on the current production and consumption paradigm's serious shift, i.e. produce more products using fewer natural resources, use natural resources producing less waste and finally consume more environmentally friendly products. Consumption refers to citizens; the aforementioned steps involve the industry.

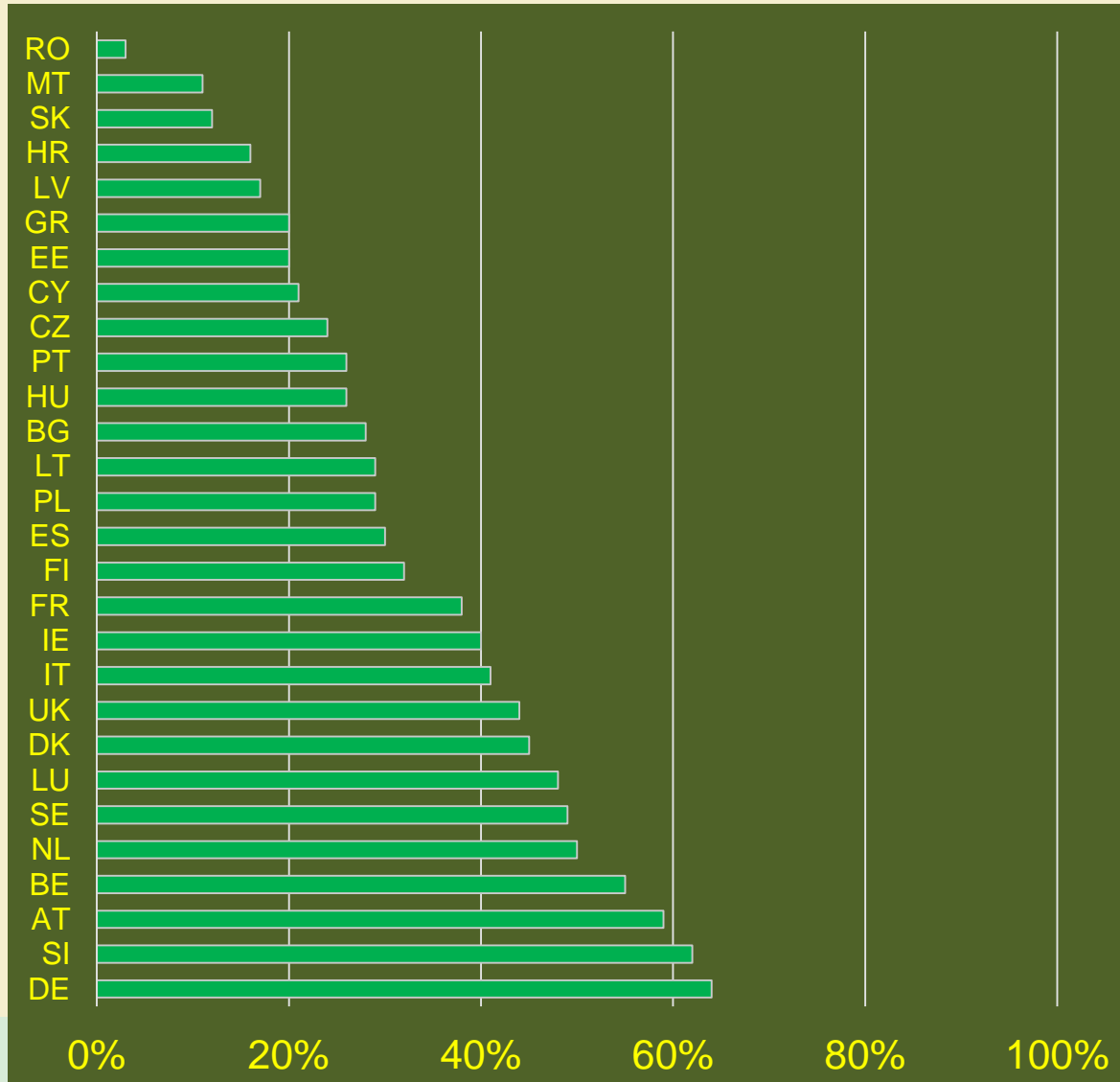
A comprehensive solution for waste management though is associated with major social changes.

The change from waste management to resource management and sustainability is primarily a social rather than a technical issue.

Zoom on Municipal waste



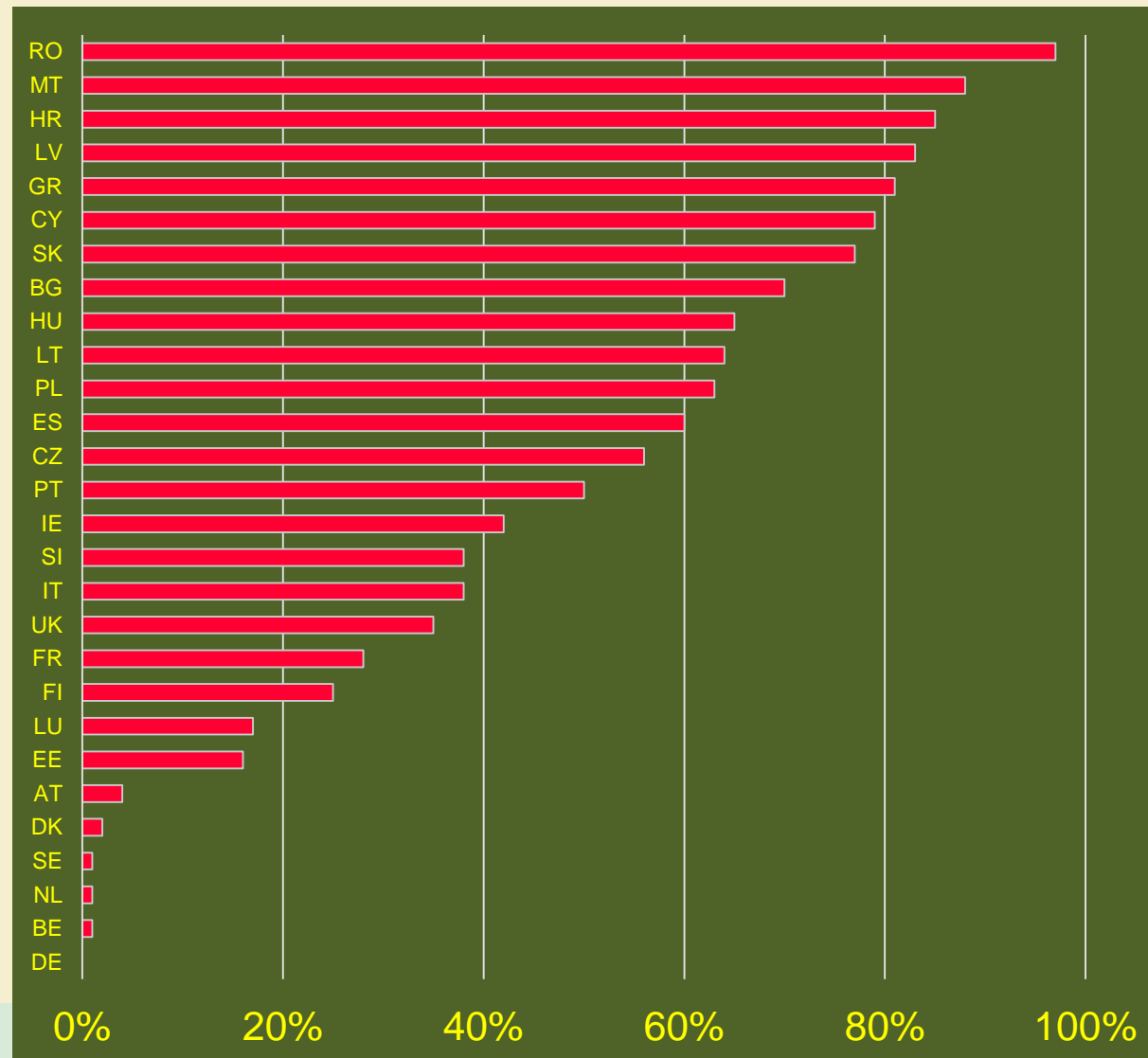
MSW Recycling EU-28



% MSW having been
recycled or composted

[EEA 2015] Press release
Environment. 54/2015, 26 March
2015, EUROSTAT

Landfilling in EU-28 (2015)



% MSW

[EUROSTAT 2015] Press release
Environment. 54/2015, 26 March 2015,
EUROSTAT

CURRENT SITUATION of WASTE MANAGEMENT in GREECE (MEECC, 2011)

- Population of Greece (2011) 11.347.393 inhabitants
- Surface 131.957 km²



Methods	TN/year 2011	%
Total MSW production	5.574.750	100
Landfilling	4.304.877	77,2
Dumpsites	265.674	4,8
Incineration	0	0
Recycling	829.751	14,9
Composting at MBT facilities	68.139	2,8
Home composting	10.000	
Composting in rural regions	81.144	
Waste vegetable oil, cooking oil and vegetable fats	15.864	0,3
Total Recycling (+Recovery)	1.004.898	18

CURRENT SITUATION of WASTE MANAGEMENT in GREECE (MEECC, 2015)

Total Generation (thousand tonnes)	5249
Collection for Recycling (%)	15.7%
Collection for Biowaste Treatment (%)	2.1%
Direct to MBT & Mixed Sorting etc. (%)	3.5%
Direct to Incineration (%)	0%
Direct to Landfill (%)	78.7%
Total (%)	100%

Existing MSW facilities in Greece (2017)

1: Sanitary Landfills : 75 landfills

2: Aerobic Mechanical and Biological Plants

- 3 MBT aerobic facilities (Liosia, Chania, Kozani)

3: Biodrying and Incineration Plants

- 2 biodrying facilities (Heraklion, Kefalonia)

4: On going and under Construction Plants

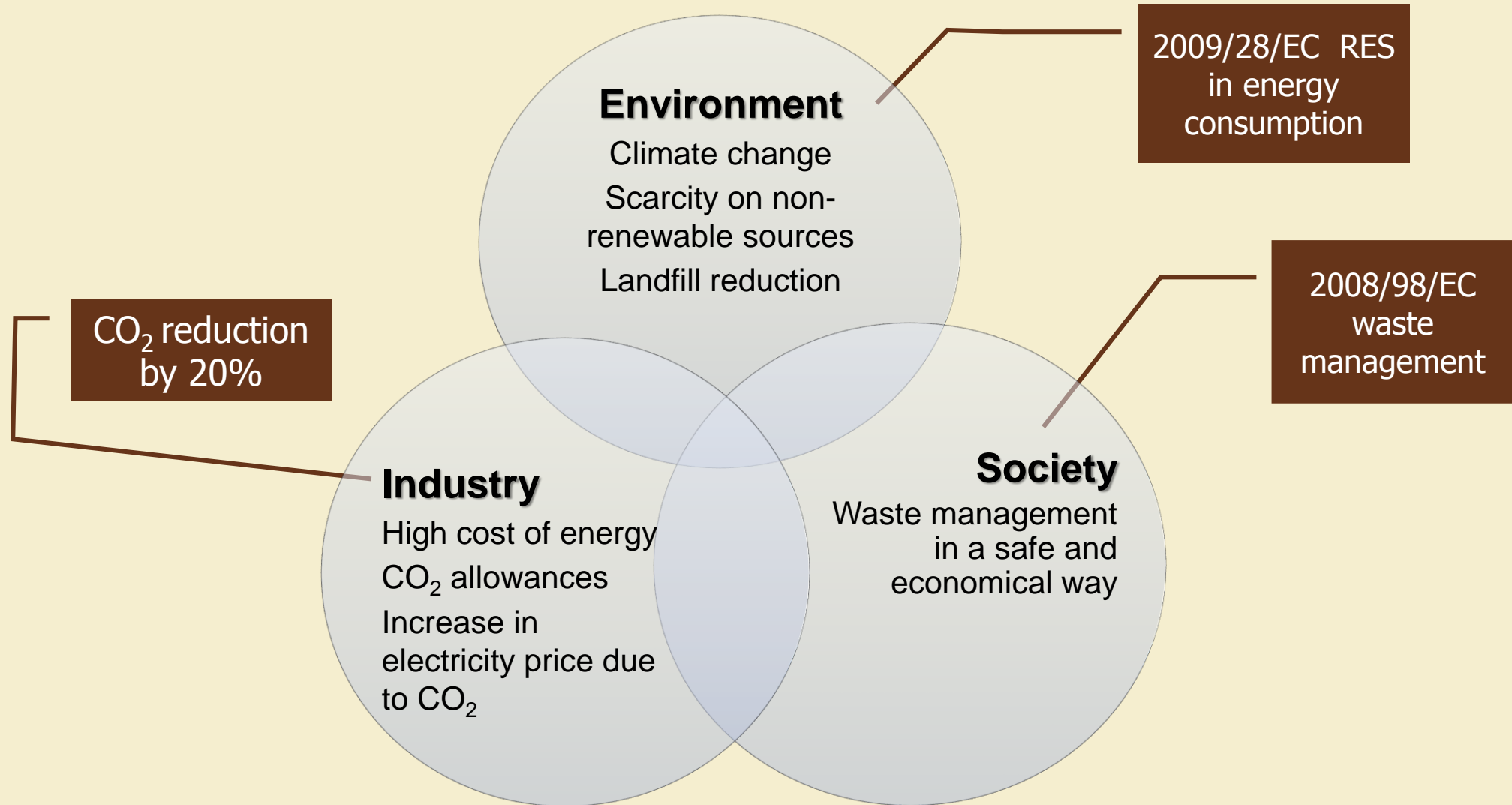
- MBT Plants of Ipirus (105,000 t/y), Serres (63,000 tn/y), Thiva (32,000 t/y), Fokida (8,000 t/y)
- MBT Plant of West Macedonia (120,000 tn/y) started in 2017

5: Material Recycling and Transfer facilities

- 20 waste transfer stations (e), 32 sorting facilities (356.000 t recycled and 202.000 t recovered)



Challenges for Greece



Zoom on Municipal waste

Waste Framework Directive

- Reuse +recycling = minimum of 50% by 2020
- For household and possibly for similar waste
- At least paper, metal, plastic and glass

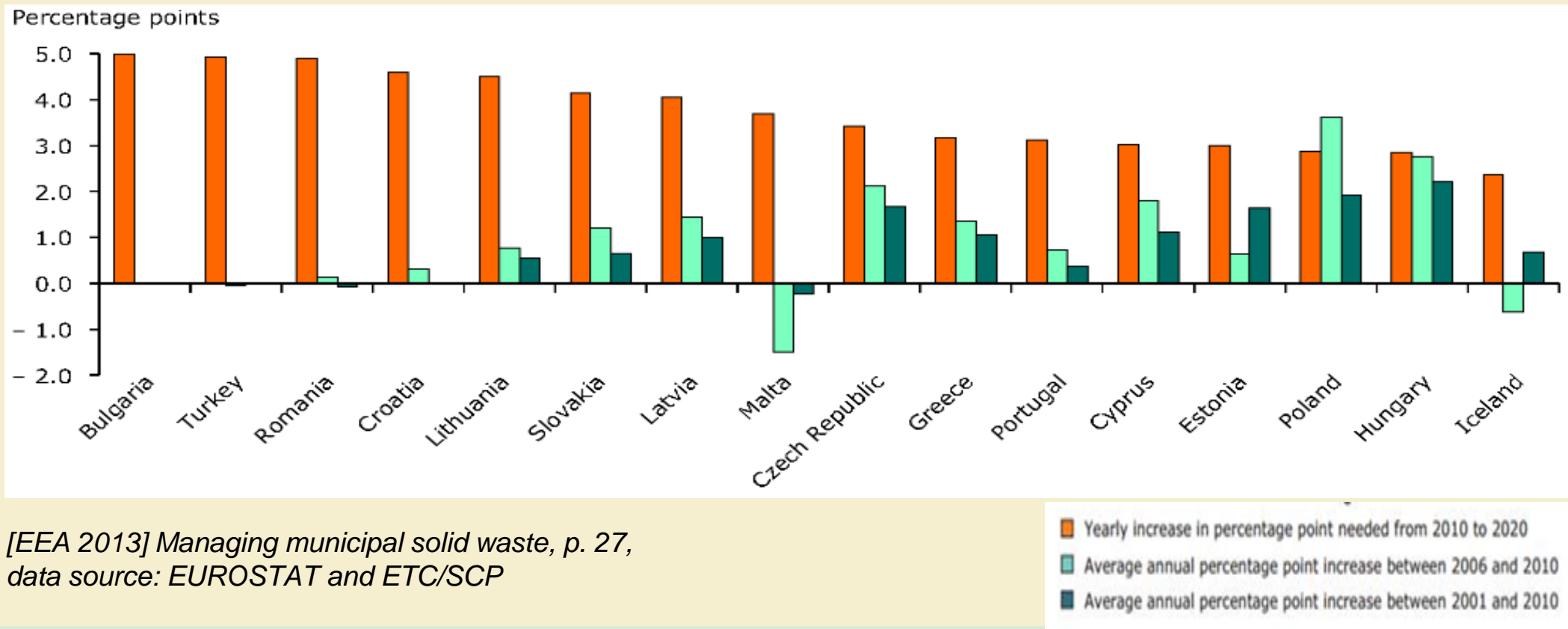
Comitology Decision allowing 4 calculation methods

Separate Collection

Waste Framework Directive

- Member States shall set up separate collection to ensure high quality recycling
- By 2015 separate collection should be set up at least for paper, metal, plastic and glass
- A key strategy for the implementation of the new national policy

% necessary annual increase to reach 50% recycling by 2020



Full implementation of the existing legislation could

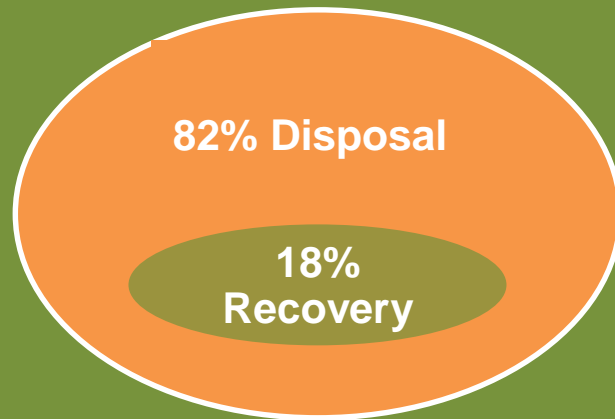
- create more than 15,900 jobs in Greece
- increase the annual turnover of the waste sector by 1.675 M€

Moving towards the targets of the Roadmap on resource efficiency which outlines how we can transform Europe's economy into a sustainable one by 2050, could create

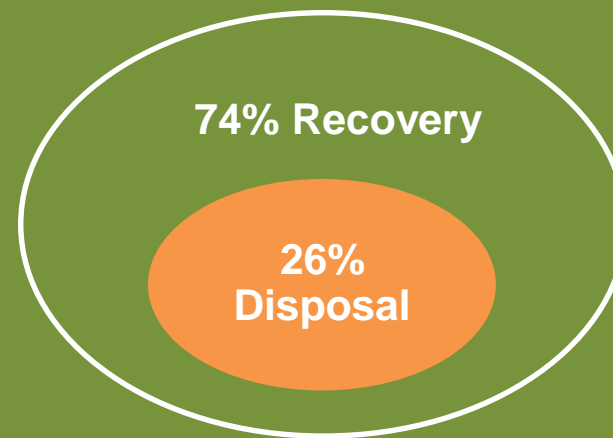
- over 19,000 additional jobs and
- increase the annual turnover of the waste sector by 2 M€

MSW specific 2020 targets

Main Target for MSW



from.....the current situation



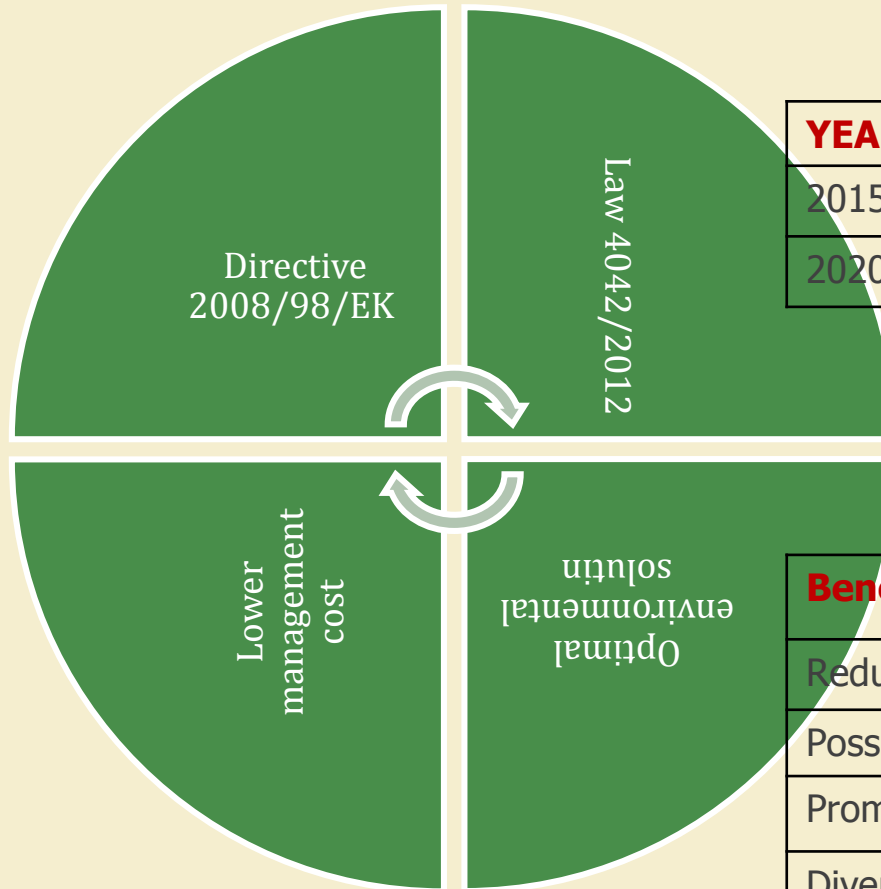
towards....situation on 2020

National Waste Management Plan of Greece

2020 TARGETS

material	tn/year	Total production	Recovery after separate collection	MBT – treatment – disposal			total	Recovery after separate collection	MBT- treatment – disposal		
				recovery	disposal	total			recovery	disposal	total
biowaste	2.560.500	2.560.500	1.024.200	1.024.200	512.100	1.536.300	100%	40%	40%	20%	60%
paper	1.283.200	2.560.500	1.664.325	256.050	640.125	896.175	100%	65%	10%	25%	35%
plastic	803.400										
metal	225.400										
glass	248.500										
wood	265.800	265.800	132.900	79.740	53.160	132.900	100%	50%	30%	20%	50%
rest recoverable	393.200	93.200	65.240	4.660	23.300	27.960	100%	70%	5%	25%	30%
rest		300.000	0	0	300.000	300.000	100%	0%	0%	100%	100%
total	5.780.000	5.780.000	2.886.665	1.364.650	1.528.685	2.893.335	100%	50%	24%	26%	50%
total	5.780.000	5.780.000	4.251.315		1.528.685		100%	74%		26%	

Composting or Anaerobic Digestion of source separated organic waste



YEAR	TARGET
2015	5%
2020	40%

Benefits from the management of source separated organics

Reduction of CO₂ emissions

Possibility of renewable energy production

Promote Recycling/ Production of compost

Diversion of biodegradable waste from landfill

Actions by the Ministry of Environment

- ▶ Introduction of national targets for the promotion of biowaste separate collection: 5% (w/w) by 2015, 40% (w/w) by 2020 (National Waste Management Plan)
- ▶ Preparation & distribution to all stakeholders of the "Guide for biowaste management practices"
- ▶ Preparation & distribution to beneficiaries of the "Technical guidelines for the design of composting plants – tender documents"
- ▶ Preparation & distribution of the "Guide for Composting Plant operation".
- ▶ Development of specifications of various types of compost for market promotion (to be awarded)
- ▶ A new Recycling Law is prepared and set in public discussion. Incentives to Municipalities and citizens are set.
- ▶ Legislative framework for the municipal "Green Points" (separate collection of 4 streams of packaging, green waste and others) was established.

Planning for the future

Programming period 2014-2020

- Strong emphasis on biowaste management with the funding of separate collection schemes, small-scale composting plants and home composting.
- Launching of a Call for the funding of waste collection systems and treatment plants of 273 Meuro.
- In addition, funding will be available for achieving 2020 biodegradable waste diversion targets (new projects)
- Need for involvement of private sector to cover funding gaps
- Need for supporting beneficiaries in design & costing of projects

Waste management works financed by O.P. 2014-20

ΑΠ / ΤΑΜΕΙΟ	ACTIONS TO BE SUPPORTED	INTERVENTION CATEGORIES	% EU	TOTAL BUDGET (€)
PA 14: CONSERVATION AND ENVIRONMENTAL PROTECTION - PROMOTION OF PROFITABLE USE OF RESOURCES (COHESION FUND)	1. Prevention actions	017. MSW management (including minimization, sorting and recycling measures)	85%	120.000.000
	2. Home composting			
	3. Separate collection of recyclable and biowaste			
	4. Biowaste composting			
	5. Green Points			
	6. Implementation of Directive 2008/98/EC and Waste Management Plans			
	7. Islands and small remote shettlements	018. Διαχείριση οικιακών απορριμμάτων (including MBTs, energy recovery and landfilling)		682.352.941
	8. Integrated waste management infrastucture			
	9. C. & D. facilities on islands			
	10. Sludge treatment plants in WWMPs			
	11. Awareness and promotion actions in municipalities			
	12. Hazardous waste management facilities	019. Industrial and hazardous waste management		52.941.176
	13. Rehabilitation of contaminated sites			
	14.Επέκταση και εκσυγχρονισμός συστημάτων συλλογής και επεξεργασίας αστικών λυμάτων, 15.Ολοκλήρωση υποδομών συλλογής και επεξεργασίας αστικών λυμάτων (ΕΕΛ) στους υπολειπόμενους οικισμούς Β' προτεραιότητας (πληθυσμός >15.000 ι.π. και διάθεση σε κανονικό αποδέκτη) και σταδιακή ολοκλήρωση των υποδομών συλλογής και επεξεργασίας στους οικισμούς Γ' προτεραιότητας (πληθυσμός 2.000 - 15.000 ι.π.) που απαιτούνται από την Οδηγία 91/271/ΕΟΚ, 16.Αναβάθμιση και εκσυγχρονισμός ΕΕΛ για την επίτευξη ποιοτικών χαρακτηριστικών εξόδου	022. Wastewater treatment		642.278.708

Waste management works by ERDF 2014-2020

Financing by the Operational Programme “Competitiveness, Entrepreneurship and Innovation 2014-2020” (EPAnEK) in Investment Priorities 6g & 6f with 44,5 M€ EU participation.

Financing (8) Regional O.P.s, in Investment Priority 6a with 60 M€ EU participation.

O.P.	INTERVENTION CATEGORY	ERDF BUDGET (M€)
E.P. An.E.K.	69/84	22,00
	19	22,50
East Macedonia-Thrace	17	7,20
Thessaly	17	2,85
	18	5,45
Ionian Islands	18	3,40
Western Greece	17	12,20
Attica	17	10,57
Peloponnese	17	1,00
North Aegean	17	4,50
	18	4,50
Crete	17	8,00
		104,17

Waste treatment facilities (RWMPs)

REGION	MBT	t/y	BW units	t/y	SORTING CENTERS	t/y	COST
East Macedonia-Thrace	7	125.000	12	40.000	8	80.000	62.300.000
Attica	6	900.000	7	325.000	4		243.000.000
North Aegean	0	0	5	26.000	4		14.850.000
Western Greece	5	155.000	6	53.000	8	131.000	104.739.779
West Macedonia	1	61.000	1	18.000	1		40.000.000
Epirus	1	74.500	4	22.000	1	30.000	50.114.103
Thessaly	3	158.000	16	90.000	3		87.141.808
Ionian Islands	4	70.000	7	25.100	2		49.228.000
Central Macedonia	3	437.000	13	168.000	10	270.000	229.040.523
Crete	6	205.000	5	64.000	4	108.000	150.000.000
South Aegean	4	65.000	23	27.500	5	78.000	44.361.600
Central Greece	6	155.000	12	50.000	4		125.100.000
Peloponnese	3	159.000	5	42.000	3	76.000	155.200.000
GREECE	49	2.564.500	116	950.600	57	773.000	1,35 B€

The way ahead

- ▶ Implementation of infrastructure provided in the 13 RWMPs.
- ▶ Update legislative regulations on Waste Management (composting standards, Green Points, C & D, recycling Law, Circular Economy package) including specific policy measures how to achieve the targets set by the Waste Framework Directive (WFD), National Waste Management Plan and National Waste Prevention Plan.
- ▶ Implementation of landfill tax with its progressive increase to divert waste from landfill. Use revenues to support separate collection and alternative infrastructure.
- ▶ Implementation of the bio-waste strategy including specific measures to divert biodegradable waste from landfill.
- ▶ Establishment and control of separate collection infrastructure and schemes. Implementation of door-to-door separate collection as soon as possible.
- ▶ Extend and improve the cost-effectiveness, monitoring and transparency of existing Extended Producer Responsibility (EPR) schemes and eliminate free-riding.
- ▶ Extend and enforce Pay-As-You-Throw (PAYT) scheme. Provide incentives and support for households to participate in separate collection.

http://ec.europa.eu/environment/waste/framework/support_implementation.htm



Thank you
for your attention !

*«Take a Leap faster than decay»
Odysseus Elytis*