WASTE

Waste is generated at all stages of human activities. Its composition and amounts depend largely on consumption and production patterns. Main concerns relate to the potential impact from inappropriate waste management on human health and the environment (soil and water contamination, air quality, land use and landscape). Despite achievements in waste recycling, amounts of solid waste going to final disposal are on the increase as are overall trends in waste generation. This raises important questions as to the capacities of existing facilities for final treatment and disposal and as to the location and social acceptance of new facilities (e.g. NIMBY for controlled landfill and incineration plants). Hazardous waste, mainly from industry, is of particular concern since it entails serious environmental risks if badly managed. Also, long-term policies are needed for the disposal of high-level radioactive waste.

Waste management issues are at environmental centre stage in many countries. Responses have been directed mainly towards collection, treatment and disposal. Increasingly, waste minimisation is an aim of sustainable development strategies. This can be achieved through waste prevention, reuse, recycling and recovery. More broadly it is necessary to better integrate environmental concerns into consumption and production patterns. Performance can be assessed against domestic objectives and international commitments. Agreements and regulations on waste in general and transfrontier movements of hazardous waste in particular include directives of the European Union, OECD Decisions and Recommendations, the Lomé IV Convention and the 1989 Basel Convention. The main challenge is to strengthen measures for waste minimisation, especially for waste prevention and recycling, and to move further towards life cycle management of products and extended producer responsibility.

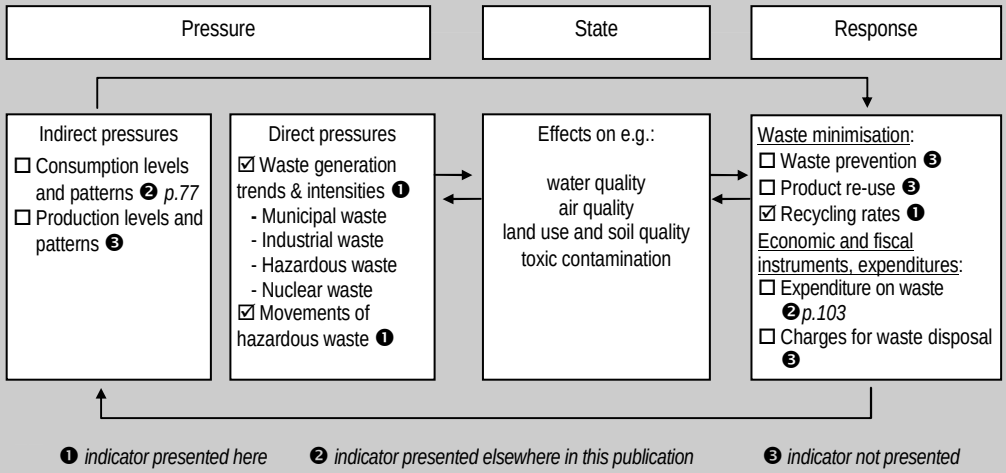
Indicators presented here relate to:

- *waste generation, i.e.:*
  - *total amounts of waste by principal source sector (municipal, industrial and nuclear waste), as well as generation intensities expressed per capita and per unit of GDP. Treatment and disposal shares of municipal waste are shown as complementary information;*
  - *hazardous waste produced per unit of GDP (hazardous waste generation is largely driven by production patterns). This indicator does not reflect toxicity levels or other risks posed by such waste, nor its real impact on the environment. Transfrontier movements are shown as complementary information.*

  Indicators of waste generation intensity are first approximations of potential environmental pressure; more information is needed to describe the actual pressure.
- *waste recycling rates for paper and glass. They present total amounts recycled as percentage of the apparent consumption of the respective material.*

WASTE: ONGOING WORK AND REFERENCES

♦ **OECD CORE SET AND RELATED INDICATORS**



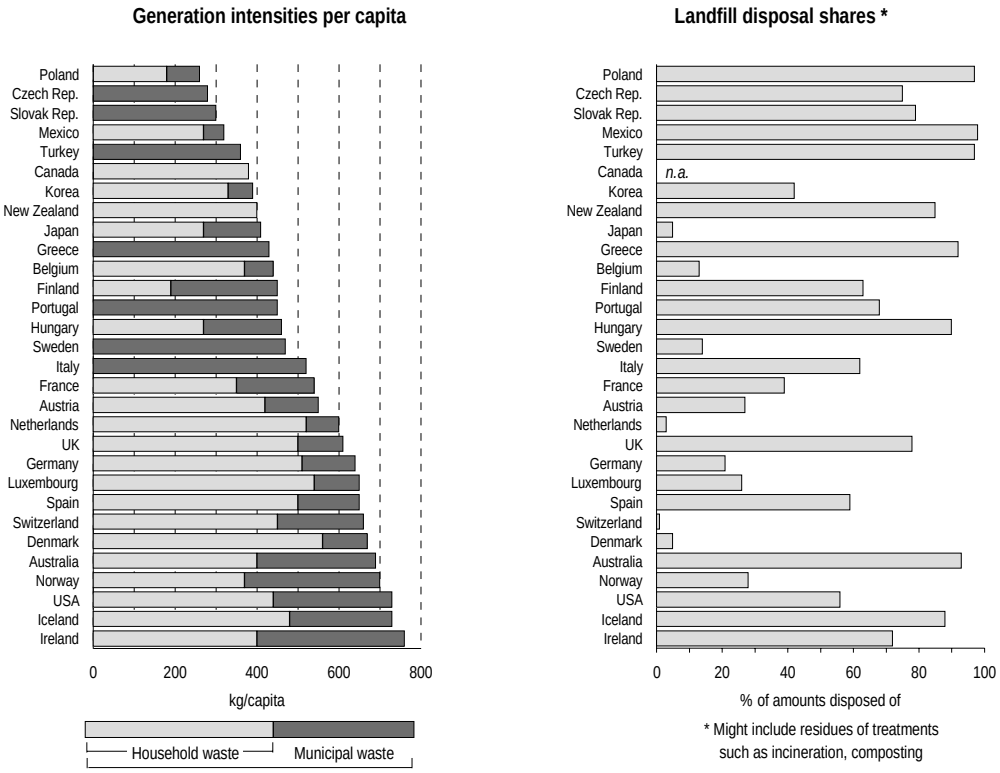
❶ *indicator presented here* ❷ *indicator presented elsewhere in this publication* ❸ *indicator not presented*

♦ **REFERENCES**

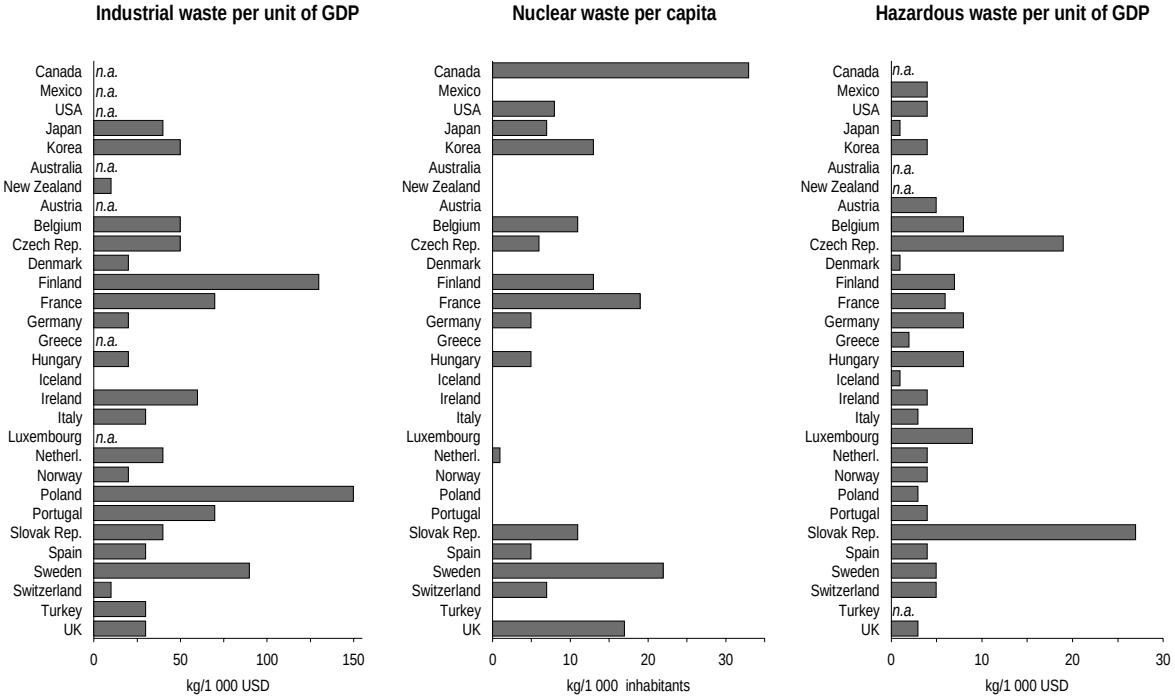
🕮 OECD (1997), Transfrontier Movements of Hazardous Waste, 1992-1993 statistics
🕮 OECD (1996), Washington Waste Minimisation Workshop, Vol. 1, Vol. 2
🕮 OECD (2000), Strategic waste Prevention - OECD Reference Manual
🕮 OECD (2001), OECD Environmental Outlook, Chapter 20, Waste
🕮 Secretariat of the Basel Convention (2002),Global trends in Generation and Transboundary Movements of Hazardous wastes and Other Wastes
🕮 OECD (2004), OECD Environmental Data — Compendium 2004

WASTE GENERATION 7

Municipal waste, state



Industrial, nuclear and hazardous waste, state



7 WASTE GENERATION

Municipal waste

		Municipal waste generated per capita		*of which:* Household waste	Private final consumption expenditure, per capita		Management of municipal waste % of amounts disposed of		
		kg/cap. 2003	% change since 1990	kg/cap. early 2000s	1 000 USD/cap. 2003	% change since 1990	Recycling/ compost. 2003	Incineration 2003	Landfill 2003
Canada	♦	..	..	380	17.0	22	28	..	..
Mexico	♦	320	..	270	6.2	15	2	-	98
USA	♦	730	-2	440	25.3	32	30	15	56
Japan	♦	410	0	270	14.9	17	15	74	5
Korea	♦	390	..	330	9.8	64	44	14	42
Australia	♦	690	0	400	16.5	32	7	-	93
New Zealand	♦	..	19	400	13.2	22	15	..	85
Austria	♦	550	33	420	16.2	20	61	11	27
Belgium	♦	440	18	370	14.3	21	60	35	13
Czech Rep.	♦	280	..	..	8.4	25	5	15	75
Denmark	♦	670	28	560	13.5	17	41	54	5
Finland	♦	450	..	190	13.5	17	28	9	63
France	♦	540	20	350	14.4	17	27	34	39
Germany	♦	640	..	510	14.7	18	56	22	21
Greece		430	44	..	12.1	26	8	-	92
Hungary	♦	460	-12	270	7.8	..	3	7	90
Iceland	♦	730	19	480	16.2	22	8	4	88
Ireland	♦	760	76	400	14.2	66	28	..	72
Italy	♦	520	46	..	15.2	19	38	9	62
Luxembourg	♦	650	..	540	20.7	31	19	55	26
Netherlands	♦	600	20	520	13.4	23	56	40	3
Norway	♦	700	26	370	16.6	21	46	26	28
Poland	♦	260	-11	180	7.1	77	3	-	97
Portugal	♦	450	48	..	10.6	30	11	21	68
Slovak Rep.		300	..	..	6.6	..	6	10	79
Spain	♦	650	53	500	12.4	28	35	6	59
Sweden		470	26	..	13.4	15	41	45	14
Switzerland	♦	660	8	450	18.2	7	47	52	1
Turkey	♦	360	-7	..	4.5	10	2	-	97
UK	♦	610	29	500	17.6	35	15	8	78
OECD	♦	570	12	..	16.3	25	..	..	..

♦ *See Technical Annex for data sources, notes and comments.*

STATE AND TRENDS SUMMARY

Although municipal waste is only one part of total waste generated, its management and treatment represents more than one third of the public sector's financial efforts to abate and control pollution. The quantity of municipal waste generated in the OECD area has steadily increased since 1990 and reached 590 million tonnes in the early 2000s (570 kg per inhabitant). Generation intensity per capita has risen mostly in line with private final consumption expenditure and GDP, although a slight slowdown has been seen in recent years.

The amount and composition of municipal waste vary widely among OECD countries, being related to levels and patterns of consumption and also depending on national waste management and minimisation practices. In most countries for which data are available, increased affluence, associated with economic growth and changes in consumption patterns, tends to generate higher rates of waste per capita than 15 years ago.

In a number of OECD countries, incineration and recycling are increasingly used to reduce amounts of waste going to final disposal, and particularly to landfill. Landfill nonetheless remains the major disposal method in most OECD countries.

WASTE GENERATION 7

Industrial, nuclear and hazardous waste

		Industrial waste		Nuclear waste		Hazardous waste				
		Waste from manuf. industry, early 2000s		Spent fuel arisings, 2003		Production			Net transfrontier movements	Amounts to be managed
		Total 1 000 tonnes	per unit of GDP kg/ 1 000 USD	Total tonnes HM	per capita kg/ 1 000 inh.	Year	Total 1 000 tonnes	per unit of GDP kg/ 1 000 USD	Exports-Imports 1 000 tonnes	1 000 tonnes
Canada	♦	..	..	1049	33.2	2002	..	..	-83	..
Mexico	♦	..	..	19	0.2	2000	3706	4.2	-180	3886
USA	♦	..	..	2243	7.7	2001	37033	3.7	..	41211
Japan	♦	123730	40	904	7.1	1999	3306	1.0	1	3305
Korea	♦	39230	50	610	12.7	2001	2858	3.5	-14	2872
Australia		..	..	-	-	2001	..	..	16	..
New Zealand	♦	800	10	-	-	2000	..	..	-10	..
Austria	♦	..	..	-	-	2000	1023	4.5	..	..
Belgium	♦	14080	50	113	10.9	1997	2016	8.3	-309	2325
Czech Rep.	♦	7960	50	60	5.9	2001	2817	18.6	2	2815
Denmark	♦	2950	20	-	-	2000	183	1.2	109	287
Finland	♦	16800	130	69	13.2	2000	963	7.3	38	963
France	♦	98000	70	1135	18.5	2000	9150	6.0	-577	9727
Germany	♦	37450	20	420	5.1	2001	15532	7.5	-529	16061
Greece		..	..	-	-	2000	391	2.2	..	..
Hungary	♦	2610	20	48	4.7	2000	951	7.8	..	..
Iceland	♦	10	-	-	-	2001	8	1.0	2	6
Ireland	♦	5110	60	-	-	1998	370	4.2	100	271
Italy	♦	37600	30	-	-	2001	4279	2.9	..	5949
Luxembourg		..	..	-	-	2000	197	9.3	114	83
Netherlands	♦	19010	40	12	0.7	2000	1785	4.2	334	..
Norway	♦	3430	20	-	-	2001	684	4.1	-166	..
Poland	♦	57750	150	-	-	2002	1029	2.6	..	..
Portugal	♦	13160	70	-	-	1997	595	3.8	29	566
Slovak Rep.	♦	2300	40	59	11.0	2001	1634	27.4	..	1634
Spain	♦	20310	30	200	4.8	2000	3063	3.8	-144	3207
Sweden	♦	19780	90	196	21.9	2000	1100	4.7	-320	..
Switzerland	♦	1470	10	50	6.8	2001	1143	5.2	..	1013
Turkey	♦	12838	30	-	-		..	..	..	..
UK	♦	40240	30	1019	16.8	2001	5214	3.4	..	..
OECD	♦	1485000	60	8134	7.1					

♦ *See Technical Annex for data sources, notes and comments.*

STATE AND TRENDS SUMMARY

Industry has been generating increasing amounts of waste in recent decades. Changes in production patterns and related technologies, and in waste management practices, have altered the composition of such waste.

Generation intensities per unit of GDP reflect wide variations among OECD countries, in particular for hazardous waste.

Nuclear waste is directly related to the share of nuclear power in national energy supply and the types of nuclear technology adopted.

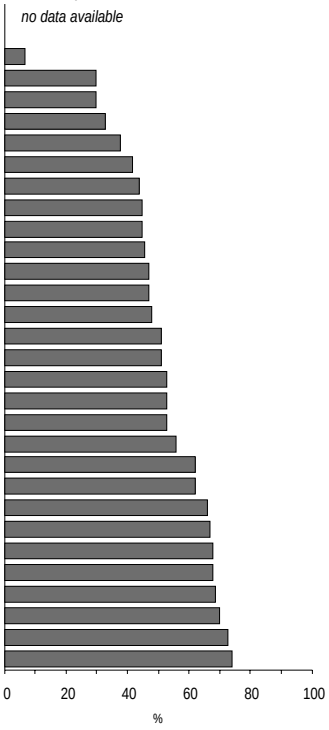
8 WASTE RECYCLING

Paper recycling rates

Absolute change from 1990

Luxembourg	..
Mexico	..
Iceland	..
Poland	-16
Greece	5
Ireland	..
Turkey	17
Czech Rep.	..
USA	17
Canada	18
Portugal	6
Australia	-4
Italy	20
Slovak Rep.	13
Spain	12
UK	18
Denmark	18
France	19
Belgium	21
Hungary	12
Austria	10
Korea	18
Japan	16
Sweden	21
Norway	39
Netherlands	17
New Zealand	..
Switzerland	20
Finland	30
Germany	30

State, 2003

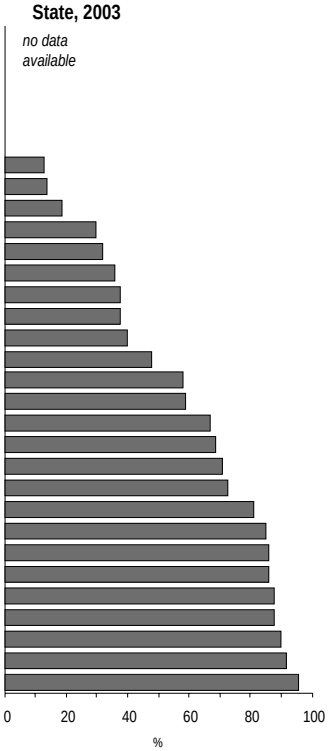


Glass recycling rates

Absolute change from 1990

Canada	..
Czech Rep.	..
Luxembourg	..
Poland	..
Slovak Rep.	..
Mexico	..
Hungary	..
USA	-1
Greece	15
Turkey	1
UK	16
Portugal	11
Spain	11
Australia	..
New Zealand	..
France	17
Italy	6
Ireland	44
Korea	23
Denmark	36
Finland	37
Netherlands	14
Iceland	..
Austria	26
Norway	64
Belgium	33
Germany	34
Japan	42
Sweden	48
Switzerland	31

State, 2003



	Paper and cardboard						Glass					
	Recycling rate, %					Absolute change	Recycling rate, %					Absolute change
	1980	1985	1990	1995	2003	since 1990	1980	1985	1990	1995	2003	since 1990
Canada ♦	20	23	28	41	45	18 ♦	12	12	..	..	..	..
Mexico ♦	..	..	..	7	7	.. ♦	..	..	..	13	13	..
USA ♦	21	21	28	40	45	17 ♦	5	8	20	24	19	-1
Japan	48	50	50	51	66	16 ♦	35	47	48	61	90	42
Korea ♦	..	..	44	53	62	18 ♦	..	..	46	57	69	23
Australia ♦	..	36	51	..	47	-4 ♦	..	..	..	42	40	..
New Zealand ♦	..	..	..	47	69	.. ♦	..	..	..	30	48	..
Austria	30	37	52	66	62	10 ♦	20	38	60	76	86	26
Belgium	..	..	33	37	53	21 ♦	33	42	55	67	88	33
Czech Rep. ♦	..	..	..	38	44	..	..	..	..	..	..	..
Denmark	26	31	35	44	53	18 ♦	8	19	35	63	71	36
Finland	35	39	43	56	73	30	10	21	36	50	73	37
France ♦	30	35	34	39	53	19 ♦	20	26	41	50	58	17
Germany ♦	34	43	44	67	74	30 ♦	23	43	54	75	88	34
Greece	22	25	28	32	33	5	15	15	15	35	30	15
Hungary ♦	..	..	44	43	56	12 ♦	..	..	..	..	14	..
Iceland ♦	..	..	..	..	30	.. ♦	..	..	..	..	85	..
Ireland	..	..	..	11	38	..	8	7	23	39	67	44
Italy ♦	34	25	27	28	47	20 ♦	20	25	53	53	59	6
Luxembourg	..	..	..	..	..	..	..	..	..	..	..	..
Netherlands	46	50	50	59	68	17 ♦	17	49	67	80	81	14
Norway	..	..	29	46	68	39 ♦	..	..	22	75	86	64
Poland	34	34	46	28	30	-16	..	..	..	..	..	..
Portugal	38	37	40	37	46	6	..	10	27	42	38	11
Slovak Rep.	..	..	35	32	48	13	..	..	..	..	..	..
Spain	39	44	39	41	51	12	..	26	27	32	38	11
Sweden ♦	34	..	46	70	67	21 ♦	..	20	44	61	92	48
Switzerland	35	39	49	61	70	20 ♦	36	46	65	85	96	31
Turkey	..	..	26	34	42	17	..	33	31	24	32	1
UK	32	28	33	35	51	18 ♦	5	12	21	26	36	16

♦ *See Technical Annex for data sources, notes and comments.*

STATE AND TRENDS SUMMARY

Recycling of glass and paper is increasing in most OECD countries as a result of evolving consumption patterns and waste management and minimisation practices.