

Environmentally related R&D

Technology development and innovation are key drivers of economic growth and productivity. They are important for managing energy and materials successfully and have a bearing on policies intended to preserve natural resources and materials and to minimise the pollution burden.

R&D budget is an input measure that indicates an economy's relative degree of investment in generating knowledge. It thus reflects current policies towards green growth.

Definitions

The indicators presented here refer to:

- Public environmentally related R&D expenditure. The data refer to government budget appropriations or outlays for R&D, expressed as a percentage of total R&D expenditure.
- Public renewable energy RD&D budgets. The data refer to government support for research, development and demonstration projects (RD&D) related to hydro, geothermal, solar, wind and other renewables. They are expressed as a percentage of total energy RD&D budgets.

Overview

Public R&D spending has increased by 20% since 2000 (in real terms); it reached a peak in 2008 and then decreased slowly to reach USD 253 billion in 2013.

Similarly, the amount dedicated to environment grew by 20.8% since 2000. After the downturn of 2008, it recovered at a faster rate than total public R&D. In 2013, it represented USD 4 billion. Its share in total R&D remains however limited. In 2013, government R&D spending on environment represented less than 2% of total R&D in the OECD area.

But there are large differences among countries. In absolute terms, Germany, Japan and the United States are the largest funders, while New Zealand and Australia are the top investors in relative terms.

Energy related RD&D represents on average 3.7 times environmental R&D. Budgets dedicated to energy-related RD&D by OECD countries have increased by 24% since 2000, reaching USD 14.9 billion in 2013. Their share in GDP remains however very low.

The importance of renewable energy RD&D has been increasing steadily, going from 8% of total energy RD&D in 2000 to 24% in 2013. This reflects concerns about climate change, rising energy prices and the scarcity of fossil fuels.

Comparability

International comparisons should consider differences among countries in industrial structure and research capability; high R&D spending alone does not mean superior innovation performance.

For additional notes, see the Annex.

Sources

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Further information

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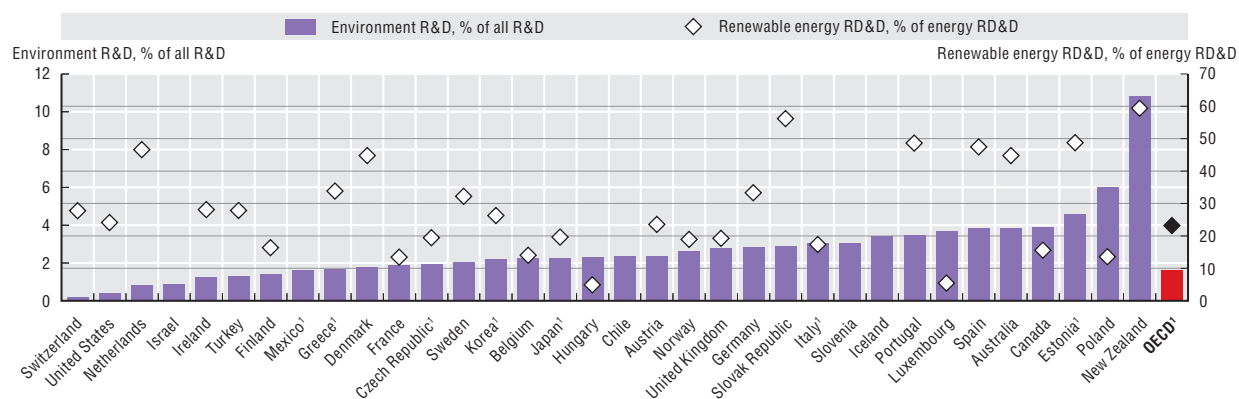
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2. SECTORAL AND ECONOMIC TRENDS OF ENVIRONMENTAL SIGNIFICANCE

Environmentally related R&D

Figure 2.18. Environmentally related public R&D budgets, 2012-13 average



Source: IEA (2015), IEA Energy Technology RD&D Statistics (database); OECD (2015), OECD Science, Technology and R&D Statistics (database).

StatLink <http://dx.doi.org/10.1787/888933262198>

Table 2.8. Environmentally related public R&D budgets

	Environment R&D		Total R&D			Renewable energy RD&D		Energy RD&D		
	% total R&D		% GDP	Million USD	% change since 2000-01	% energy RD&D		% GDP	Million USD	% change since 2000-01
	2012-13 average	% points change since 2000-01	2012-13 average	2012-13 average		2012-13 average	% points change since 2000-01	2012-13 average	2012-13 average	
Australia	3.9	0.9	0.4	3 948	16.7	44.7	34.8	0.06	493	279
Austria	2.4	0.9	0.8	2 495	52.0	23.5	-3.7	0.04	120	270
Belgium	2.2	-0.7	0.6	2 401	34.0	14.0	0.0	0.03	121	..
Canada	3.9	-0.6	0.5	6 841	21.6	15.5	5.6	0.07	908	250
Chile	2.3	..	0.2	644	..	..	..	..	..	..
Czech Republic	1.9	-1.5	0.7	1 690	79.0	19.4	9.6	0.02	52	302
Denmark	1.8	-0.8	1.0	1 889	48.2	44.7	5.1	0.06	107	154
Estonia	4.5	-1.5	0.8	208	297.5	48.7	..	0.05	14	..
Finland	1.4	-0.8	1.0	1 788	26.4	16.3	3.0	0.12	206	201
France	1.9	-0.4	0.7	14 659	-13.2	13.4	10.4	0.05	1 078	78
Germany	2.8	-0.4	0.9	26 066	31.6	33.2	7.6	0.03	828	144
Greece	1.7	-2.8	0.4	971	44.9	33.8	-1.2	0.00	8	-25
Hungary	2.3	..	0.5	874	0.0	4.8	-22.7	0.09	153	2 535
Iceland	3.4	2.8	1.0	124	52.8	..	..	..	..	..
Ireland	1.2	0.9	0.4	742	85.6	28.0	12.9	0.02	36	746
Israel	0.9	-0.2	0.6	1 471	14.6	..	..	..	..	..
Italy	3.0	0.8	0.5	8 794	-16.2	17.3	6.3	0.02	406	14
Japan	2.2	1.4	0.8	30 869	26.4	19.6	15.6	0.07	2 799	-11
Korea	2.2	-2.0	1.0	14 475	146.1	26.2	15.2	0.04	669	345
Luxembourg	3.7	0.8	0.7	240	632.7	5.4	..	0.16	58	..
Mexico	1.6	0.5	0.2	3 784	49.8	..	..	..	..	..
Netherlands	0.8	-2.5	0.7	4 756	9.7	46.5	21.5	0.03	199	12
New Zealand	10.8	0.0	0.5	586	25.2	59.3	22.5	0.01	11	109
Norway	2.6	-0.1	0.8	1 924	44.3	18.8	8.5	0.10	237	376
Poland	6.0	5.9	0.4	2 561	46.9	13.5	..	0.03	196	..
Portugal	3.5	-0.6	0.9	2 073	63.9	48.6	1.0	0.00	3	59
Slovak Republic	2.9	1.3	0.4	470	93.8	56.1	..	0.02	20	..
Slovenia	3.0	1.0	0.5	256	28.0	..	..	..	..	..
Spain	3.8	0.0	0.6	6 995	7.9	47.4	15.4	0.02	192	149
Sweden	2.0	0.9	0.8	2 903	47.2	32.1	-0.3	0.03	117	47
Switzerland	0.2	0.0	0.9	2 917	83.3	27.7	4.6	0.04	122	22
Turkey	1.3	..	0.3	3 588	..	27.8	4.9	0.00	11	29
United Kingdom	2.8	0.7	0.6	12 269	4.1	19.2	5.8	0.02	445	548
United States	0.4	-0.2	0.8	119 950	23.4	24.1	15.0	0.04	5 323	89
OECD	1.6	0.0	0.7	286 222	25.9	23.1	14.3	0.04	14 931	75

Note: See the Annex for country notes.

Source: IEA (2015), IEA Energy Technology RD&D Statistics (database); OECD (2015), OECD Science, Technology and R&D Statistics (database).

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