

## MEASUREMENT OF PERFORMANCE IN ENVIRONMENTAL POLICY MAKING

In recent years the environmental expenditures of industrialised countries have reached 1 percent of annual GDP. In 2005 Denmark ranked the highest with 1.05 percent. In contrast, the Estonian government spent only 0.24 percent of the 2005 GDP on environmental protection. But is the performance of the Danish environment policy much better than the Estonian? Does the amount of expenditures indicate how successful the performance in environmental policy making is?

To measure national environment protection efforts, the Environment Performance Index (EPI) 2008 was developed by the Yale Center for Environmental Law and Policy and the Center for International Earth Science Information at Columbia University.

This composite index focuses on measurable outcomes that can be linked to policy targets and tracked over time. The EPI is based on measures with two core objectives: 1) reducing environmental stresses to human health and 2) protecting ecosystems and natural resources. The authors selected a set of 25 indicators, each of which represents core elements of environmental policy change. These indicators are chosen on the basis of a broad-based review of the environmental science literature; in-depth consultation with a group of scientific advisors in each policy category; the evidence from the Millennium Ecosystem Assessment, the Intergovernmental Panel on Climate Change, the Global Environmental Outlook-4, and other assessments; environmental policy debates surrounding multilateral environmental agreements; and expert judgment. Each indicator is based on an aspect of environmental health or ecological science. For each indicator, a goal relating either to a relevant long-term public health or the sustainability of the ecosystem is identified. These targets are drawn from 1) treaties or other internationally agreed upon goals; 2) standards set by international organisations; 3) leading national regulatory requirements; or the 4) prevailing scientific consensus. The indicators serve as a gauge of long-term environmental policy success. For each country and each indicator, a proximity-to-target value is calcu-

lated based on the distance from a country's current results to the policy target.

Using the 25 indicators, scores are calculated at three levels of aggregation:

- First, drawing on two to eight underlying indicators (each representing a data set), the authors calculate scores for each of the six core policy categories: Environmental Health, Air Quality, Water Resources, Biodiversity and Habitat, Productive Natural Resources, and Climate Change. In some cases, subcategories are also tracked. The weight given to each indicator varies. This level of aggregation permits countries to track their relative performance within these well-established policy areas – or at the disaggregated indicator level.
- Second, the Environmental Health subcategories (Environmental Burden of Disease; Water Pollution: Drinking Water, Adequate Sanitation; Air Pollution, especially its effects on humans: Indoor Air Pollution, Urban Particulates, Local Ozone) and the Ecosystem Vitality subcategories (Air Pollution, especially its effects on ecosystems: regional ozone, SO<sub>2</sub> emissions; Water: Water Quality, Water Stress; Biodiversity and Habitat: Conservation Risk Index, Effective Conservation, Critical Habitat Protection, marine protected areas; Productive Natural Resources: different indicators concerning forestry, fisheries, agriculture; Climate Change: emissions/capita and electricity generated, industrial carbon intensity) are aggregated with weights.
- Finally, the overall Environmental Performance Index is calculated, based on the arithmetic mean of the two broad objective scores.

To make the 25 indicators comparable, each metric was converted to a proximity-to-target-measure with a range of 0 to 100, where 100 corresponds to the target and 0 to the worst observed value.

Switzerland is the top nation worldwide in national environment protection efforts with a score of 95.5. Denmark, the country which spent the highest amount in environment protection in 2005 (last data available) achieved a score of 84 and rank 25. And Estonia? With a score of 85.2 and rank 19 their efforts are nearly the same as Denmark's.

Although the data show that there is a correlation between wealth and strong environmental health performance, some countries, such as Estonia, performed beyond income-based expectations.

**Table 1**  
**The Environmental Performance Index 2008**

	Rank	Score		Rank	Score
Switzerland	1	95.5	Japan	21	84.5
Sweden	2	93.1	Hungary	23	84.2
Norway	3	93.1	Italy	24	84.2
Finland	4	91.4	Denmark	25	84.0
Costa Rica	5	90.5	Russia	28	83.9
Austria	6	89.4	Spain	30	83.1
New Zealand	7	88.9	Luxembourg	31	83.1
Latvia	8	88.8	Ireland	34	82.7
Colombia	9	88.3	Brazil	35	82.7
France	10	87.8	United States	39	81.0
Iceland	11	87.6	Poland	42	80.5
Canada	12	86.6	Greece	44	80.2
Germany	13	86.3	Australia	46	79.8
United Kingdom	14	86.3	Cyprus	52	79.2
Slovenia	15	86.3	Netherlands	55	78.7
Lithuania	16	86.2	Bulgaria	56	78.5
Slovak Republic	17	86.0	Belgium	57	78.4
Portugal	18	85.8	Czech Republic	68	76.8
Estonia	19	85.2	Turkey	72	75.9
Croatia	20	84.6	Macedonia	74	75.1
			Romania	83	71.9
			China	105	65.1
			India	120	60.3

Source: Esty et al. (2008).

The four top performers in the field of environmental protection efforts are well-developed European countries (Switzerland, Sweden, Norway and Finland), but Costa Rica ranked in fifth place and Colombia was among the top ten countries in the overall ranking (9). These two middle-income countries outperformed many well developed countries. Austria ranked six, New Zealand seven and Latvia eight. Only one of the G7 countries was among the top ten – France, which had a score of 87.8, ranked 10.

Canada (12), Germany (13), the United Kingdom (14), Japan (21) and Italy (24) achieved scores between 86.6 and 84.2. The United States scored only 81, the lowest score under the G7 countries ranking 39 out of nearly 150. But the difference to Croatia (rank 20) is only 3.6 points, in comparison to a difference of 9.9 points between the number one (95.5, Switzerland) and number 20.

Aside from Romania all EU members were among the top half of the reviewed countries. The top performer among them was Sweden (rank 2 in the overall index) with a score of 93.1. The new members Latvia (8), Slovenia (15), Lithuania (16) and Estonia (19) outperformed many of the EU-15 countries. Only six EU members had a score below 80: Cyprus (79.2), the Netherlands (78.7), Bulgaria (78.5), Belgium (78.4), Czech Republic (76.8) and Romania (71.9).

The BRIC countries are mid-ranked performers: Russia (rank 28, score 83.9), Brazil (35, 82.7), China (105, 65.1) and India (120, 60.3; see Table 1).

The weakest performer of all reviewed countries was Niger. With a score of 39.1 it achieved less than half of Switzerland's performance. Nine of the ten bottom countries in the EPI are from Africa (Niger, Angola, Sierra Leone, Mauretania, Mali, Burkina Faso, Chad, DR Congo). These "countries are among the poorest in the world and lack resources for even basic environmental investments" (Esty et al. 2008).

N.H.

## Reference

Esty, D. C., M. A. Levy, C. H. Kim, A. de Sherbinin, T. Srebotnjak and V. Mara (2008), Environmental Performance Index, Yale Center for Environmental Law and Policy, New Haven.