Sustainability
- Explain it with your own terms

2010/10/25

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EcoNetworks, Co.

Presentation

Imagine that we are holding "World Summit on Sustainable Development" in this room.

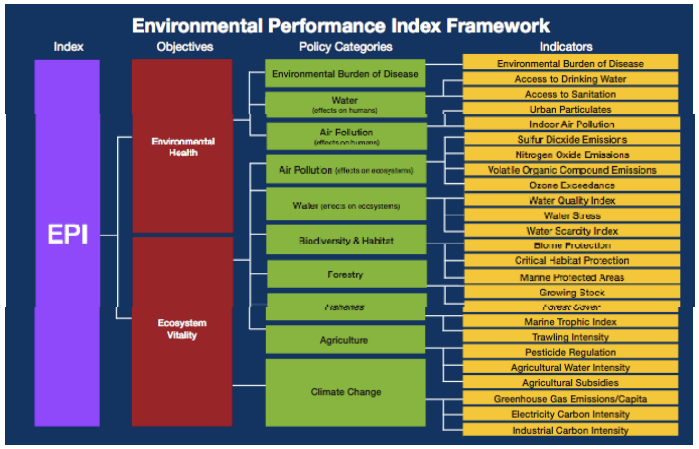
You should be able to present the followings;

- what is sustainability (with your own terms)
- what is your vision/strategies/policies for sustainability (with your own logic)

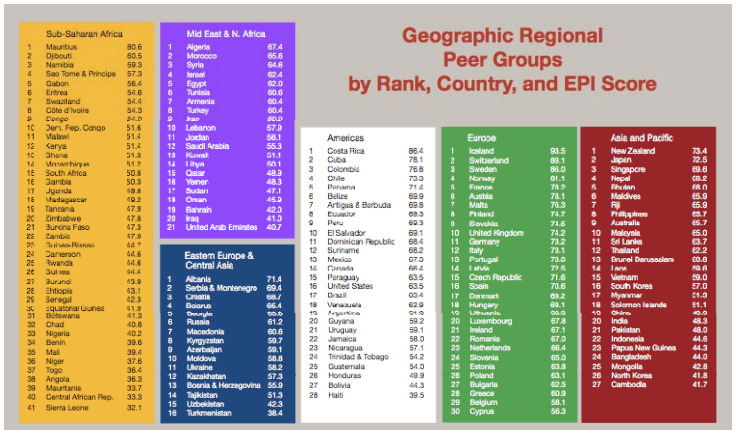
Presentation+ Q&A: 5-7 minutes each

[team]
Japan
France
Sweden
China
ASEAN (The Association of Southeast Asian Nations)
SAARC (South Asian Association for Regional Cooperation)

EPI 2010



http://epi.yale.edu/file_columns/0000/0007/epi-2010-policy-makers-summary.pdf

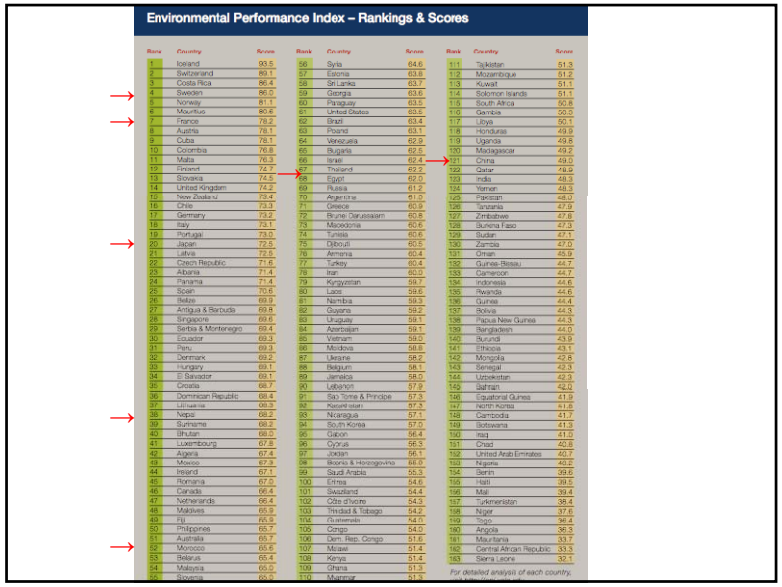


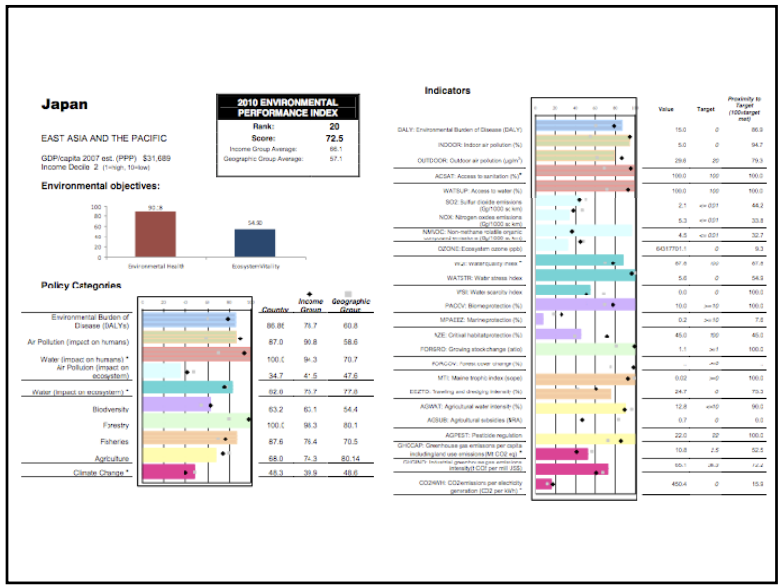
Policy Conclusions

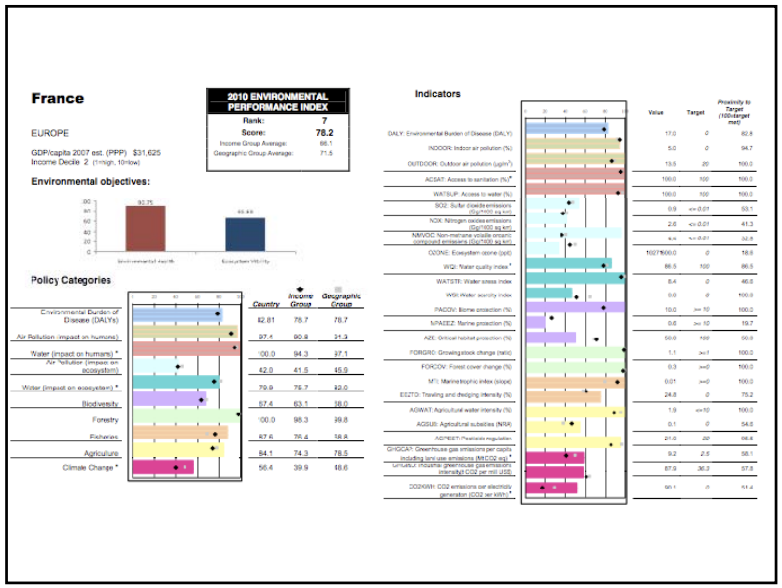
Several policy conclusions emerge from the 2010 Environmental Performance Index and analysis of the underlying indicators:

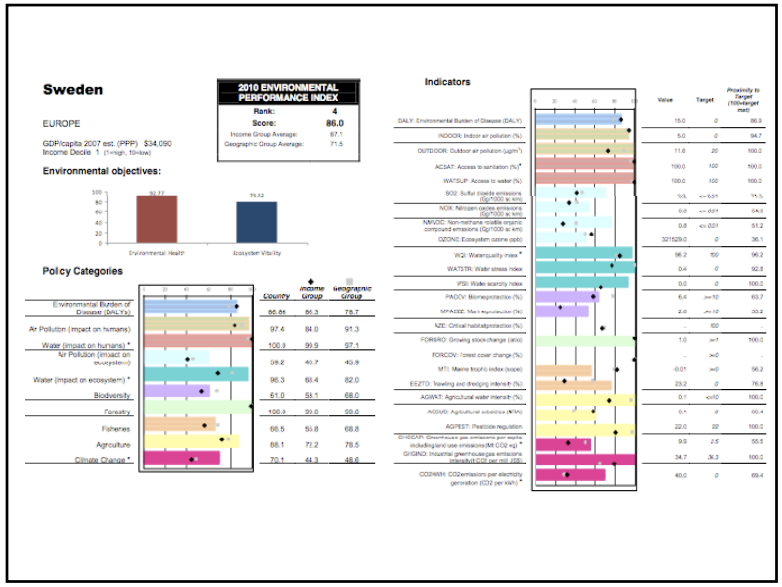
- Environmental decisionmaking can be made more fact-based and empirical. A data-driven approach to policymaking promises to make decisionmaking more analytically rigorous and yield systematically better results.
- While the 2010 EPI demonstrates the potential for better metrics and more refined policy analysis, it also highlights the fact that significant data gaps and methodological limitations hamper movement in this direction.
- Policymakers should move to establish better data collection, methodologically consistent reporting, mechanisms for verification, and a commitment to environmental data transparency.
- Wealth correlates highly with EPI scores. In particular, wealth has a strong association with environmental health results. But at every level of development, some countries fail to keep up with their income-group peers while others achieve outstanding results. Statistical analysis suggests that in many cases good governance contributes to better environmental outcomes.
- Environmental challenges come in several forms, varying with wealth and development. Some issues arise from the resource and pollution impacts of industrialization – including greenhouse gas emissions and rising levels of waste – and largely affect developed countries. Other challenges, such as access to safe drinking water and basic sanitation, derive from poverty and under-investment in basic environmental amenities – and primarily affect developing nations. Limited endowments in water and forest resources constrain choices but need not necessarily impair performance.
- Policymakers need to set clear policy targets and shift toward more analytically rigorous environmental protection efforts at the global, regional, national, state/provincial, local, and corporate scales.
- The EPI uses the best available global datasets on environmental performance. However, the overall data quality and availability is alarmingly poor. The lack of time-series data for most countries and the absence of broadly-collected and methodologically-consistent indicators for basic concerns, such as water quality, still hamper efforts to shift environmental policy onto more empirical grounds.

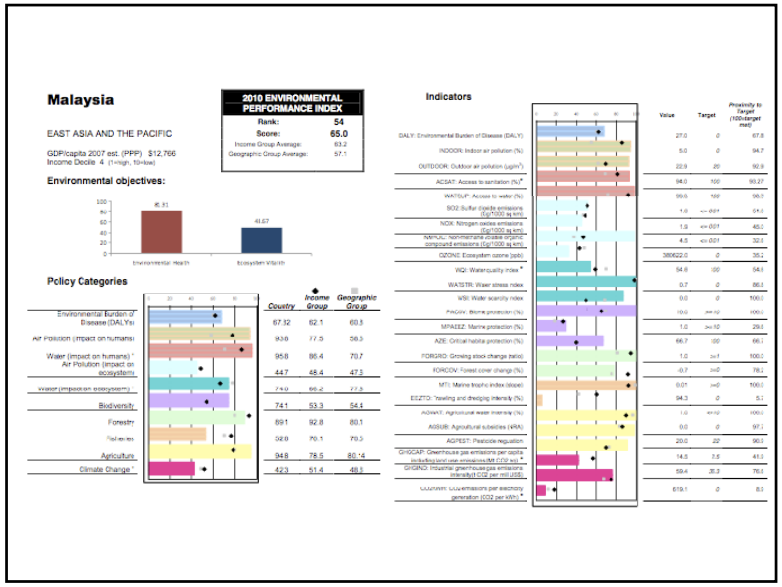
The 2010 EPI represents a "work in progress." It aims not only to inform but also to stimulate debate on defining the appropriate metrics and methodologies for evaluating environmental performance. Feedback, comments, suggestions, and criticisms are all welcome at our website, http://epi.yale.edu.

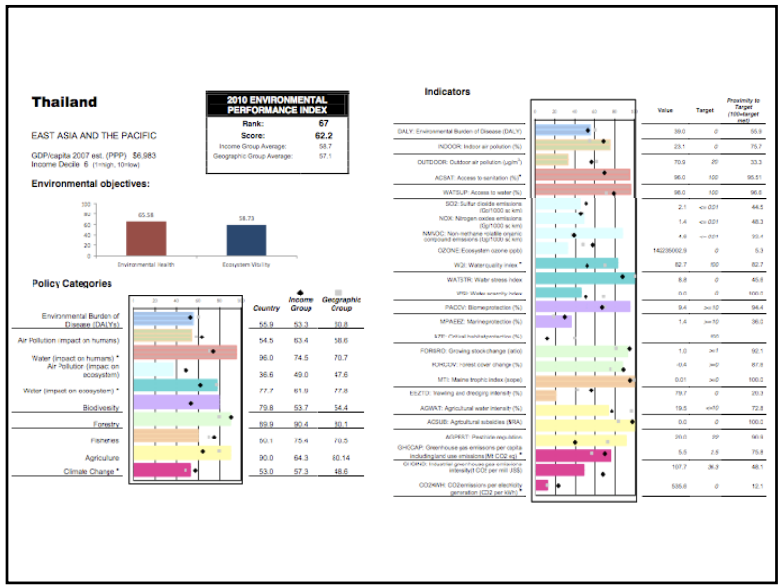


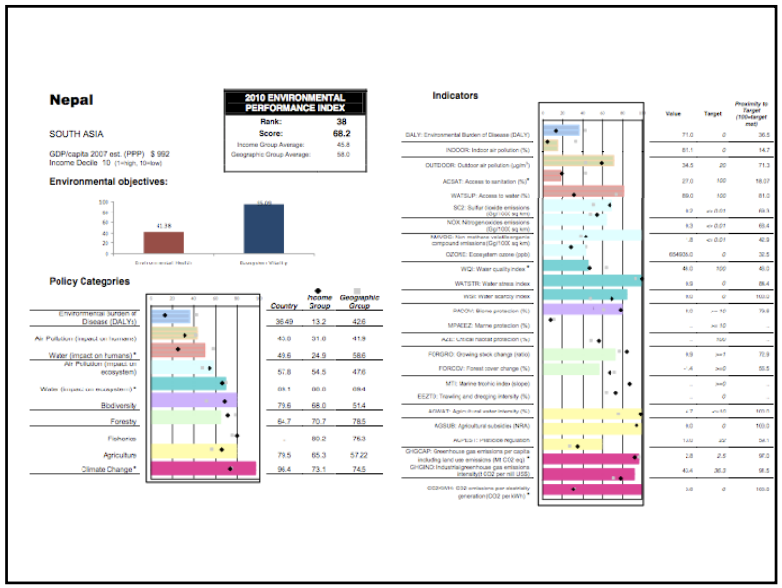





Sweden
EUROPE
GDP/capita 2007 est. (PPP) $34,090
Income Decile 1 (1=high, 10=low)
2010 ENVIRONMENTAL PERFORMANCE INDEX
Rank: 4
Score: 86.0
Income Group Average: 87.1
Geographic Group Average: 71.5
Environmental objectives:
92.77
79.53
Environmental Health
Ecosystem Vitality
Policy Categories
Country
Income Group
Geographic Group
Environmental Burden of Disease (DALYs)
Air Pollution (impact on humans)
Water (impact on humans) *
Air Pollution (impact on ecosystem) *
Water (impact on ecosystem) *
Biodiversity
Forestry
Fisheries
Agriculture
Climate Change *
86.86 86.3 78.7
97.4 84.0 91.3
100.0 99.9 97.1
98.2 49.7 49.8
96.3 68.4 82.0
61.0 58.1 68.0
100.0 99.6 99.6
66.5 50.8 68.8
68.1 72.2 78.5
70.1 44.3 48.6
Indicators
Value
Target
Proximity to Target (100=target met)
DALY: Environmental Burden of Disease (DALY)
INDOOR: Indoor air pollution (%)
OUTDOOR: Outdoor air pollution (µg/m³)
ACSAT: Access to sanitation (%) *
WATSUP: Access to water (%)
SO2: Sulfur dioxide emissions (Gg/1000 sq km)
NOX: Nitrogen oxides emissions (Gg/1000 sq km)
NMVOC: Non-methane volatile organic compound emissions (Gg/1000 sq km)
OZONE: Ecosystem ozone (ppb)
WQI: Waterquality index *
WATSTR: Water stress index
WSI: Water scarcity index
PACOV: Bioprotection (%)
MPAEEZ: Marineprotection (%)
AZE: Critical habitatprotection (%)
FORSRO: Growing stock change (ratio)
FORCOV: Forest cover change (%)
MTI: Marine trophic index (slope)
EEZTO: Trawling and dredging intensity (%)
AGWAT: Agricultural water intensity (%)
AGSUB: Agricultural subsidies (NRA)
AGPEST: Pesticide regulation
GHGCAP: Greenhouse gas emissions per capita including land use emissions (Mt CO2 eq) *
GHGIND: Industrial greenhouse gas emissions intensity (t CO2 per mil US$)
CO2KWH: CO2emissions per electricity generation (CO2 per kWh) *
15.0 0 86.9
5.0 0 94.7
11.6 20 100.0
100.0 100 100.0
100.0 100 100.0
0.0 <= 0.01 74.5
0.0 <= 0.01 54.0
0.8 <= 0.01 51.2
321529.0 0 36.1
96.2 100 96.2
0.4 0 92.8
0.0 0 100.0
6.4 >= 10 63.7
2.6 >= 10 39.4
- 100 -
1.0 >=1 100.0
- >=0 -
-0.01 >=0 56.2
23.2 0 76.8
0.1 <=10 100.0
0.1 0 99.4
22.0 22 100.0
9.9 2.5 55.5
34.7 36.3 100.0
40.0 0 69.4


Malaysia
EAST ASIA AND THE PACIFIC
GDP/capita 2007 est. (PPP) $12,766
Income Decile 4 (1=high, 10=low)
2010 ENVIRONMENTAL PERFORMANCE INDEX
Rank: 54
Score: 65.0
Income Group Average: 63.2
Geographic Group Average: 57.1
Environmental objectives:
85.81
41.67
Environmental Health
Ecosystem Vitality
Policy Categories
Country
Income Group
Geographic Group
Environmental Burden of Disease (DALYs)
Air Pollution (impact on humans)
Water (impact on humans) *
Air Pollution (impact on ecosystem) *
Water (impact on ecosystem) *
Biodiversity
Forestry
Fisheries
Agriculture
Climate Change *
67.12 62.1 60.8
93.6 77.5 58.3
95.8 86.4 70.7
44.7 48.4 47.5
74.0 66.2 77.3
74.1 53.3 54.4
69.1 92.8 80.1
52.6 70.1 79.5
94.8 78.5 80.14
42.3 51.4 48.6
Indicators
Value
Target
Proximity to Target (100=target met)
DALY: Environmental Burden of Disease (DALY)
INDOOR: Indoor air pollution (%)
OUTDOOR: Outdoor air pollution (µg/m³)
ACSAT: Access to sanitation (%) *
WATSUP: Access to water (%)
SO2: Sulfur dioxide emissions (Gg/1000 sq km)
NOX: Nitrogen oxides emissions (Gg/1000 sq km)
NMVOC: Non-methane volatile organic compound emissions (Gg/1000 sq km)
OZONE: Ecosystem ozone (ppb)
WQI: Waterquality index *
WATSTR: Water stress index
WSI: Water scarcity index
PACOV: Bioprotection (%)
MPAEEZ: Marine protection (%)
AZE: Critical habitat protection (%)
FORSRO: Growing stock change (ratio)
FORCOV: Forest cover change (%)
MTI: Marine trophic index (slope)
EEZTO: Trawling and dredging intensity (%)
AGWAT: Agricultural water intensity (%)
AGSUB: Agricultural subsidies (NRA)
AGPEST: Pesticide regulation
GHGCAP: Greenhouse gas emissions per capita including land use emissions (Mt CO2 eq) *
GHGIND: Industrial greenhouse gas emissions intensity (t CO2 per mil US$)
CO2KWH: CO2emissions per electricity generation (CO2 per kWh) *
27.0 0 87.8
5.0 0 94.7
22.9 20 92.9
98.0 100 98.27
99.6 100 99.7
1.0 <= 0.01 84.0
1.8 <= 0.01 46.0
4.5 <= 0.01 32.5
380622.0 0 35.2
54.8 100 54.8
0.7 0 86.3
0.0 0 100.0
10.0 >= 10 100.0
1.0 >= 10 29.0
66.7 100 66.7
1.0 >=1 100.0
-0.7 >=0 78.1
0.01 >=0 100.0
94.3 0 5.7
1.0 <=10 100.0
0.0 0 97.1
20.0 22 90.0
14.5 7.5 41.2
59.4 35.3 78.8
679.1 0 8.3


Thailand
EAST ASIA AND THE PACIFIC
GDP/capita 2007 est. (PPP) $6,983
Income Decile 6 (1=high, 10=low)
2010 ENVIRONMENTAL PERFORMANCE INDEX
Rank: 67
Score: 62.2
Income Group Average: 58.7
Geographic Group Average: 57.1
Environmental objectives:
65.58
58.73
Environmental Health
Ecosystem Vitality
Policy Categories
Country
Income Group
Geographic Group
Environmental Burden of Disease (DALYs)
Air Pollution (impact on humans)
Water (impact on humans) *
Air Pollution (impact on ecosystem) *
Water (impact on ecosystem) *
Biodiversity
Forestry
Fisheries
Agriculture
Climate Change *
55.9 53.3 59.8
54.5 53.4 58.6
96.0 74.5 70.7
36.6 49.0 47.6
77.7 61.9 77.8
79.8 53.7 54.4
99.9 90.4 90.1
50.1 75.4 79.5
90.0 64.3 80.14
53.0 57.3 48.6
Indicators
Value
Target
Proximity to Target (100=target met)
DALY: Environmental Burden of Disease (DALY)
INDOOR: Indoor air pollution (%)
OUTDOOR: Outdoor air pollution (µg/m³)
ACSAT: Access to sanitation (%) *
WATSUP: Access to water (%)
SO2: Sulfur dioxide emissions (Gg/1000 sq km)
NOX: Nitrogen oxides emissions (Gg/1000 sq km)
NMVOC: Non-methane volatile organic compound emissions (Gg/1000 sq km)
OZONE: Ecosystem ozone (ppb)
WQI: Waterquality index *
WATSTR: Water stress index
WSI: Water scarcity index
PACOV: Bioprotection (%)
MPAEEZ: Marineprotection (%)
AZE: Critical habitatprotection (%)
FORSRO: Growing stock change (ratio)
FORCOV: Forest cover change (%)
MTI: Marine trophic index (slope)
EEZTO: Trawling and dredging intensity (%)
AGWAT: Agricultural water intensity (%)
AGSUB: Agricultural subsidies (NRA)
AGPEST: Pesticide regulation
GHGCAP: Greenhouse gas emissions per capita including land use emissions (Mt CO2 eq) *
GHGIND: Industrial greenhouse gas emissions intensity (t CO2 per mil US$)
CO2KWH: CO2emissions per electricity generation (CO2 per kWh) *
39.0 0 60.9
23.1 0 76.7
70.9 20 33.3
96.0 100 95.51
96.0 100 96.0
2.1 <= 0.01 44.5
1.4 <= 0.01 48.3
4.9 <= 0.01 99.4
142356092.9 0 5.3
82.7 100 82.7
8.8 0 45.8
0.0 0 100.0
9.4 >= 10 94.4
1.4 >= 10 36.0
- 100 -
1.0 >=1 90.1
-0.4 >=0 87.8
0.01 >=0 100.0
79.7 0 20.3
19.5 <=10 72.8
0.0 0 100.0
20.0 22 90.9
5.5 2.5 75.8
107.7 36.3 48.1
535.8 0 12.1


Nepal
SOUTH ASIA
GDP/capita 2007 est. (PPP) $ 992
Income Decile 10 (1=high, 10=low)
2010 ENVIRONMENTAL PERFORMANCE INDEX
Rank: 38
Score: 68.2
Income Group Average: 45.8
Geographic Group Average: 58.0
Environmental objectives:
41.38
Environmental Health
Ecosystem Vitality
Policy Categories
Country
Income Group
Geographic Group
Environmental Burden of Disease (DALYs)
Air Pollution (impact on humans)
Water (impact on humans) *
Air Pollution (impact on ecosystem)
Water (impact on ecosystem) *
Biodiversity
Forestry
Fisheries
Agriculture
Climate Change *
36.49 13.2 42.6
43.0 31.6 41.9
49.6 24.9 58.6
57.8 54.5 47.6
69.1 66.0 69.4
73.6 68.0 51.4
84.7 70.7 78.5
- 80.2 76.3
79.5 65.3 57.22
96.4 73.1 74.5
Indicators
Value
Target
Proximity to Target (100=target met)
DALY: Environmental Burden of Disease (DALY)
INDOOR: Indoor air pollution (%)
OUTDOOR: Outdoor air pollution (µg/m³)
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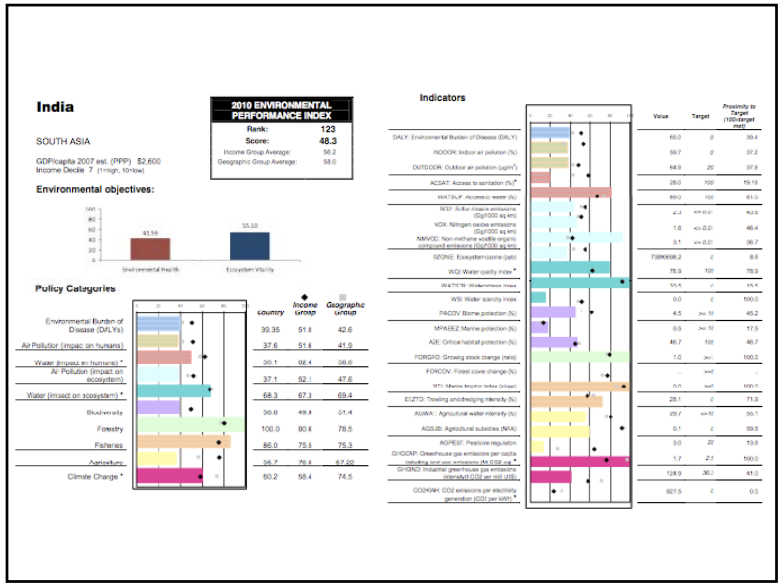
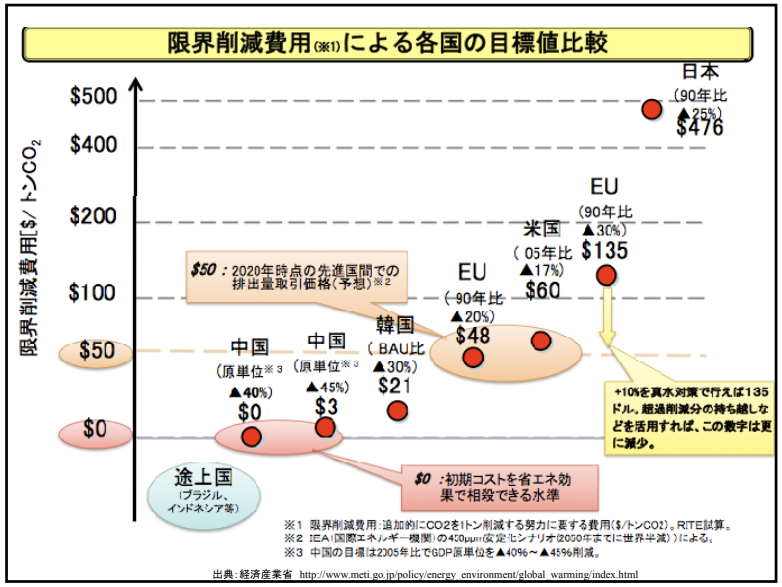
WATSUP: Access to water (%)
SO2: Sulfur dioxide emissions (Gg/1000 sq km)
NOX: Nitrogenoxides emissions (Gg/1000 sq km)
NMVOC: Non-methane volatilorganic compound emissions (Gg/1000 sq km)
OZONE: Ecosystem ozone (ppb)
WQI: Water quality index *
WATSTR: Water stress index
WSI: Water scarcity index
PACOV: Biome protection (%)
AZE: Critical habitat protection (%)
FORGRO: Growing stock change (ratio)
FORCOV: Forest cover change (%)
MTI: Marine trophic index (slope)
EEZTO: Trawling and dredging intensity (%)
AGWAT: Agricultural water intensity (%)
AGSUB: Agricultural subsidies (NRA)
AGPEST: Pesticide regulation
GHGCAP: Greenhouse gas emissions per capita including land use emissions (Mt CO2 eq) *
GHGIND: Industrialgreenhouse gas emissions intensity(t CO2 per mil US$)
CO2KWH: CO2 emissions per electricity generation(CO2 per kWh) *
71.0 0 28.5
81.1 0 14.4
34.5 20 71.3
27.0 100 18.01
89.0 100 81.0
9.0 <= 0.01 69.1
9.3 <= 0.01 69.4
.8 <= 0.01 46.9
654935.0 0 32.5
46.0 100 46.0
9.0 0 89.4
9.0 10 100.0
1.0 >= 10 79.8
- >= 10 -
- 100 -
9.9 >=1 72.9
-1.4 >=0 55.5
- >=0 -
- 0 -
4.7 <=10 100.0
9.0 0 100.0
1.00 22 94.1
2.8 2.5 97.2
40.4 36.3 98.5
3.6 0 100.0





出典：経済産業省 http://www.meti.go.jp/policy/energy_environment/global_warming/index.html

Latest Policy Measures (for Climate Change)

-We need to reduce global emissions by 19 Gigatonnes (Gt) in 2020 and energy-related emissions by 48 Gt by 2050

- **power**: Approximately 38% of total savings to 2050. Renewable energy, carbon capture and sequestration (CCS), nuclear power and biomass will all be critical areas.
- **Transport**: Approximately 26% of total savings to 2050. key technologies include electric and hydrogen fuel cell vehicles, improved efficiency and current and next generation biofuels.
- **Buildings**: Approximately 17% of total savings to 2050. key technologies include improved efficiency in building appliances.
- **industry**: Approximately 19% of total savings to 2050. key technologies include CCS for industrial processes, and industrial motor systems.

-Implementing just **seven proven policies** can deliver these reductions – but need scaling up

-Renewable energy standards: Regulation to require or feed-in tariffs to stimulate an increased production of energy from renewable sources, in particular wind and solar, could deliver 2.1 Gt of savings.
-industry efficiency: improved motors and other efficiency gains could deliver 2.4Gt of savings.
-Building codes: improving standards for new build and modernising existing building stock saves 1.3 Gt.
-vehicle efficiency standards: driving up standards for vehicle efficiency could save 0.4 Gt.
-Fuel carbon content standards: Reducing the carbon content of fuels could lead to 0.3 Gt of savings.
-Appliance standards: increasing the energy efficiency of white goods and other appliances could reduce emissions by 0.3 Gt.
-policies to reduce emissions from deforestation and forest degradation (REdd): could deliver close to 9 Gt of reductions.

-In the longer term, we need technologies such as

- Carbon capture and storage (CCS)
- Next generations of nuclear power, the Generations of solar energy, etc.

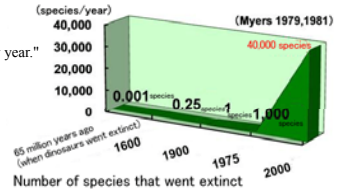
Reference: The Climate Group, 'Breaking the Climate Deadlock' 'Technology for a Low Carbon Future'
http://www.theclimategroup.org/what_we_do/breaking_the_climate_deadlock/

Latest Policy Measures (for Biodiversity)

- Convention on Biological Diversity

- Status: "about 40,000 species go extinct every year."

- TEEB Report
Net Present Value (NPV) of annual Natural Capital loss as a result of forest loss is between
EUR 1.35 trillion - EUR 3.1 trillion
(US$ 2.0 trillion - US$ 4.5 trillion)



- Target: "significantly reduce the rate of loss of biological diversity by 2010."

- Japan's proposal

- by 2050: stop the loss of biodiversity

- by 2020: monitor the status on a global scale, expand conservation

- target: expand conservation areas, rate of sustainable agriculture, forestry, fishing industry

Reference: COP10 2010
http://cop10.jp/aichi-nagoya/english/cop/cop.html

The Economics of Ecosystem & Biodiversity

5 Suggestion for National and International Policy Makers

1. Reward benefits through payments and markets.
   Payments for ecosystem services (PES schemes) can be local up to global. Product certification, green public procurement, standards, labelling and voluntary actions provide additional options for greening the supply chain and reducing impacts on natural capital.

2. Reform environmentally harmful subsidies.
   Global subsidies amount to almost US$ 1 trillion per year for agriculture, fisheries, energy, transport and other sectors combined. Up to a third of these are subsidies supporting the production and consumption of fossil fuels. Reforming subsidies that are inefficient, outdated or harmful makes double sense during a time of economic and ecological crisis.

3. Address losses through regulation and pricing.
   Many threats to biodiversity and ecosystem services can be tackled through robust regulatory frameworks that establish environmental standards and liability regimes. These are already tried and tested and can perform even better when linked to pricing and compensation mechanisms based on the 'polluter pays' and 'full cost recovery' principles – to alter the status quo which often leaves society to pay the price.

4. Add value through protected areas.
   The global protected area network covers around 13.9% of the Earth's land surface, 5.9% of territorial seas and only 0.5% of the high seas: nearly a sixth of the world's population depend on protected areas for a significant percentage of their livelihoods. Increasing coverage and funding, including through payment for ecosystem services (PES) schemes, would leverage their potential to maintain biodiversity and expand the flow of ecosystem services for local, national and global benefit.

5. Invest in ecological infrastructures.
   This can provide cost-effective opportunities to meet policy objectives, e.g. increased resilience to climate change, reduced risk from natural hazards, improved food and water security as a contribution to poverty alleviation. Up-front investments in maintenance and conservation are almost always cheaper than trying to restore damaged ecosystems. Nevertheless, the social benefits that flow from restoration can be several times higher than the costs.