



مبادرة أبوظبي العالمية للبيانات البيئية  
Abu Dhabi Global Environmental Data Initiative



هيئة البيئة - أبوظبي  
Environment Agency - ABU DHABI

9 - 12 December, 2013

Abu Dhabi, UAE

# Integrated Environmental Assessment



**Workshop**  
for the National  
Reporting Toolkit (NRT)

التقييم  
البيئي  
المتكامل

ورشة عمل  
لأدوات إعداد  
التقارير الوطنية



# The GEO Approach to Integrated Environmental Assessment



Integrated Environmental Assessment  
*“National Reporting Tool”*

9-12 December 2013

Abu Dhabi, United Arab Emirates

By

Adel Farid Abdel-Kader



# Module 1 at a Glance



- **Introduction and Learning Objective**

- **UNEP's Assessment Mandate**

- **GEO Rational and IEA Framework**

- **The GEO Process and Products**

- **Assessment and Reporting related to IEA**

# Learning Objectives



- **Introducing the Global Environment Outlook (GEO) integrated environmental assessment (IEA) and reporting process.**
- **Understanding why the IEA approach is necessary for making policy relevant recommendations about the environmental state and trends, and links with human development.**

# UNEP's Assessment Mandate



Since 1972, UNEP has had a mandate to review the global environment



- 1) Establish a common methodology for assessment environmental developments and prepare reports;
- 2) Prepare reports on the state of and outlook for the environment for regions and internationally.

# UNEP's Division of Early Warning and Assessment (DEWA)



- Provide the world community with improved access to meaningful environmental data and information, and to help increase the capacity of governments to use environmental information for decision making and action planning for sustainable human development.

# What is Assessment?



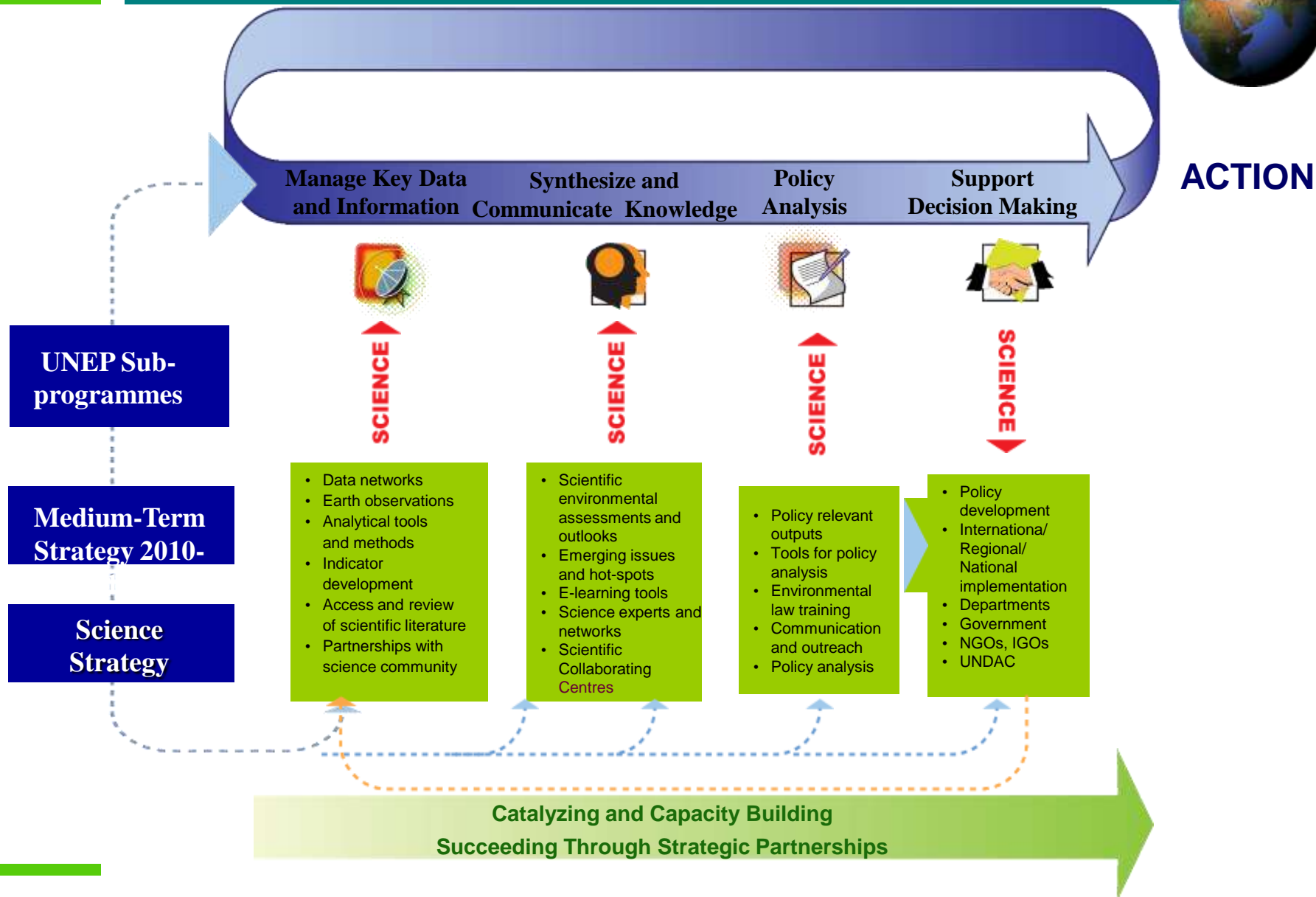
**“the entire analytical process for undertaking a critical objective evaluation and analysis of data and information designed to meet user needs and support decision-making. It applies the judgment of experts to existing knowledge to provide scientifically credible answers to policy relevant questions, quantifying where possible the level of confidence”**



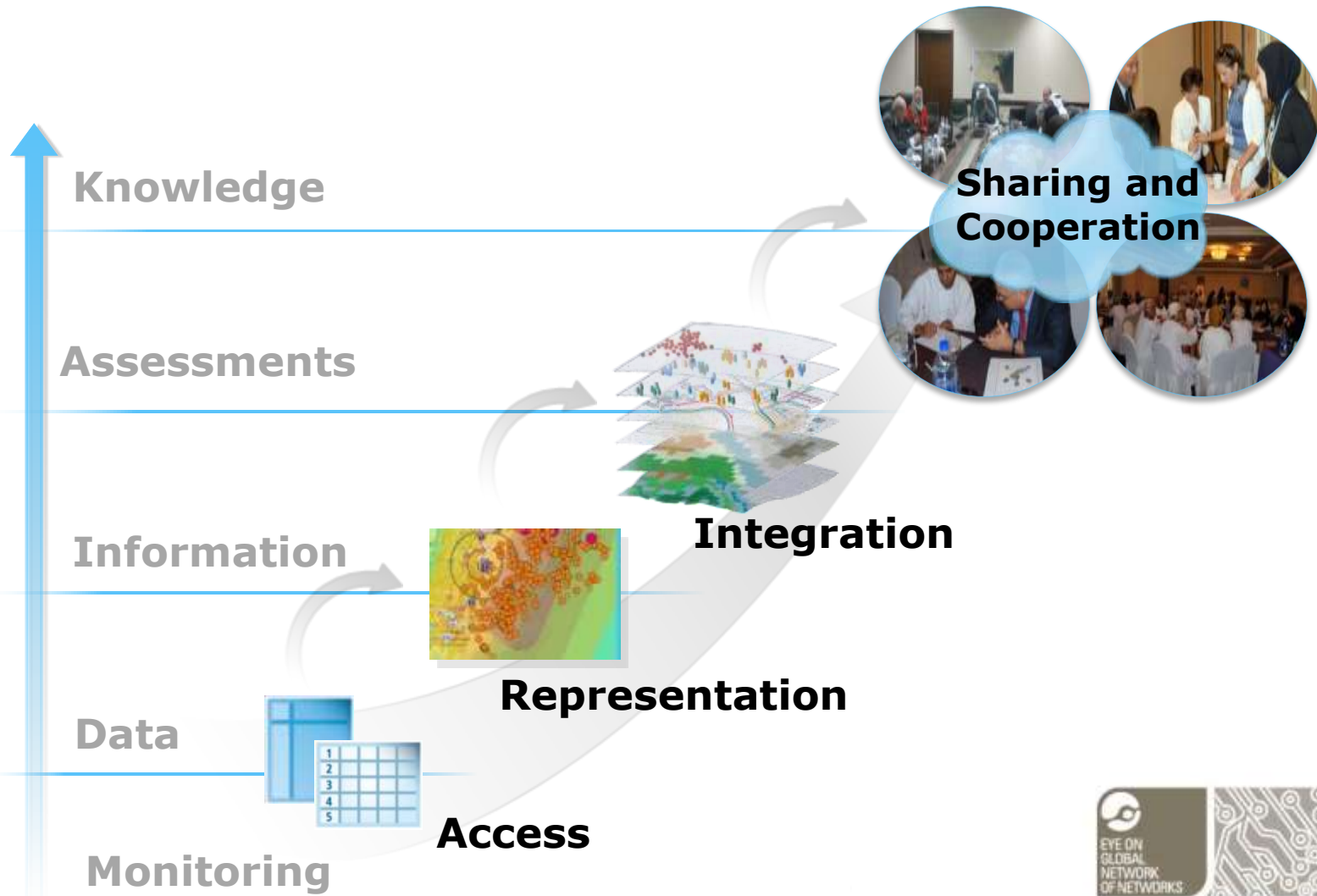
- **A participatory and structured approach that links knowledge and action**
  - Links environmental state and trend analysis with policy analysis;
  - Incorporates global and sub-regional perspectives;
  - Includes historical and future perspectives;
  - Covers a broad spectrum of issues and policies;
  - Integrates environmental change and human well-being.
  
- **IEA further enables policy makers to address complex challenges.**



# Bringing Science to Policy and Action

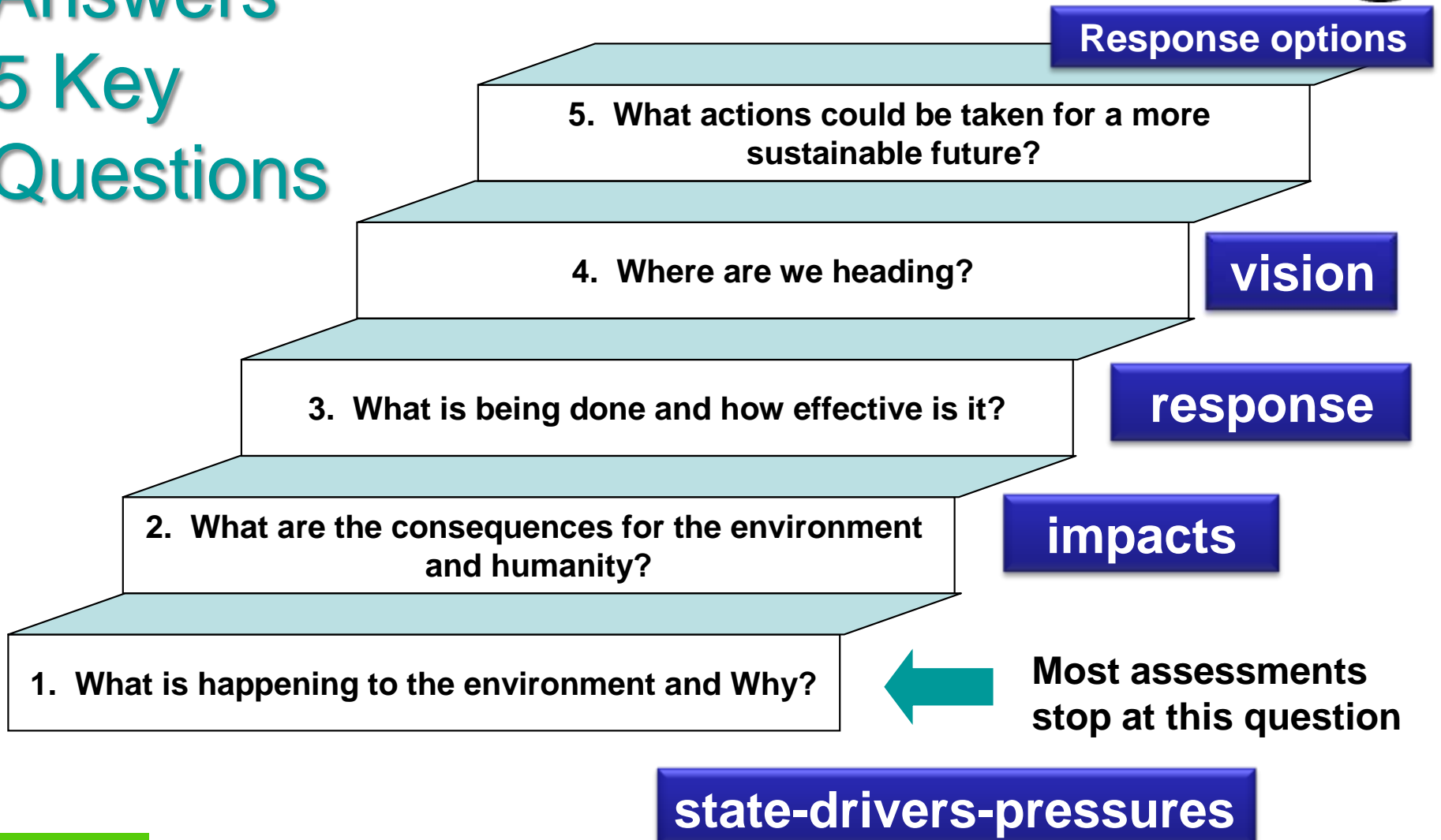


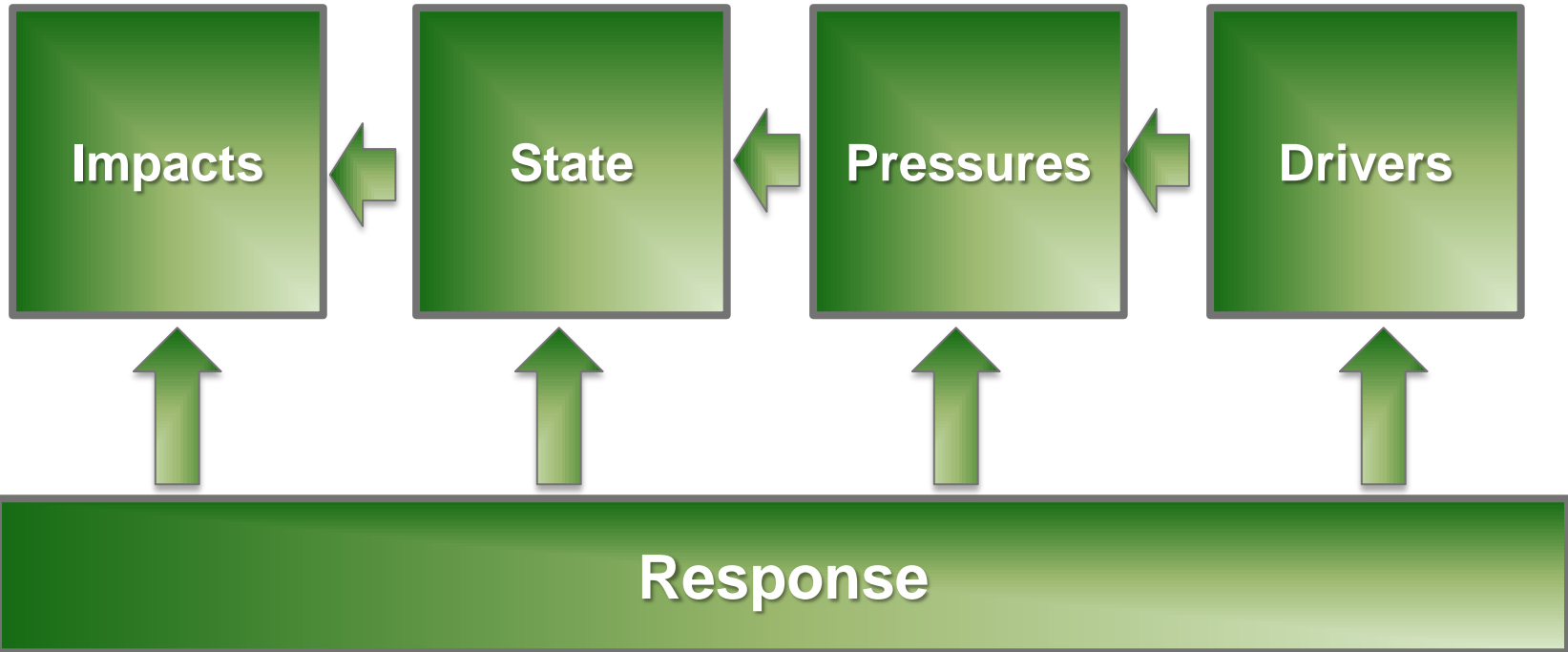
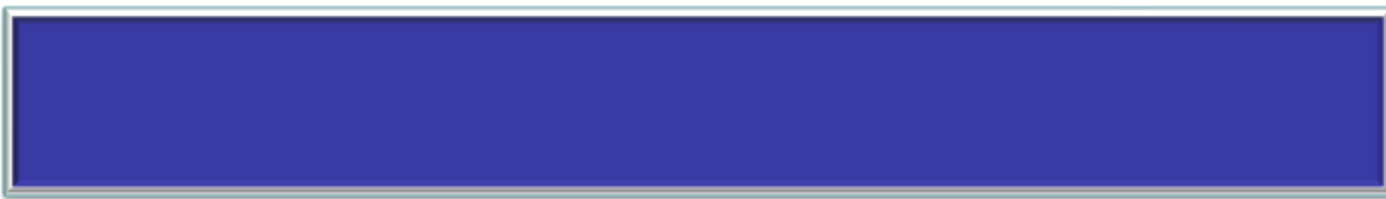
# sharing and access to information for sustainable development

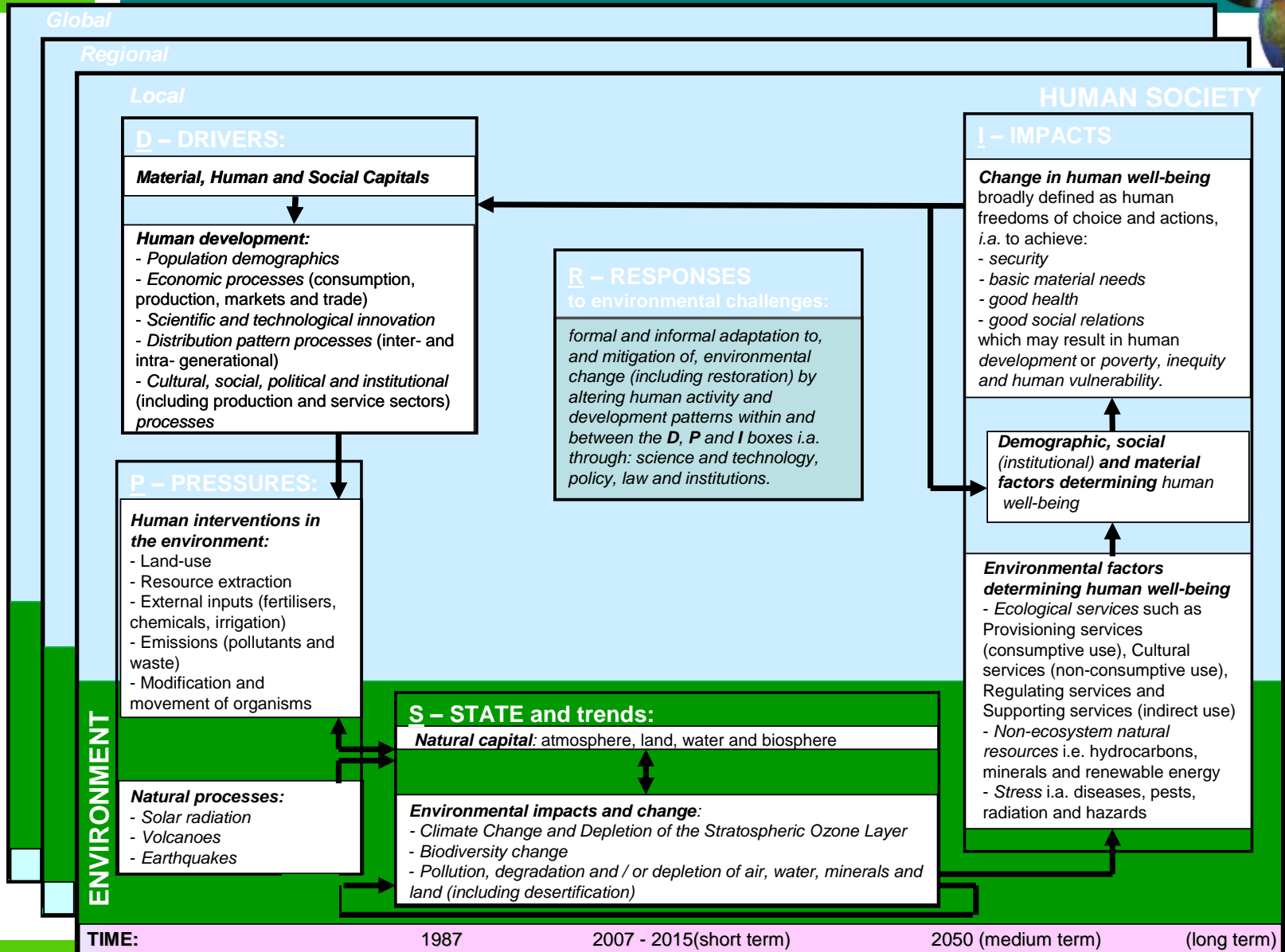




## Answers 5 Key Questions









**State:** The quality and quantity of natural resources, and the quality of the environment (i.e. level of air pollution, burnt area, forest area...)



# Pressure: anthropogenic activities that pressure and change the environment)





• **Impact:** The positive or negative effects produced by the state of the environment on aspects such as quality of life and human health, on the environment itself, on the built-up environment and on the local urban economy. human well-being and/or on the environment.

- % of children suffering from lead-induced health problems
- the mortality due to noise-induced heart attacks
- the number of people starving due to climate-change induced crop losses.







**Response:** activities (environmental, economic, institutional, or sectoral, policies) in response to changes





- **Scenarios are a useful and effective tool for evaluating future environmental problems and the needed policies to resolve them.**
- **It is a summary and synthesis of scientific knowledge in a format that can be used by policymakers in developing informed policies.**
- **Scenarios help policy-makers visualize the different aspects and relations resulting from a specific environmental problem and the its long-term developments.**
- **"Scenarios are plausible, challenging and relevant sets of stories about how the future might unfold" for certain sectors/issues.**



- **Market First Scenario (BAU)**
  - ➔ short term maximum economic growth.
  - ➔ technological solutions to environmental problems.
  
- **Security first scenario "me first"**
  - ➔ the powerful in society control access to resources.
  - ➔ improving human wellbeing of the rich and powerful.
  
- **Policy First Scenario**
  - ➔ lean strongly towards economy
  - ➔ enforce environmental laws using top-down approach.
  
- **Sustainability first scenario**
  - ➔ equity in socio-economic and environmental policies.
  - ➔ Sustainable development

# What actions could be taken for a more sustainable future?

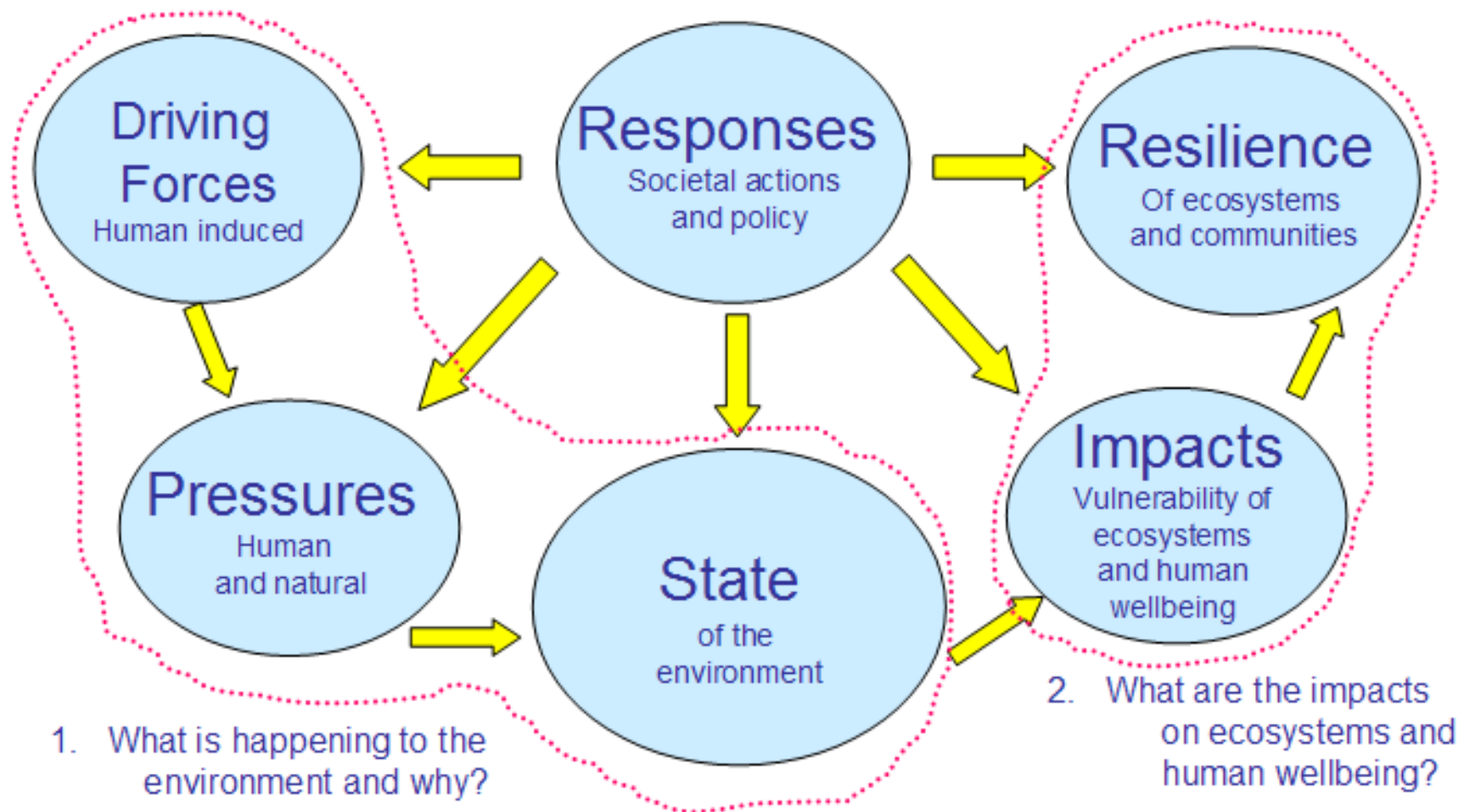


## Policy options:

- **Cross sector**
- **Sectoral**
- **Integrated**
- **Trnasferable and scalable**
- **From the Periphery to the Core of Decision Making – Options for Action**

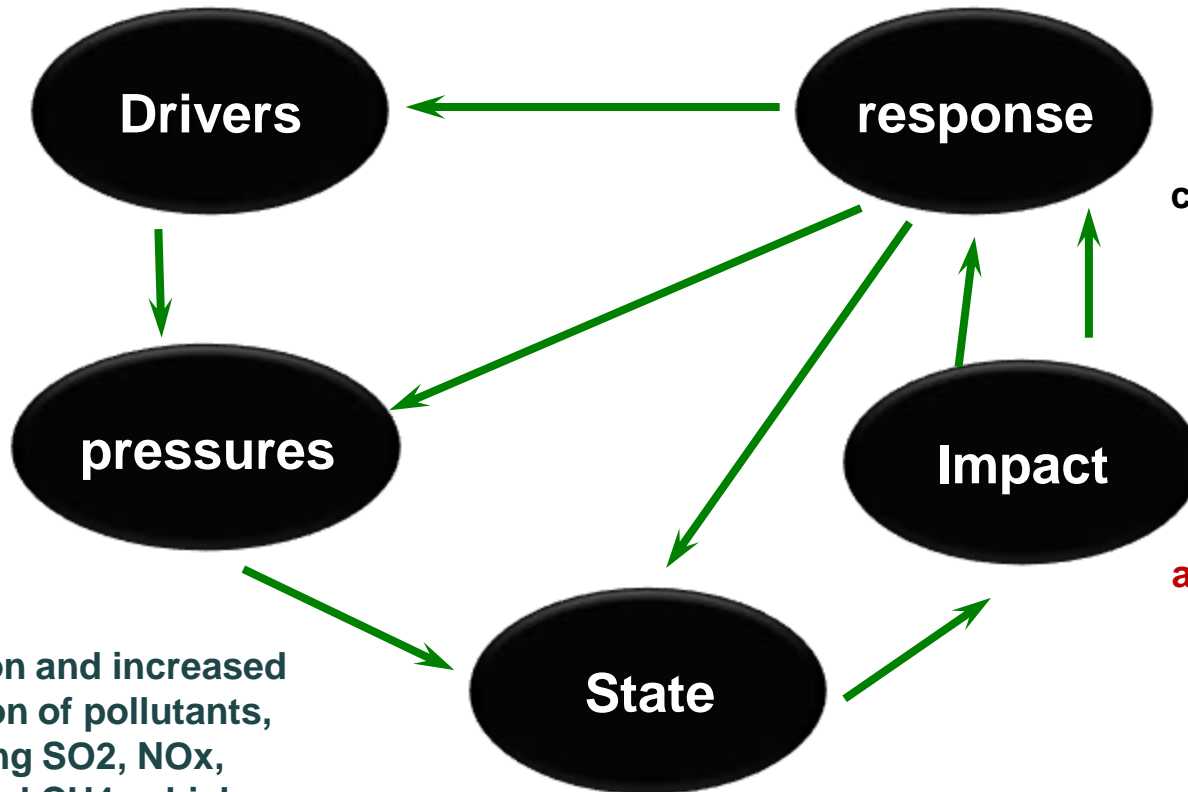


3. What are we doing about environmental change and is it effective?





Increased use of fossil fuel in transport, industry, heating, and energy generation



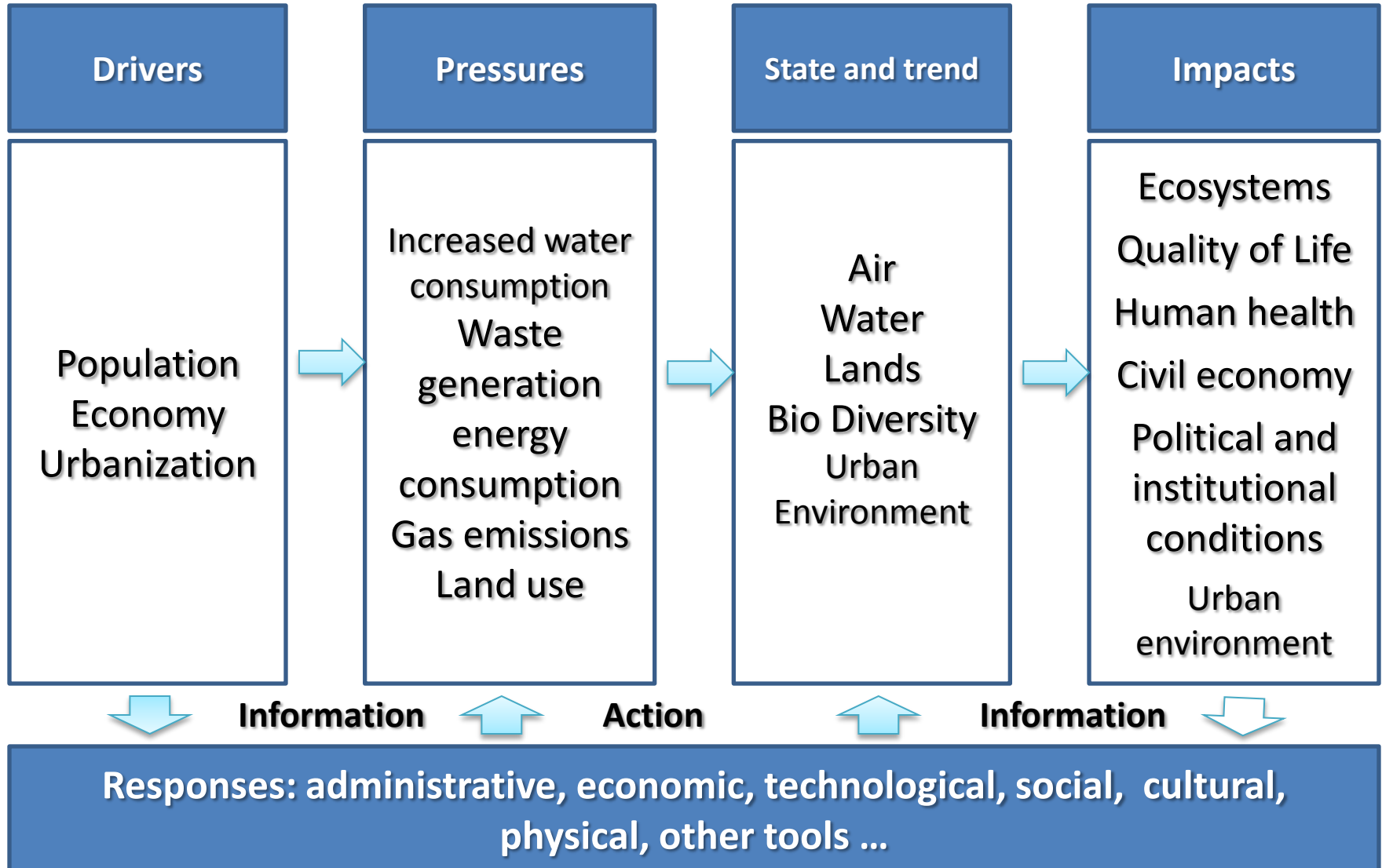
Pollution and increased emission of pollutants, including SO<sub>2</sub>, NO<sub>x</sub>, CO<sub>2</sub>, and CH<sub>4</sub>, which puts pressure on the environment

Gas concentrations, air-suspended particulate matter, temperature criteria, rain distribution

Ratification of UNFCCC, taking mitigation action, developing adequate environmental policies for climate change, establishing national climate change committees

Health Impacts on humans, reduced agricultural production, diminishing quality of products, and further deterioration of metal structures in form of rust

# DPSIR Matrix urban-environmental components



# A Participatory Approach



- **Essential when dealing with complex issues**
- **facilitates interaction between science, decision/policy making**
- **Gives scientific credibility, accuracy and authority**







- **State of Environment (SoE) Reporting**
- **Environmental Impact Assessment (EIA)**
- **Strategic Environmental Assessment (SEA)**
- **Integrated Assessment**



- **SoE reporting is likely most relevant to IEA**
- **It involves reporting on the condition of the environment.**
- **The report is based on human activities and impacts.**
- **Scientific protocols, including peer review are used.**
- **SoE has a broad mandate to inform the public and decision-makers.**
- **SoE reports are a valuable resource when planning an assessment methodology.**



- **Organizational structure for reporting and governance**
- **Process design**
- **Expert and stakeholder participation**
- **Priority environmental issues and policies**
- **Information sources and tools**
- **Communication and impact strategies**



- **A tool to assess the environmental impacts and risks of an activity.**
- **Purpose is to inform decision-makers and other stakeholders about impacts and,**
- **To suggest ways to reduce or minimize impacts.**
- **The quality of an EIA depends on the application of its framework and the quality of its science.**



- **Can be defined as:**

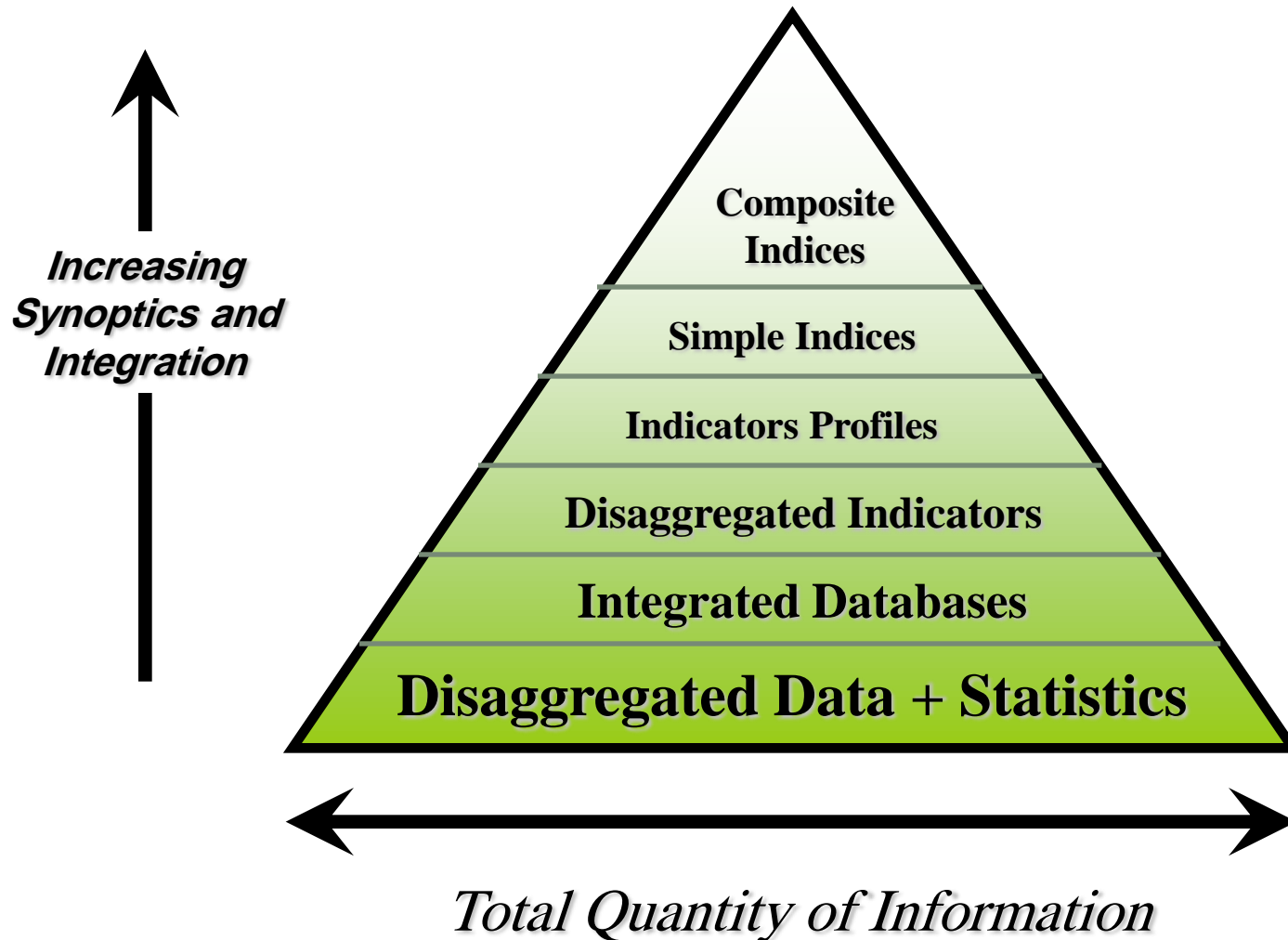
**The systematic and comprehensive process of evaluating at the earliest possible stage, the environmental effects of a policy, plan or programme and its alternatives**

# Comparing and Contrasting SEA and IEA



- 1. SEA is a methodology for policy analysis; EIA includes policy analysis in a broader approach.**
- 2. SEA does not involve regular reporting while IEA explicitly does.**
- 3. SEA may focus on one policy or programme while IEA scans the entire spectrum of relevant policies, and then will single out a priority policy.**
- 4. Essentially, SEA seeks to incorporate policy learning and adaptation in an early phase of policy planning.**

# Continuum from Data to Indices: From narrow to broad views

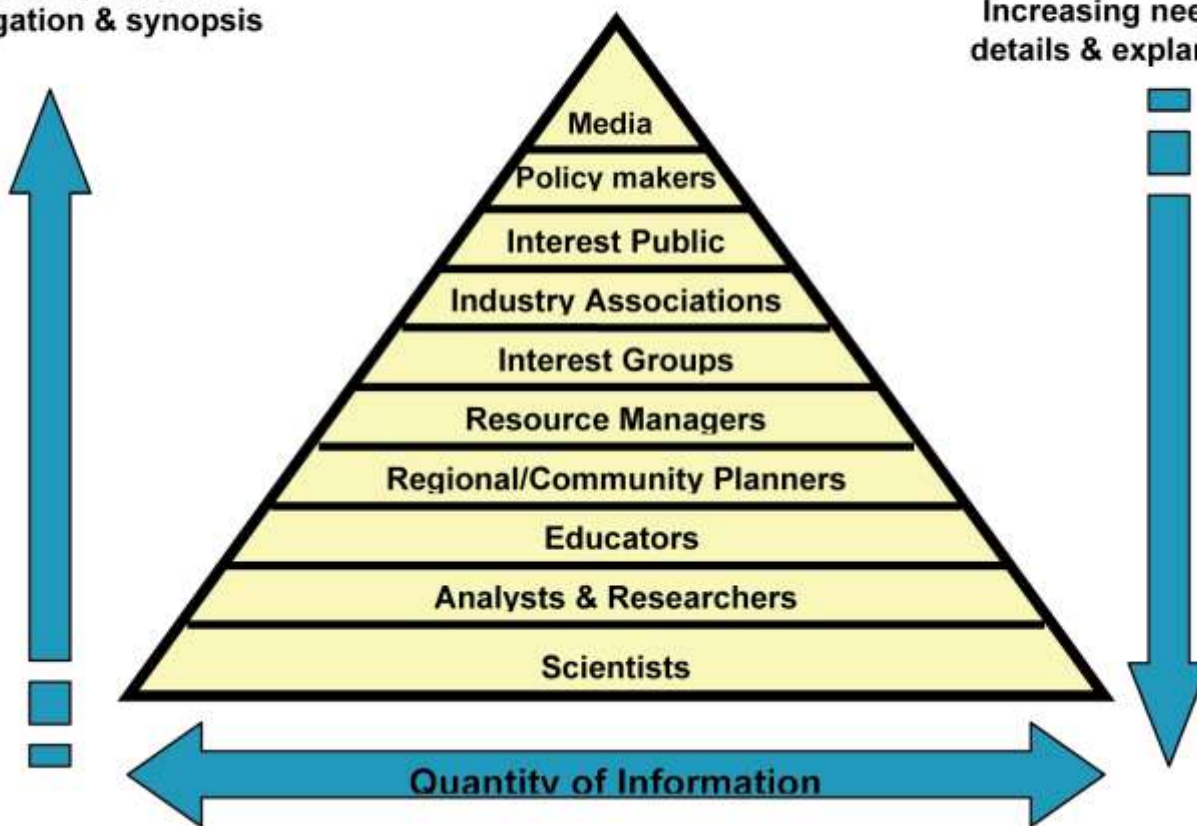




## Information Requirements for Various Users

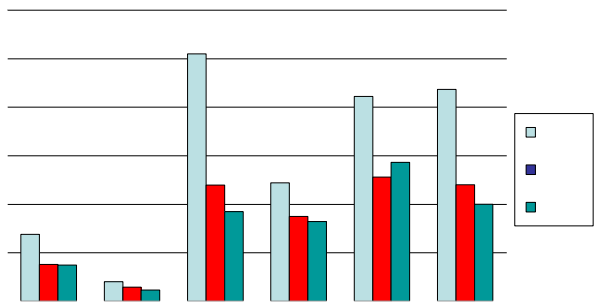
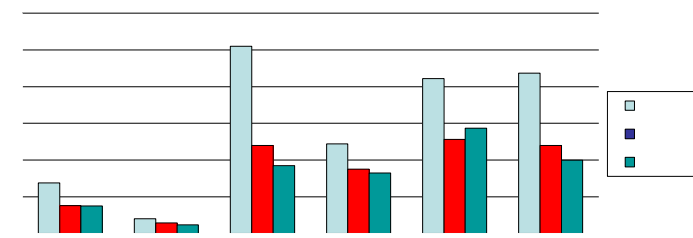
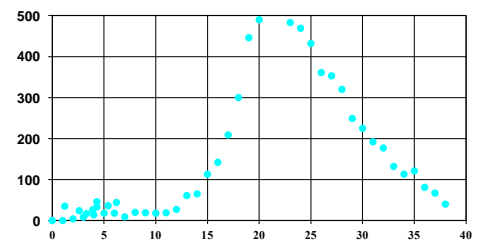
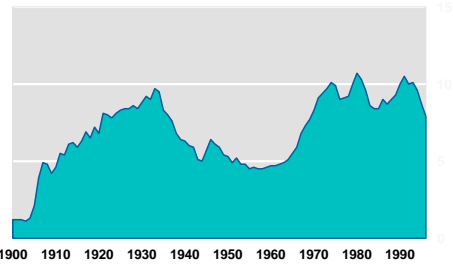
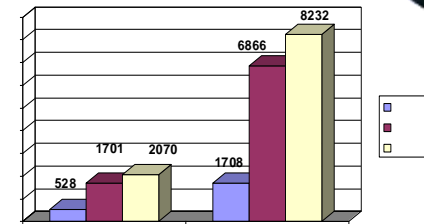
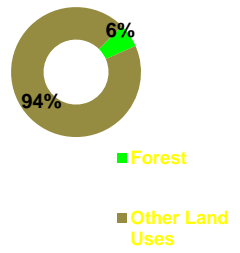
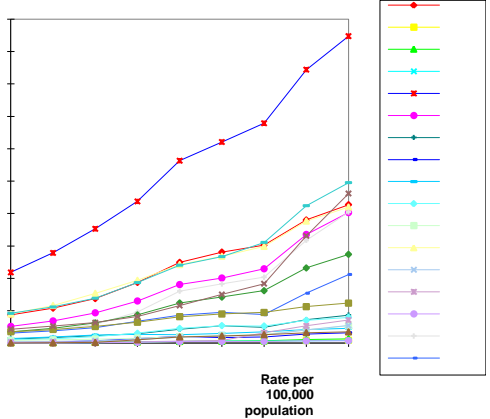
Increasing need for  
aggregation & synopsis

Increasing need for  
details & explanation



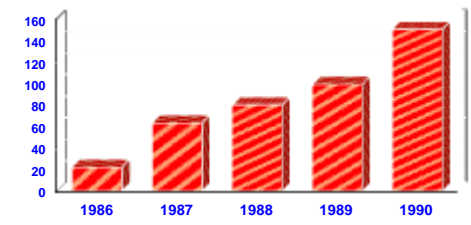


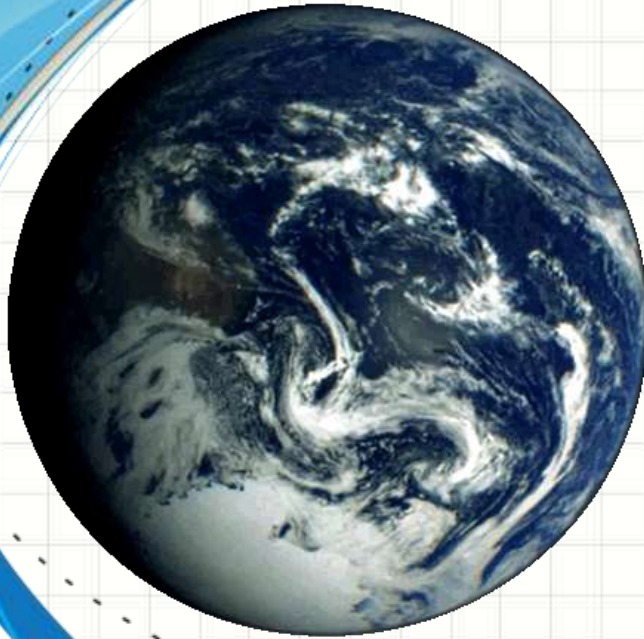
# Use of Indicators



Millions

Administrative forfeitures





***UNEP's Assessment  
and Early Warning  
activities & outputs***



- UNEP is composed of six divisions and six regional offices around the world, and implements its Programme of Work through six sub-programmes:



Climate Change



Disasters & Conflicts



Ecosystems Management



Environmental Governance



Harmful Substances & Hazardous Wastes



Resource Efficiency/Sust. Consumption & Production

- *and from 2014, a seventh: "Keeping the Environment under review"*

# UNEP's GEO Assessment



- **GEO Assessment is the UN's flagship assessment reporting process**
- **DEWA, in collaboration with other programs and partners worldwide, manages GEO**
- **Reports have been published in 1995, 1997, 1999 and 2003 and 2005.**

# GEO Objectives



- 1. Provide decision makers with access to the best available scientific knowledge.**
- 2. Facilitate interaction between science and policy.**
- 3. Build geographic and gender balanced relationships for environmental decision making.**



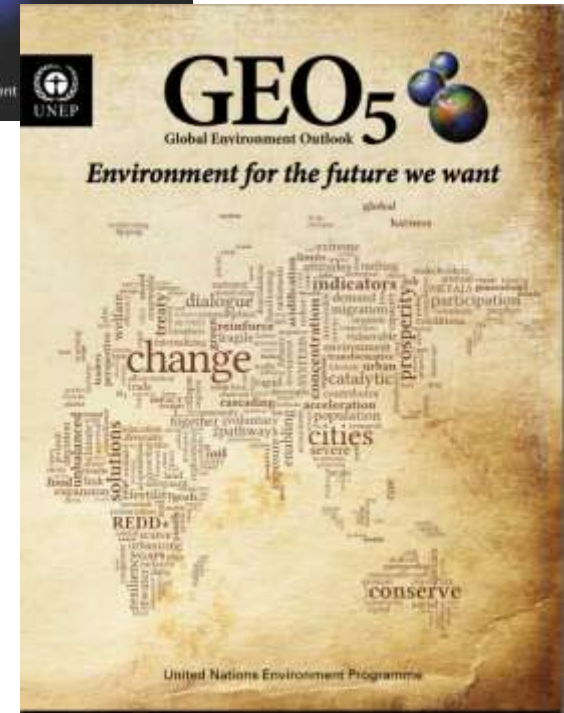
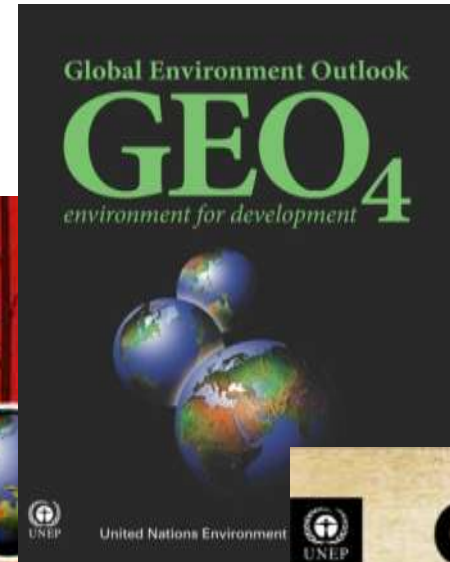
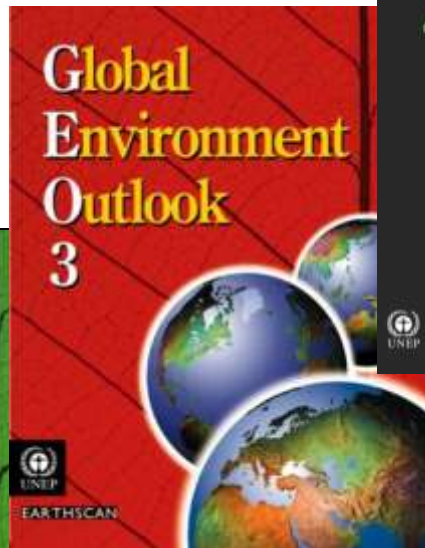
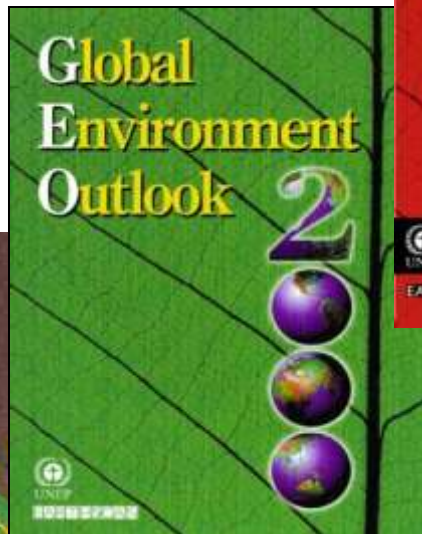
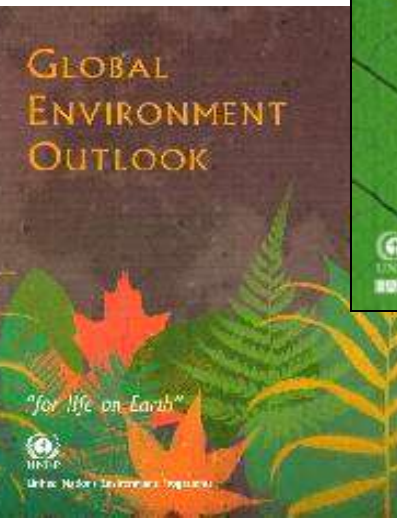
- **GEO Collaborating Centres at the core of the assessment process**
- **Comprehensive peer review with multiple stakeholders**
- **Advisory groups provide conceptual and methodological guidance**
- **Expert groups provide written content**
- **Interactive online data portal at heart of consultation process**



|                                  |   |                                |
|----------------------------------|---|--------------------------------|
| <b>State and trends</b>          | ➔ | <b>biophysical resources</b>   |
| <b>Goods and services</b>        | ➔ | <b>water and biodiversity</b>  |
| <b>Sectoral analysis</b>         | ➔ | <b>energy and tourism</b>      |
| <b>Cross-cutting<br/>poverty</b> | ➔ | <b>gender, diversity,</b>      |
| <b>Forward looking</b>           | ➔ | <b>scenarios in the future</b> |



# UNEP's GEO Report series







# **GEO5** Global Environment Outlook



## **Fifth Global Environment Outlook** *Environment for the future we want*

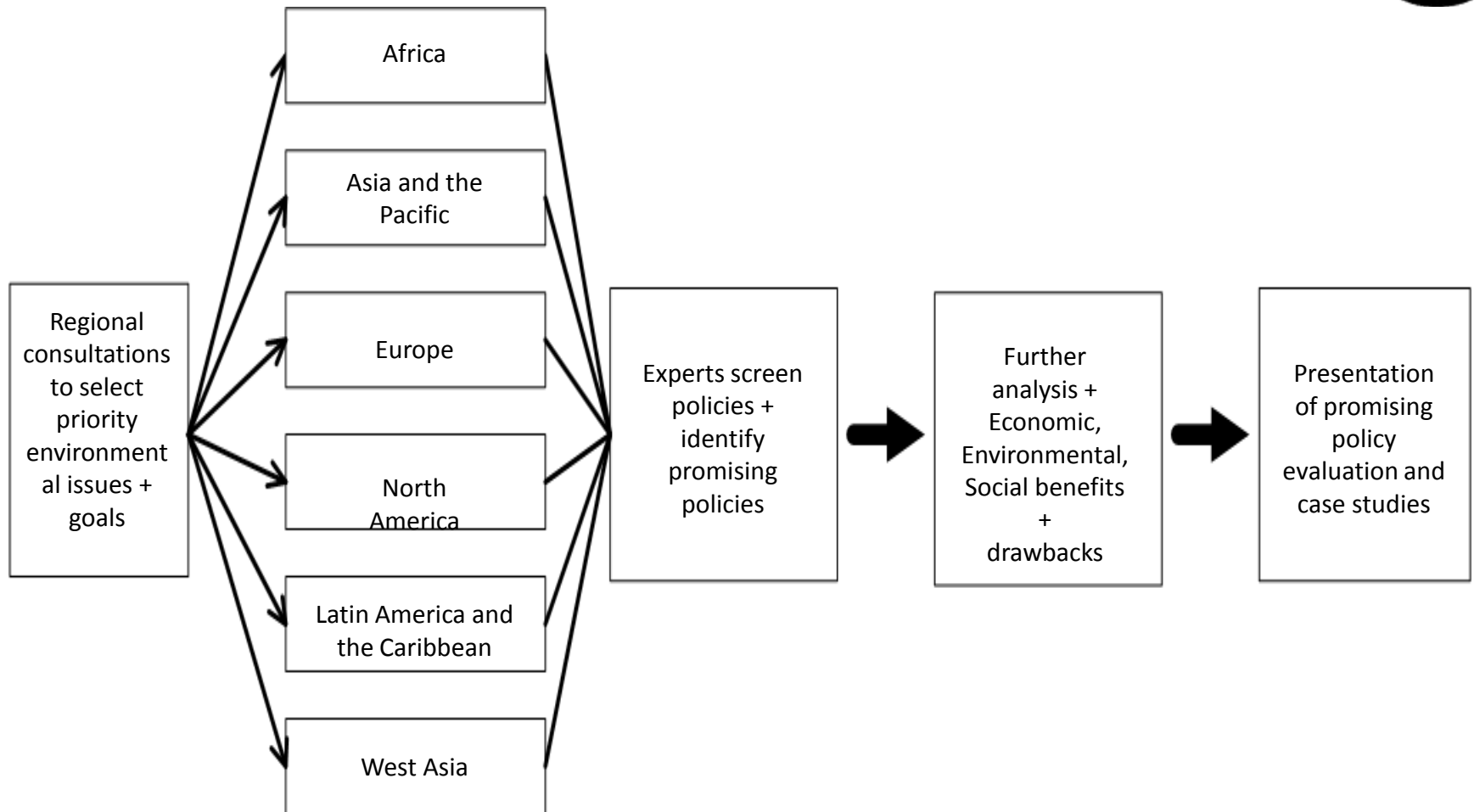


World Environment Day 2012, Rio de Janeiro, Brazil

[www.unep.org/geo](http://www.unep.org/geo)



# Process for policy selection



# GEO-5 Solutions



Regional priority environment and development challenges

|                          | Africa                    | Asia and the Pacific | Europe              | Latin America and the Caribbean | North America             | West Asia                 |
|--------------------------|---------------------------|----------------------|---------------------|---------------------------------|---------------------------|---------------------------|
| Environmental governance | Selected as cross-cutting | Selected as a theme  | Selected as a theme | Selected as cross-cutting       | Selected as cross-cutting | Selected as a theme       |
| Climate change           | Selected as a theme       | Selected as a theme  | Selected as a theme | Selected as a theme             | Selected as cross-cutting | Selected as cross-cutting |
| Energy                   |                           |                      |                     |                                 | Selected as a theme       | Selected as a theme       |
| Air pollution            | Selected as a theme       |                      | Selected as a theme |                                 |                           |                           |
| Land                     |                           |                      |                     | Selected as a theme             | Selected as a theme       | Selected as a theme       |
| Freshwater               | Selected as a theme       | Selected as a theme  | Selected as a theme | Selected as a theme             | Selected as a theme       | Selected as a theme       |
| Oceans and seas          | Selected as a theme       |                      |                     |                                 |                           | Selected as a theme       |
| Biodiversity             | Selected as a theme       | Selected as a theme  | Selected as a theme | Selected as a theme             |                           |                           |
| Chemicals and Waste      |                           | Selected as a theme  | Selected as a theme |                                 |                           |                           |

 Selected as cross-cutting

 Selected as a theme

# GEO-5 Solutions



Regional priority environment and development challenges

|                          | Africa                    | Asia and the Pacific | Europe              | Latin America and the Caribbean | North America             | West Asia                 |
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| Energy                   |                           |                      |                     |                                 | Selected as a theme       | Selected as a theme       |
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| Biodiversity             | Selected as a theme       | Selected as a theme  | Selected as a theme | Selected as a theme             |                           |                           |
| Chemicals and Waste      |                           | Selected as a theme  | Selected as a theme |                                 |                           |                           |

 Selected as cross-cutting

 Selected as a theme





Planning within an integrated approach



Supply-demand management to reduce water deficits

Management of agricultural water consumption

# Energy Policies for WA



Building and systems energy performance

Promoting renewable energy resources

Diversifying energy supply options



# GEO Companion reports



## GEO Indicators

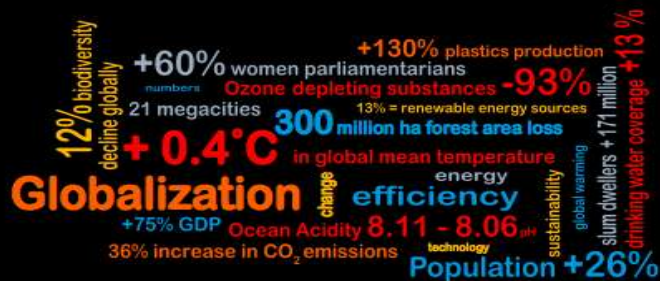



**MEASURING PROGRESS**  
Environmental Goals & Gaps

Word cloud includes: JPOI, CMS, UNFCCC, Montreal Protocol, UNCTAD, Kyoto Protocol, Ramsar Convention, Agenda 21, General Assembly, Basel Convention, UNCLOS, Rio Earth Summit, Sustainable Development, UNCCD, Global Environment Outlook, MDGs, Drinking Water, Stockholm Convention, Aichi Targets, Chemicals.



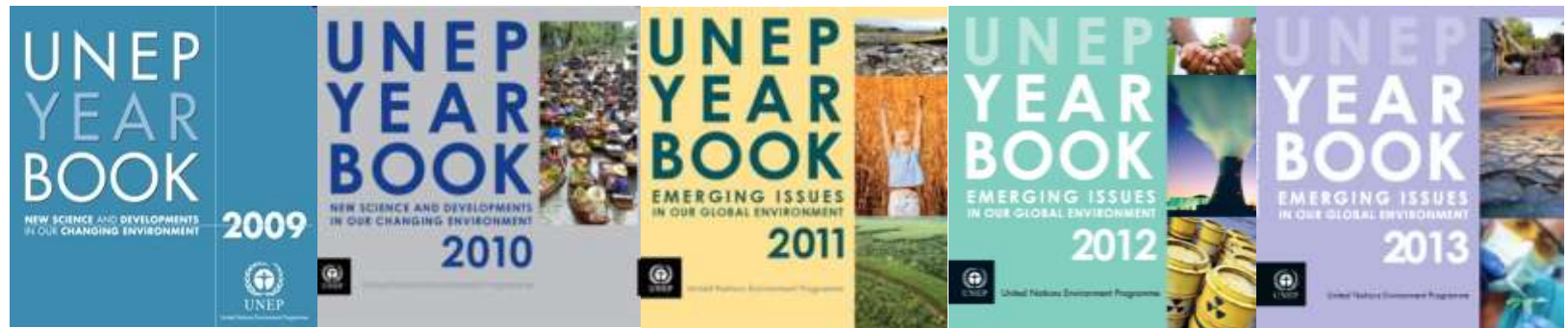
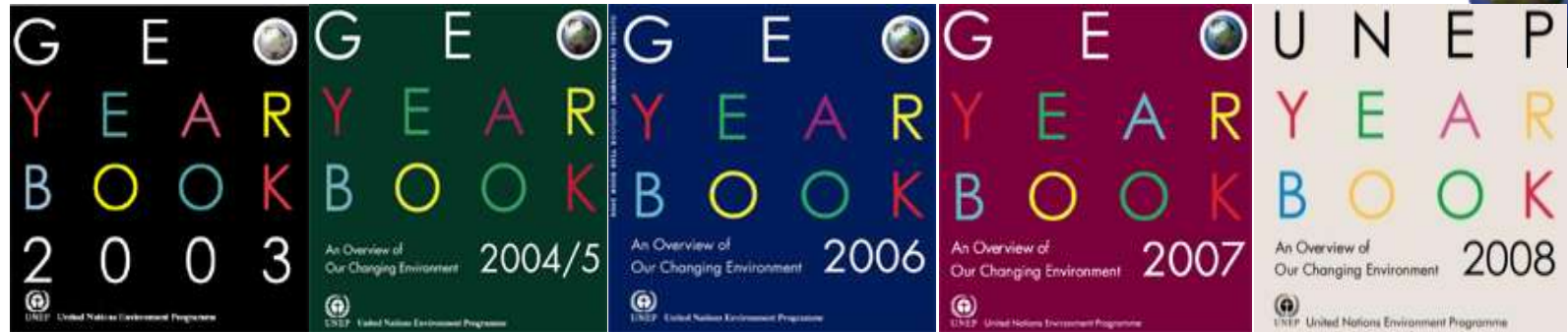
## KEEPING TRACK of our changing environment



From Rio to Rio+20 (1992-2012)

*Ongoing activities to keep track of our changing environment and measure progress towards achieving existing environmental goals*

# *UNEP's Annual Yearbooks*



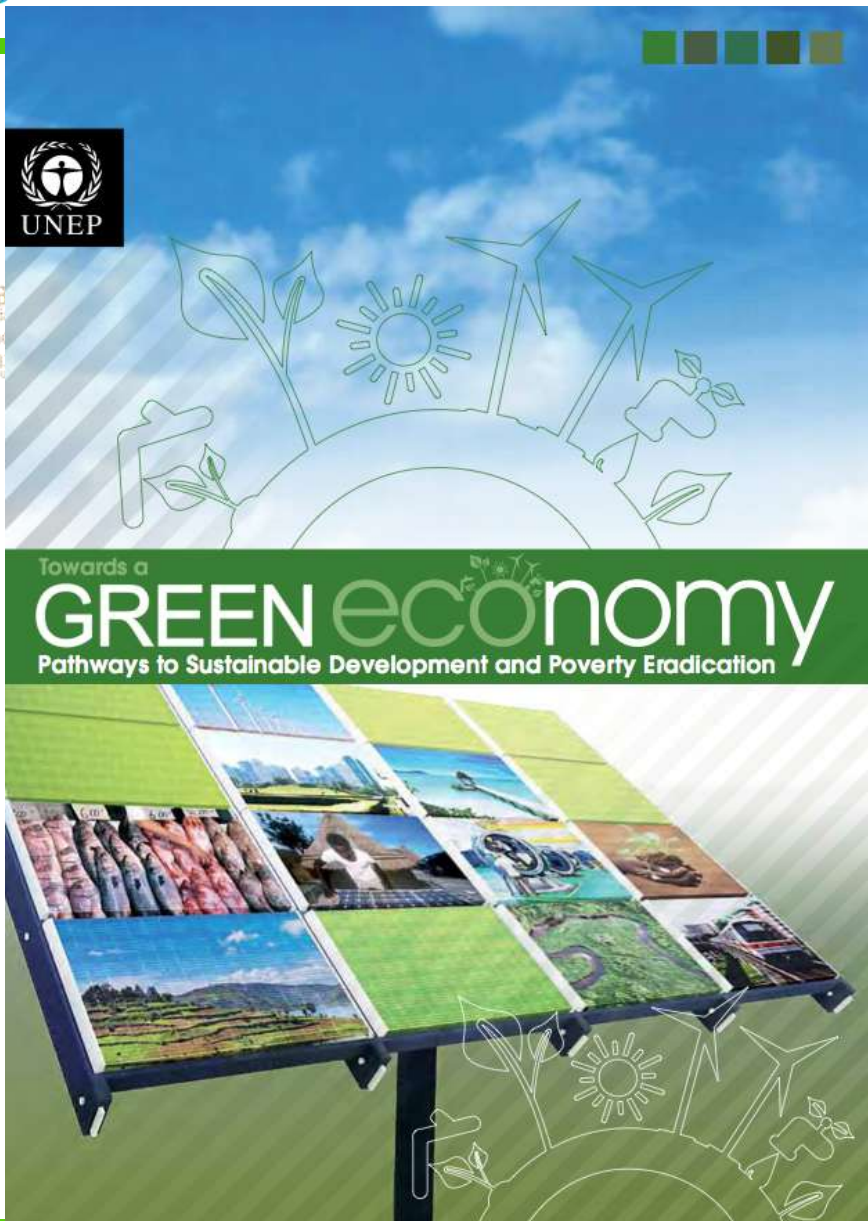
UNEP Yearbooks present selected new scientific findings and events of the past year, that are likely to shape important environmental issues and trends of the coming year.







# Other UNEP Assessments / Reports in 2012





## GCO

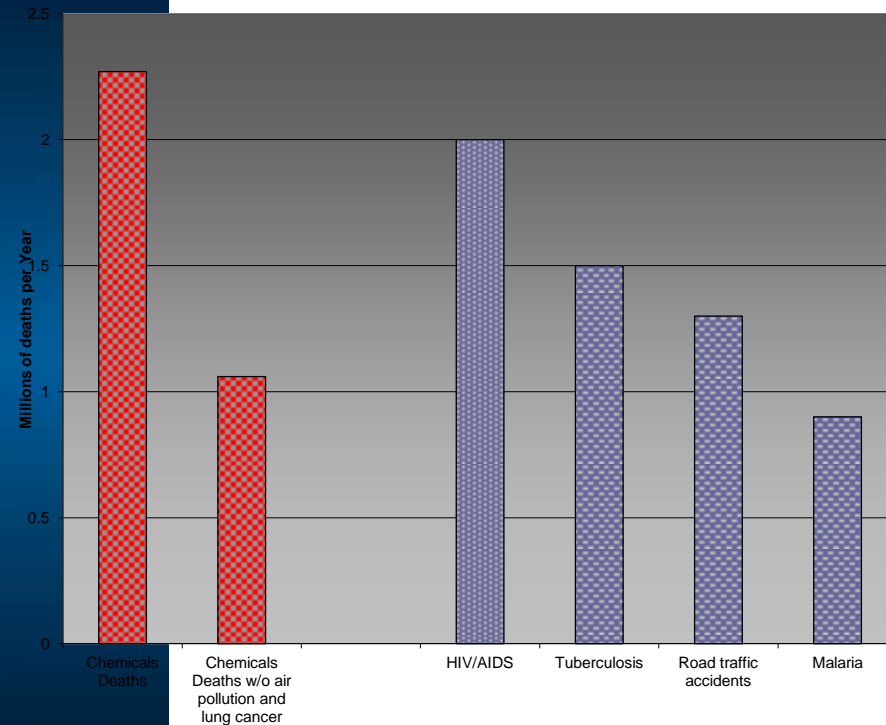
### Global Chemicals Outlook

Towards Sound Management of Chemicals



Synthesis Report for Decision-Makers

Chemicals and Other Major Causes of Health Impacts





## Making the Case for Ecosystem-based Adaptation

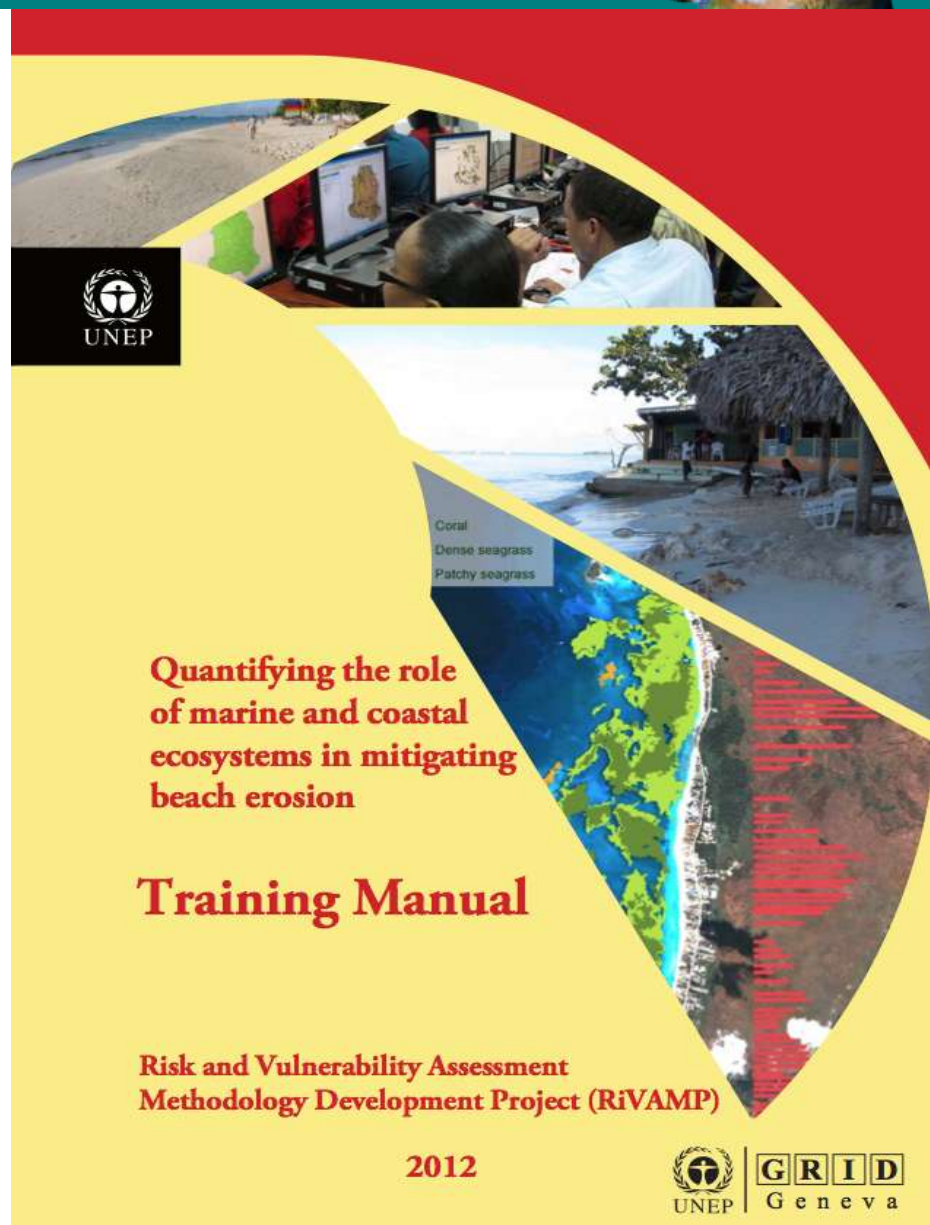



## Building Resilience to Climate Change



Supported by:  
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

Based on a decision of the Parliament of the Federal Republic of Germany





UNEP


Coral  
Dense seagrass  
Patchy seagrass


Quantifying the role of marine and coastal ecosystems in mitigating beach erosion

Training Manual

Risk and Vulnerability Assessment Methodology Development Project (RiVAMP)

2012







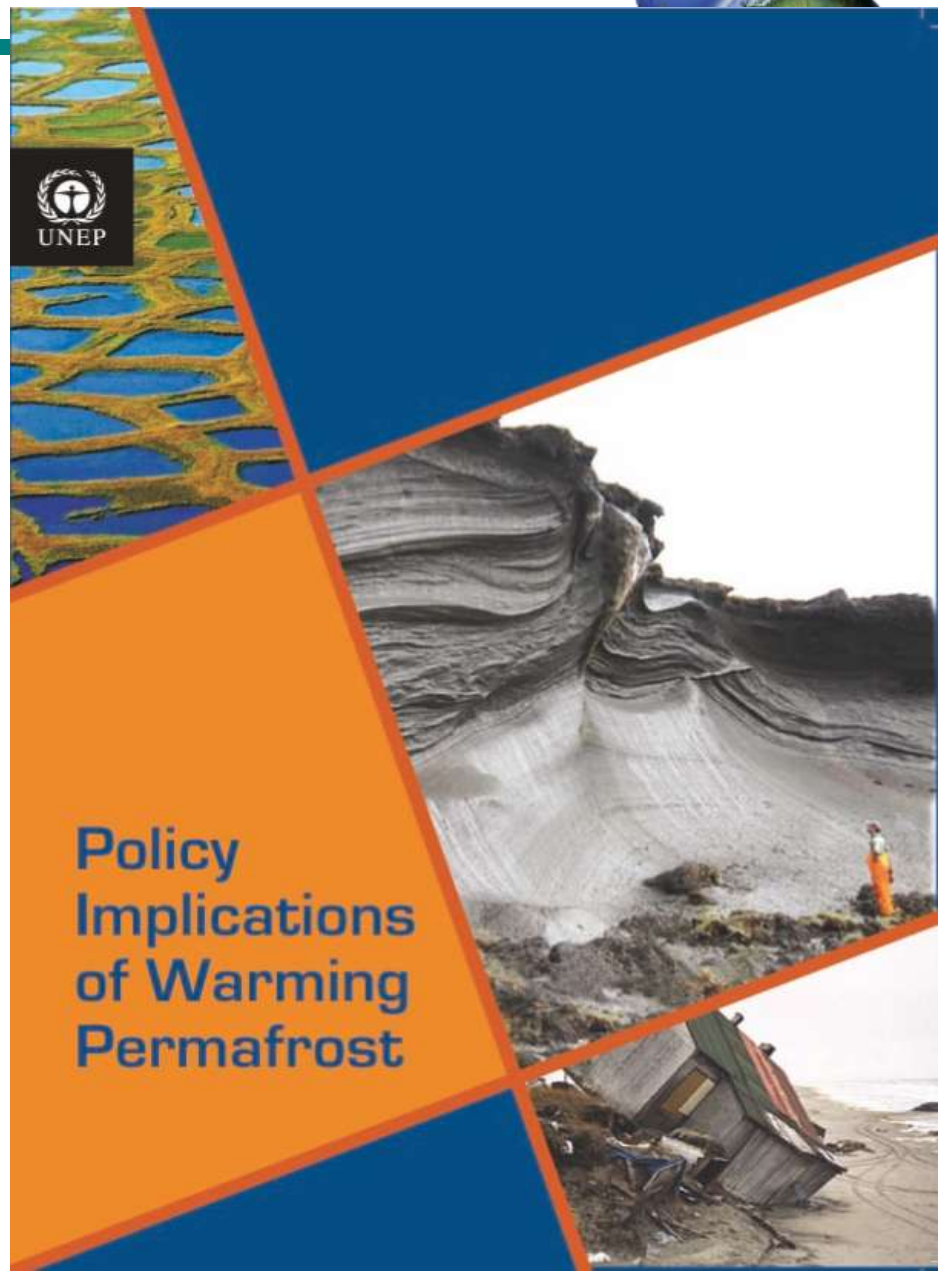
# UNEP Cryosphere-related Assessments



Global Glacier Changes:  
facts and figures



wgms  
World Glacier Monitoring Service



Policy  
Implications  
of Warming  
Permafrost





# UNEP Post-Conflict & Disaster Assessments



**Depleted Uranium in Kosovo**  
Post-Conflict Environmental Assessment

UNEP

**The Kosovo Conflict Consequences for the Environment & Human Settlements**

UNEP UNCRS

**Post-Conflict Environmental Assessment - FYR of Macedonia**

UNEP

**Post-Conflict Environmental Assessment - Albania**

UNEP

**Afghanistan**  
Post-Conflict Environmental Assessment

United Nations Environment Programme

**Desk Study on the Environment in the Occupied Palestinian Territories**

United Nations Environment Programme

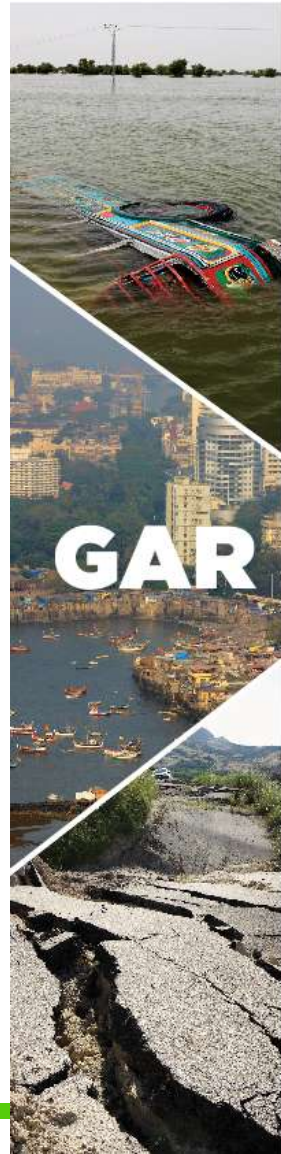
**Environmental Assessment of the Area Occupied by Israel in the West Bank**

United Nations Environment Programme

**Desk Study on the Environment in Liberia**

United Nations Environment Programme

# Disaster Risk Reduction Assessments



Revealing Risk,  
Redefining  
Development



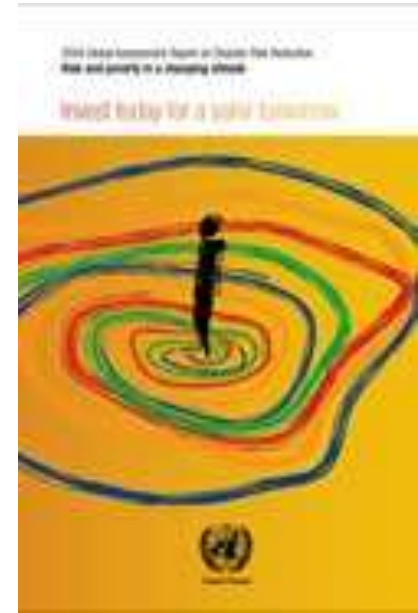
2011

Global Assessment Report  
on Disaster Risk Reduction



Special Report  
on EXTreme  
Events (SREX)

GAR 2009



# Early Warning on Emerging Issues



## “Global Environment Alert Service” (GEAS monthly bulletins)

**UNEP Global Environmental Alert Service (GEAS)**  
 Taking the pulse of the planet: connecting science with policy  
[www.unep.org/geas](http://www.unep.org/geas)

OCTOBER 2012

**UNEP Global Environmental Alert Service (GEAS)**  
 Taking the pulse of the planet: connecting science with policy  
[www.unep.org/geas](http://www.unep.org/geas)

Thematic Focus: Climate cha

### Growing Greenhouse Ga

Both intensive (industrial) and non-a release of greenhouse gases (GHG more sustainable food systems mu

**UNEP Global Environmental Alert Service (GEAS)**  
 Taking the pulse of the planet: connecting science with policy  
[www.unep.org/geas](http://www.unep.org/geas)

### Why is this issue important?

For many thousands of years, man providing them with food and shelter meat and milk, feathers, wool and le slowly grew, industrial style agricul of animal manure as fertilizer was a led to reduced prices for many of oi, and turned a food that was an occa many (Figure 1).

### Keeping Track of Our Changing Em (1992-2012)

In 1992, the first United Nations C popularly known as the Rio Earth to address the state of the enviro Summit yielded several important action adopted by over 178 gover environment at local, national and global levels, an and biodiversity. At the second Conference in 200 Development—governments agreed on the Joha commitment to Agenda 21. In 2012, the United Nat or Rio+20 Earth Summit, will focus on the Green E development, poverty eradication, and the institut object is to renew political commitment to sustain implementation gaps, and address new and emerg

### DECEMBER 2011

To view online and download Alerts, go to [www.unep.org/GEAS/](http://www.unep.org/GEAS/)

**UNEP Global Environmental Alert Service (GEAS)**  
 Taking the pulse of the planet: connecting science with policy  
[www.unep.org/geas](http://www.unep.org/geas)

APRIL 2012

Thematic Focus: Resource Efficiency

### Growth of Popu



### Why is this issue important?

This article, and a related publication called “Keep (2011), serve as a timely update on what has occu of the wider Global Environment Outlook-5 (GEO- landmark GEO-5 report in June 2012. It underlines changed more than most of us could ever have im and environmentally. Very few individuals outside the rapid pace of change or foresaw developments

### IN THIS ISSUE

#### Oil palm plantations: tropical ecosystems

An international commodity used palm oil is expected to double by varying environmental threats ar

#### The end to cheap oil: a threat to food security and an incentive to reduce fossil fuels in agriculture

Fossil fuels are essential for modern, mechanized agricultural production systems. Petroleum products are used directly to power tractors, machinery and irrigation, and to transport, transform and package agricultural products. They are also used indirectly to manufacture fertilizers and pesticides and prepare seeds. Thus, food production is energy intensive. For example, approximately 2 000 litres per year in oil-equivalents are required to supply food for each American, which accounts for about 19 per cent of the total energy used in the United States (Pimental and others 2006).

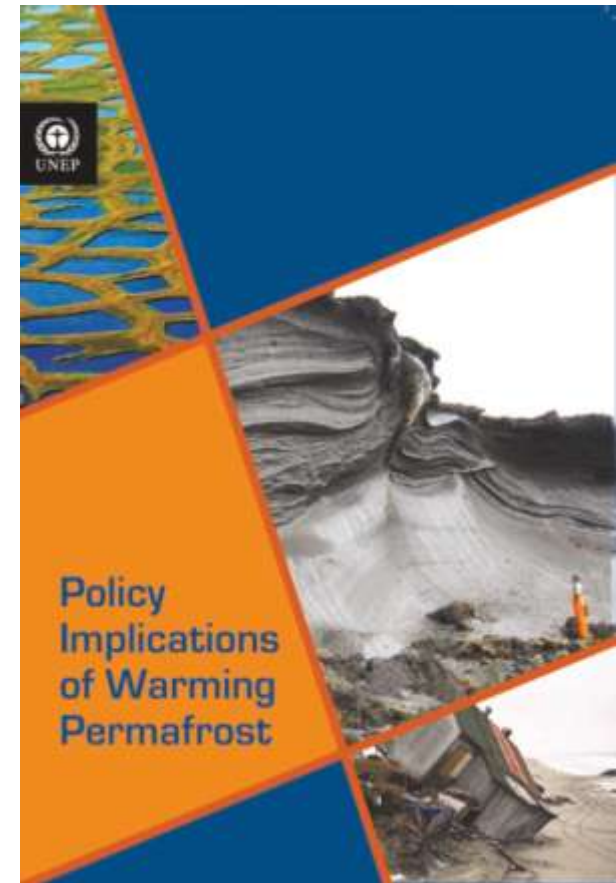
### Thematic Focus: Ecosystem Management

#### Why is this issue important?

Oil palm (*Elvea guineensis*) is cultivated on app 2009, Fitzherbert and others 2006, Kah and Gha palm oil is used in many food and household pr global demand for food and fuel are driving fore which is due to the rapid expansion of oil palm considered the most diverse terrestrial ecosystem important ecosystem goods and services such essential function in climate change mitigation (



Truck being loaded to transport agricultural produce. Photo: Bengali Coast/FAO



Policy Implications of Warming Permafrost

Ex. of in-depth GEAS report

### Some recent titles:

- “End to cheap oil”
- “GHGs and Meat production”
- “Nuclear power plant decommissioning”
- “Keeping track” and “The need for numbers”
- “Gas Fracking - can we safely ‘squeeze the rocks’?”



***A systematic procedure*** for canvassing top experts every two years, to identify and rank critical emerging issues. Coordinated by the Chief Scientist's Office & DEWA.

***Foresight Panel:*** 22 distinguished scientific experts, with broad disciplinary and regional representation.

***An emerging issue is:*** broad in scale; critical to the global environment; can be positive or negative; environmental in nature; and needs to be given priority over the next 1-3 years.

***Covers the major environmental themes of:***

- Food and Land;
- Freshwater and Marine;
- Biodiversity;
- Climate Change; and
- Energy, Technology & Waste

***Also includes cross-cutting issues, e.g:***  
Governance, RE/Sustainable resource consumption, and Bridging science and policy.







**E O**  
**A R**



## Environment Outlook for the Arab Region

The Environment Outlook for the Arab Region (EOAR) report is the first official, comprehensive, and integrated assessment of the state of environment in the Arab region.

The report is a credible scientific assessment that provides a base for policy formulation in the region. It explores the future of human-environment interaction; hence, the main theme of the report: "Environment for Development and Human Well-being".

This report was prepared in response to a decision by the Council of Arab Ministers Responsible for the Environment, in its 17th session, held at the headquarters of the General Secretariat of the League of Arab States, in Cairo, Egypt, in December 2005. The Council invited the United Nations Environment Programme to prepare an environment outlook report for the Arab region, in cooperation with specialized Arab organizations and GEO collaborating centres in the Arab region.

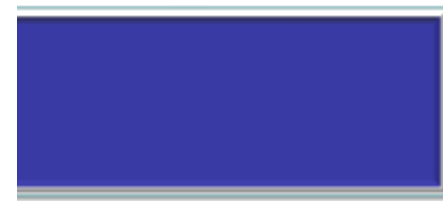
The EOAR report was produced through a participatory process in which experts and scientists from national, regional, international, and civil society institutions, and the private sector, as well as independent experts, and academics collaborated in its development and review. The EOAR process has followed the model of the Global Environmental Outlook (GEO) reports, which began in 1995 with a global environmental assessment process that is participatory, incorporates regional views and perceptions, and builds consensus on priority issues and actions through dialogue among policy-makers and scientists at regional and global levels; resulting in outputs that provide guidance for decision-making processes such as the formulation of environmental policies, action planning, and resource allocation.

In five sections consisting of twelve chapters, the EOAR report reviews the different facets of integrated environmental assessment, by analyzing the causes and drivers of environmental change, environmental pressures and changes and their effect on human beings and ecosystems, and the policies and responses to environmental issues, as well as exploring the future of environment and development according to four plausible scenarios. Finally, the report also presents the policy options and alternatives that can provide the basis for decision-making in the Arab region.



## Environment Outlook for the Arab Region

Environment for Development and Human Well-being



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www.unep.org





Vulnerability Assessment of Freshwater Resources to Climate Change: Implications for Shared Water Resources in the West Asia Region provides a useful tool for decision-makers to identify potential risks to freshwater resources in the region from the impacts of climate change.

Already a major constraint to socio-economic development, water stress in West Asia is expected to deepen due to the impacts of climate change. Understanding the vulnerability of water systems in West Asia, therefore, is vital to sustainable water resource management in the region.

The approach employed in this assessment recognizes that a sustainable freshwater system can only function within an integrative operational framework that combines both the natural and management processes.

The assessment concludes that political action is needed to ensure sustainable management of water resources, with vulnerability and adaptation to climate change integrated into future national plans. It recommends that resource management policies shift to demand management, water use efficiency and conservation.

Vulnerability Assessment of Freshwater Resources to Climate Change: Implications for Shared Water Resources in the West Asia Region



## Vulnerability Assessment of Freshwater Resources to Climate Change:

Implications for Shared Water Resources in the **West Asia** Region

[www.unep.org](http://www.unep.org)  
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# ARAB REGION

Atlas of Our Changing Environment



ARAB REGION

Atlas of Our Changing Environment

Increasingly, and through satellite images, we see stark evidence of the impact human activities are having on the planet. Viewing the Earth from this remarkable range and scale allows us to better comprehend the environmental changes taking place on land, in the water, and in the air.

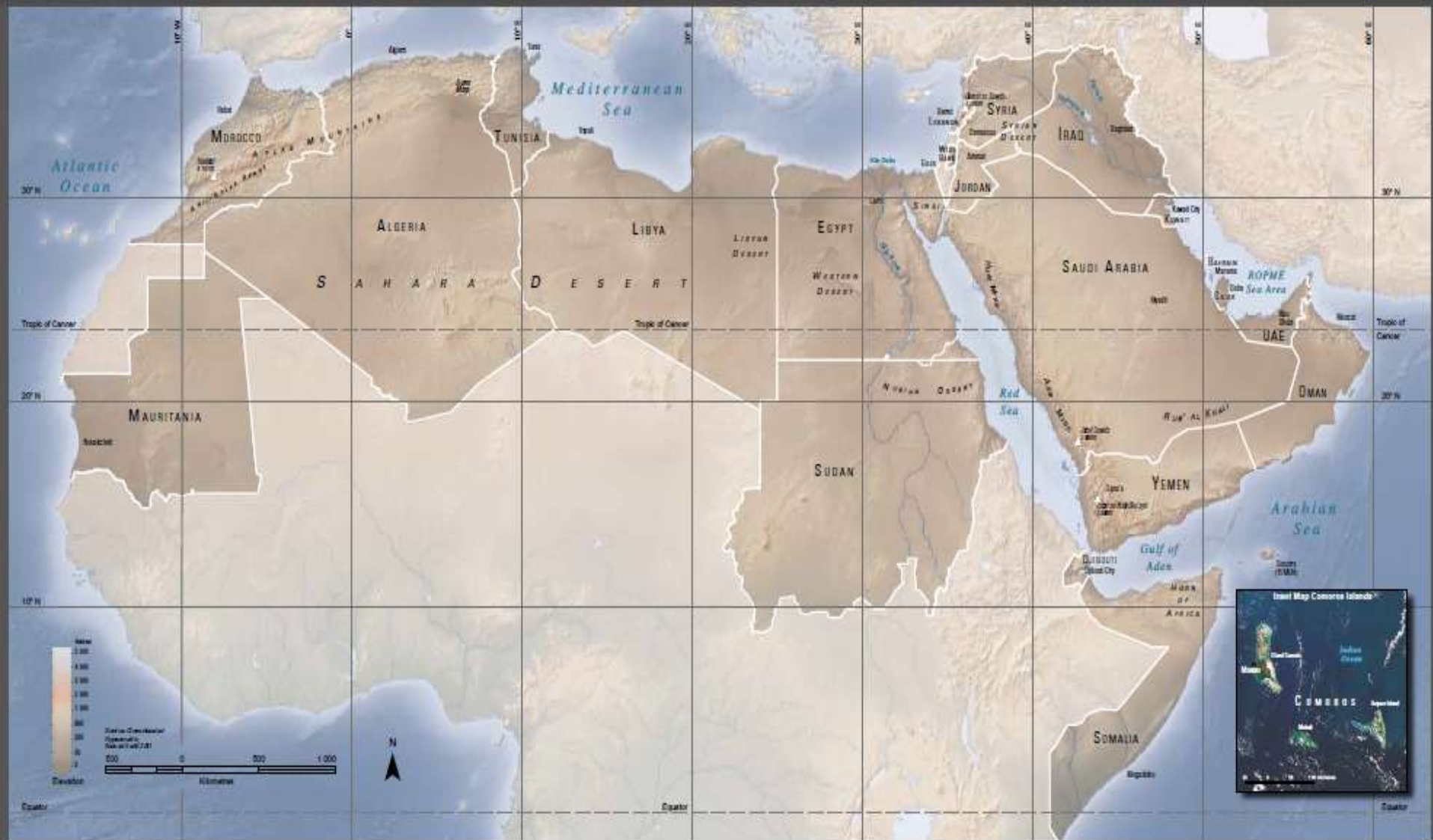
This Arab Region Atlas of Our Changing Environment uses evocative imagery and informative descriptions to tell a story of prominent environmental change across 22 Arab countries over the last 50 years. While this atlas documents the commonalities shared by these nations, it also highlights the unique challenges each country faces in the 21st century.

Using current and historical satellite images, maps and photographs, a range of sites have been examined to survey specific environmental changes. In a region already confronted by extreme climate, limited natural resources, economic conditions and conflict, the environmental challenges depicted are striking.

The progress that each country is making towards achieving environmental sustainability as part of the Millennium Development Goals, is also described and visually portrayed.

The Arab Region Atlas of Our Changing Environment is the latest addition in a series of UNEP atlases that have inspired leaders to action through the visual power of images.





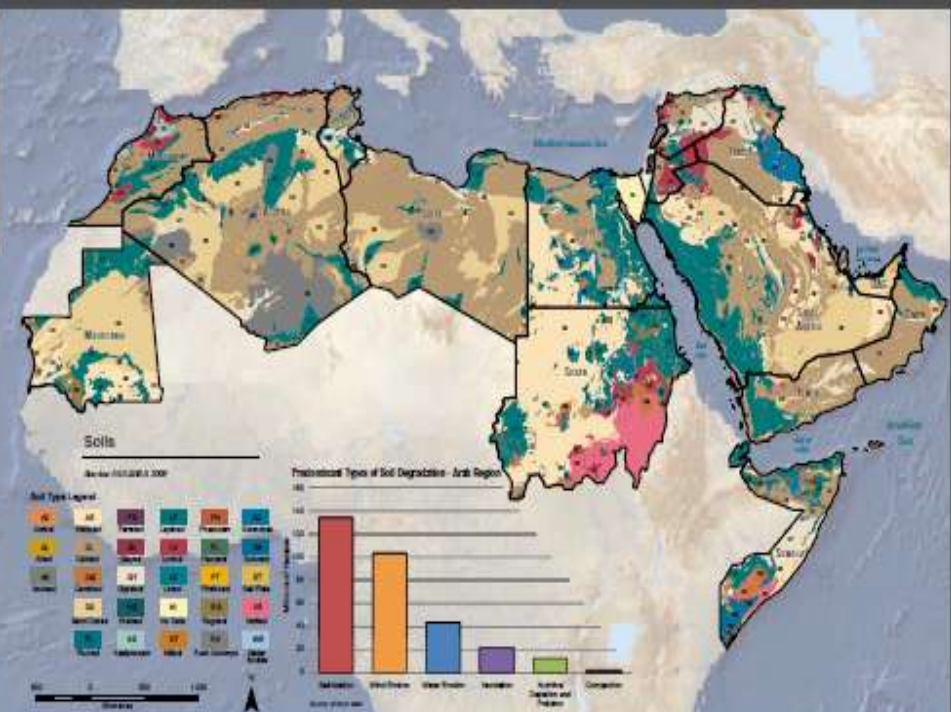
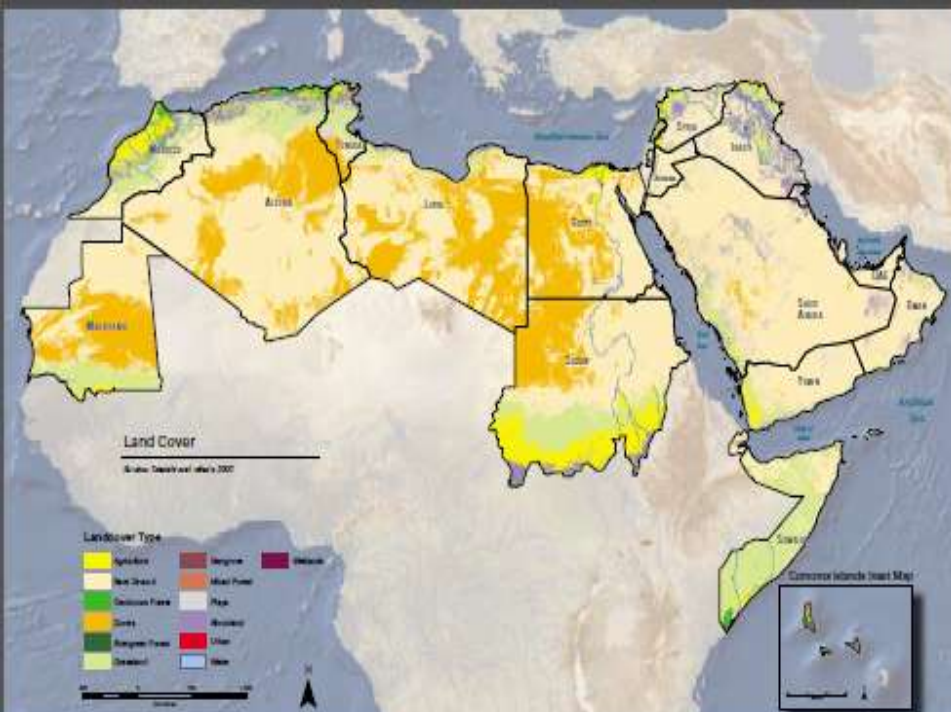
## 1.1 GEOGRAPHY

The Arab Region has undergone tremendous change in the past half century. The population now exceeds 352 million and is concentrated in urban areas (UN 2009). Pressures on natural systems in the region to provide for the burgeoning population are beyond the systems' ability to regenerate, causing unsustainable use of vital resources. Given the aridity of the climate, this is most poignant in the region's scarce water resources. As long as human

activities continue at levels above the regenerative capacity of the natural environment, the result will be a decline in the quality of life. Governmental and non-governmental entities in the region are progressing with efforts to address conservation of the region's natural resources, which will become more challenging under the pressures of population growth, economic development policies, and various climate change scenarios.

The Arab region contains abundant natural resources, and though many perceive the entire region to be rich in oil and gas resources, major hydrocarbon production is limited to the countries of Saudi Arabia, United Arab Emirates, Kuwait, Algeria, Iraq, Libya and Qatar. These oil-producing countries contain a vast proportion of the world's hydrocarbon reserves, holding almost 60 per cent of the world's proven oil reserves and nearly 30 per cent of proven natural gas reserves (OIL & Gas Journal 2008). The region also has many other resources such as iron ore, lead, phosphate, cobalt and manganese. Though limited, fertile lands are a resource with parts of southern Sudan, also referred to as

the 'food basket of the Arab world', containing some of the most fertile lands in the world. The flora, fauna and marine biodiversity are also a vital part of the region's rich natural resources and are integral to the fast-growing tourism industry. With a large imbalance in the amount of available resources and the amount of people in the region, the need for more strategic and sustainable development is clear. The priceless services of nature's resources such as the availability of clean water, clean air, fertile soil, and rich biodiversity must be preserved in order to maintain an adequate quality of life for current and future generations.



## LAND USE AND LAND COVER

Land resources are crucial to development and human well-being. Changes in land resources are driven by environmental, technological and socio-economic factors. The major trends affecting land resources in the Arab region over the past 30 years include: an increase in agricultural lands; a decrease in forest cover, especially in North Africa; an increase in heavily degraded lands resulting from desertification, climate change, chemical pollution from industry and agriculture, and armed conflict; an increase in urban and infrastructural development; and diversification in the use of land resources (primarily tourism and mining).

### Land Cover

The Arab region faces enormous challenges in safeguarding its natural resources and converting these challenges into opportunities for development. Of the total land area of 14.1 million km<sup>2</sup>, 89.3 per cent are arid or hyper-arid lands and 14.5 per cent are agricultural lands, of which only 4.2 per cent are cultivated (AGAD 2009). A huge portion of the region is desertified and highly vulnerable to desertification. For example, the GCC countries are 89.6 per cent desertified and the remaining lands are vulnerable to desertification. The countries in the Mashreq sub-region are the least desertified (35.6 per cent), but a large proportion of the total land area in that region is vulnerable to desertification (81.6 per cent) (ACSAD 2004). Though dryland deserts dominate the region, a variety of ecosystems are found in the Arab region that provide essential habitat and ecosystem services—these include Mediterranean forests, plains,

rangelands, savannahs, oases, mountains, rivers, mudflats, springs, marshes, and swamps. Rangelands in the region are a significant land type and cover more than 33 per cent of total area of Arab countries and constitute 13.5 per cent of global rangelands (FAO 2011).

### Forests

The climate in the region limits the amount of forest cover—only 6.7 per cent of the total land area in the Arab region is forest. Sudan has by far the greatest amount of forest cover (61 627 000 ha), followed by Somalia (7 515 000 ha), Morocco and Algeria, however deforestation (to clear lands for human settlement and agricultural activities, and for charcoal production) has drastically reduced forest cover, exacerbating desertification in these areas (UNEP 2006). In North Africa, forests occupy about 0.6 per cent of the total land area and occur primarily on the coast of the western Mediterranean countries (UNEP 2007), in the Atlas Mountains, and in southern Sudan and Somalia; other wooded areas occur as natural desert vegetation in wadis (dry riverbeds) and depressions. From 1972 to 1990, the area of natural forest in North Africa was reduced by 53.3 per cent. Widespread tree planting programs implemented in the 1990s have attempted to offset the huge losses in forest cover: between 1990 and 2000, 1 693 000 ha of trees were planted. In West Asia, forests and woodlands occupy only 1.34 per cent of the total land area (UNEP 2007). Much of these woodlands are confined to areas along the coast of the Arabian Peninsula (mangrove forests, *Amberis* spp. and *Acacia* spp. stands), and across the mountains and hills of northern Iraq, Jordan, Lebanon, the Occupied Palestinian Territories, and Syria.

### Protected Areas

The establishment of land and marine protected areas in the region has been recognized as vital to preserving key sites of biological productivity that constitute the majority of the region's flora and fauna. The protected area network includes, but is not limited to, a variety of refuges, national parks, biosphere reserves, bird sanctuaries, and marine reserves. In West Asia, 242 protected areas have been designated—Saudi Arabia leads the other West Asian countries in the number of designated areas (128), followed by Jordan (22) and Kuwait (19). In 2006, the amount of protected areas in West Asia amounted to 87 863 962 ha, or less than 10 per cent of the total land area (UNEP 2007). West Asia lags behind the world average in proportion of protected areas but is expanding efforts to increase the amount of lands under protection to reach 10 to 35 per cent of overall land cover by 2020 (UNEP 2010). The number of designated protected areas amounts to 287 in North Africa. To ensure biodiversity conservation, continued commitment and effective management of the protected areas system must be ensured. A map in Chapter 2 illustrates the protected areas of the Arab region.



## SOILS

Soil development in the Arab countries is generally poor due to the arid climate. Common characteristics of soils in the region include thin soil profiles, reduced organic matter, reduced clay materials (except in river floodplain areas and deltas), low nutrient content, high sandy and stony contents, moderate to high salinity, alkalinity and carbonates. The soils map shows most of the region covered by desert-type soils typical of arid environments as well as thin ribbons of well developed soils along coastal areas (especially along the Mediterranean) and river systems.

Land degradation brought about by human and natural causes (chemical, wind and water erosion) affects millions of hectares worldwide. Desertification is the most prominent form of land degradation in North Africa and West Asia. Soils are the most important indicator of land health and productivity; degradation of soils in the Arab countries has serious environmental, economic and social consequences that can negatively impact stability in the region. The type of soil degradation and the number of hectares impacted in the Arab region are displayed in the graph (above).



Flood irrigated fields in the Nile Delta often lead to soil and land degradation in Egypt

# Sand Storms

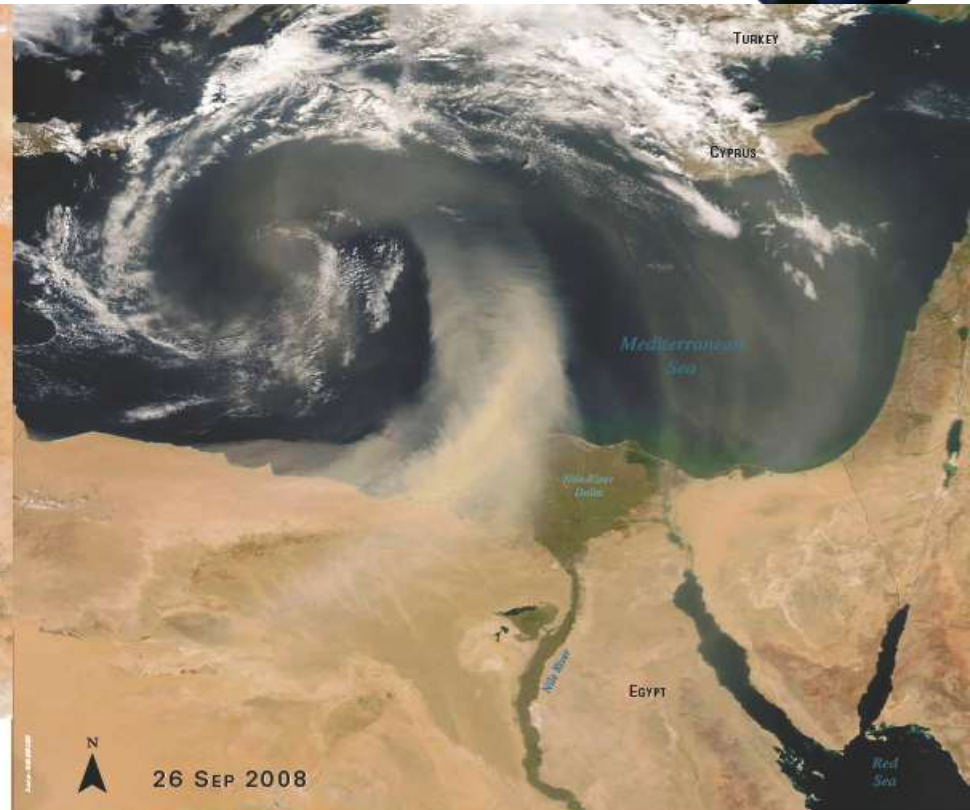


## DUST AND SAND STORMS

Dust and Sand Storms (DSS) are common in arid and semi-arid regions, and arise when wind gusts blow loose sand and dust from a dry surface. The Sahara Desert and the Arabian Peninsula are the main sources of airborne dust and particulates, which can be transported across the entire region and even across the Mediterranean and Atlantic (NASA 2005). The minerals carried by DSS are the main source of nutrients for phytoplankton, the basic food upon which marine life depends; however, they are also hazardous in terms of air quality and can damage vegetation and infrastructure. These particles, also known as aerosols, can alter the physics of cloud formation and reduce rainfall in the polluted region. Increases in temperature associated with climate change will increase soil fragility, making sand and dust particles more mobile with winds, which are also expected to increase in frequency and severity. The Environment Agency-Abu Dhabi recently expanded its air quality monitoring program to include the measuring of PM<sub>2.5</sub> levels (dust and chemicals that are capable of penetrating deep into the lungs); PM<sub>2.5</sub> levels are also being assessed to determine how much of the particulates are naturally occurring versus human-caused (EAD 2010b).

## DUST AND SAND STORMS ORIGINATING IN IRAQ

In Iraqi cities, DSS that completely cover populated neighbourhoods are a common occurrence. Land degradation associated with conflict and poor agricultural practices and management has transformed much of the arable land into desert; even the slightest wind movements can pick up dust that can remain airborne for days (ESCWA 2006). This image shows a thick band of dust snaking across the Red Sea between Egypt and Saudi Arabia on 13 May 2005 that originated in Jordan and northern Iraq. The dust impaired visibility, caused health complications and prevented planes from taking off and landing at local airports. These DSS that originate in Jordan and Iraq can extend into Iran, Syria, Saudi Arabia and affect countries to the south, blowing over the Red Sea and into northeast Sudan, southern Egypt, Eritrea and northern Ethiopia. The image above shows dust from Jordan and Iraq sweeping south and west over the Arabian Peninsula into North Africa. The Nile River (upper left of image) is a ribbon of green with the water flowing northward into a fan-shaped delta before emptying into the Mediterranean Sea (NASA 2005). A ground photo illustrating the immense size of a dust storm in Iraq is shown to the right.



## DUST AND SAND STORMS FROM NORTH AFRICA TO SOUTHERN EUROPE

Frontal wind directions, as shown in the image above, clearly indicate transboundary wind movements from the Arab region to northern Mediterranean countries such as Turkey, Greece, and Italy. These fronts carry dust from the Sahara Desert in Libya and Egypt over thousands of kilometers by convection currents, which form when warmer, lighter air rises and colder, heavier air sinks. The 'sirocco' is the dust and sand-laden desert wind of North Africa and Arabia that contributes largely to the atmospheric dust over Europe; evidence of the dust from sirocco winds has also been found on the seafloor at considerable distances from shore and as far north as Sweden (Hassan 2004).

# Kuwait Borders



New vegetation in Al-Jahra Protected Area



## KUWAIT-IRAQ SEPARATION BARRIER: A GREEN BORDER, REMARKABLE ENVIRONMENTAL CHANGE AND ENHANCEMENT

The most apparent and visible evidence of desertification is loss of vegetation (plant cover) and its insufficient protection against soil erosion. Loss of plant cover entails loss of biodiversity and the failure to withstand habitat deterioration or desertification. Successfully stemming the spread of desertification can be achieved through national policies that allow resource conservation to be an integral part of national endeavours that protect and utilize natural resources sustainably. The desert region around Kuwait's borders provide a poignant study of environmental change based in national policy. The Government of Kuwait has established and proposed 16 fenced and protected areas around the country. These areas are fenced for

specific reasons including the Kuwait-Iraq Separation Barrier, the fenced southern border with Saudi Arabia, oil fields and military sites. The combined area fenced from use and under protection amounts to 26.63 per cent of the total area of Kuwait; over 4 700 square kilometres. These change pair images clearly demonstrate the effects that fencing and resource protection have on the landscape and the dramatic increase of green vegetation cover. The Kuwait-Iraq Separation Barrier imposed by the UN Security Council runs 190 km along the border and extends 10 km into Iraq and 5 km into Kuwait. Within this fenced and protected area the change in green cover is clearly evident. Similarly, the fenced border areas between Kuwait and Saudi Arabia, and the fenced oil fields have also shown a remarkable increase in green plant cover and demonstrate the power of land use protection from grazing and anthropogenic pressures. Removal of these perturbations have contributed positively to the growth of plant cover and resource conservation.

Waterhole in Sabah Al-Ahmad Nature Reserve







Figure 1.8 Map of Morocco, and site of Tafilalet Assessment

Source: UNEP

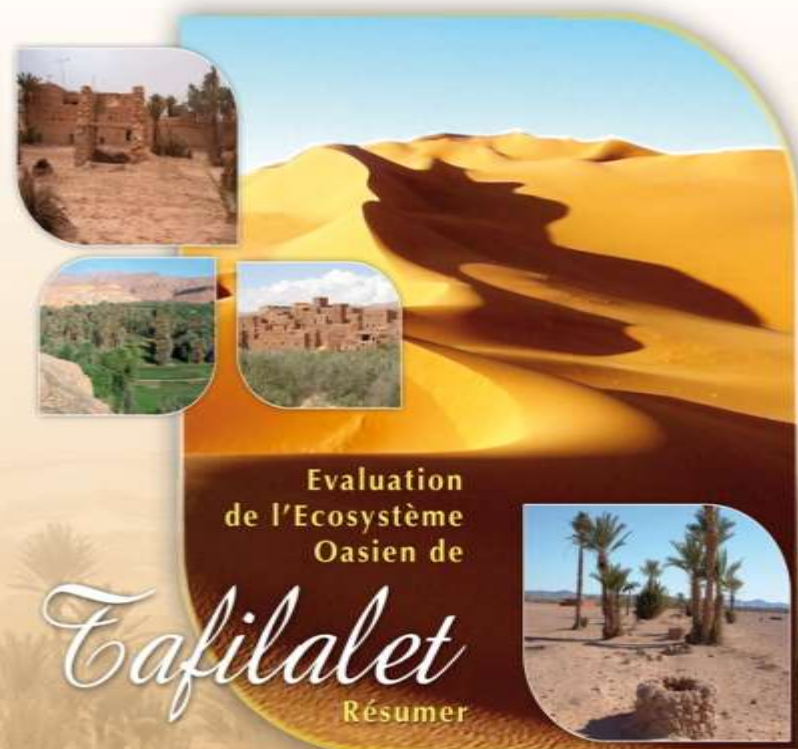
Royaume du Maroc



Secrétariat d'Etat auprès du Ministère de l'Energie,  
des Mines, de l'Eau et de l'Environnement  
chargé de l'Eau et de l'Environnement

Département de l'Environnement

ANWAB Creation - 0537 86 90 74



Evaluation  
de l'Ecosystème  
Oasien de

# Tafilalet

Résumer



Observatoire National de l'Environnement du Maroc

9, Avenue Aziz, secteur 16 Hay Eljad Rabat

Tel: 0537 57 06 39 • Fax: 0537 57 86 42

www.observatoire-nat.gov.ma/onen

Juin 2010

## Kingdom of Saudi Arabia



Figure 1.7 Map of Saudi Arabia, showing the location of Asir Province

Source: PME

PME  
 PRESIDENCY OF METEOROLOGY AND ENVIRONMENT  
 P.O.Box 1358, Jeddah 21431  
 Kingdom of Saudi Arabia  
 www.pme.gov.sa

Production By: King Fahd

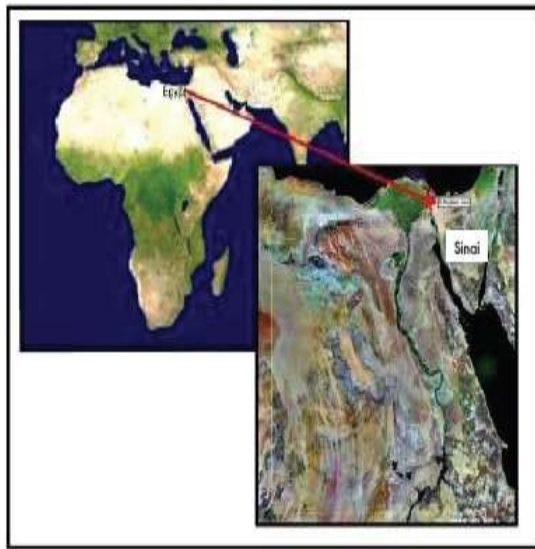
# MILLENNIUM ECOSYSTEM ASSESSMENT

Sub-Global Arab Millennium Ecosystem Assessment

Summary for Decision Makers

Saudi Arabian Millennium Ecosystem Assessment  
 For  
 Asir National Park  
 June 2010





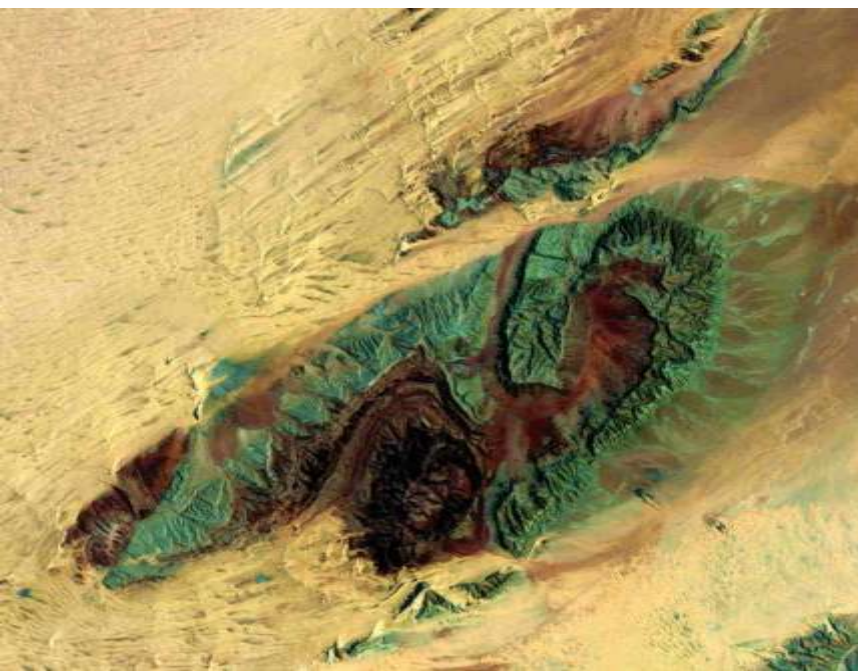
# ECOSYSTEMS AND HUMAN WELL-BEING

El Maghara, Northern Sinai, Egypt



Figure 1.5 Location map of El Maghara area with reference to the Middle East region

Source: UNEP



# Millennium Ecosystem Assessment

El Maghara SubGlobal Assessment, Northern Sinai, Egypt

- Home
- MEA concepts
- Resources
- Links
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- Contacts



## Ecosystems and Human Well-Being

- Introduction
- Assessment Methods
- El Maghara Ecosystem, Trends, Conditions and Impacts
- Local Knowledge: A Valuable Resource
- El Maghara Scenarios: alternative images of the Future
- Policy Responses: Moving Toward Sustainability

## Introduction

**Millennium Ecosystem Assessment (MA)** is an international initiative launched in 2001 to "assess the consequences of ecosystem change for human well-being." It also establishes the scientific basis for actions to enhance the conservation and sustainable use of ecosystems and their contributions to human wellbeing

[Read more](#)

## Assessment Methods

The sub-global assessments, of which this volume is one, a basic component of the MA initiative. They vary in their scale between community - based, national and regional. However, their aim is to meet the needs of users in the communities, countries or regions in which they were undertaken. Egypt's sub-global assessment, a part of the Arab Millennium Ecosystem Assessment, is a community-based assessment, conducted in the El Maghara area, North Sinai. A main objective of the assessment is to capture real life experience of changes in ecosystems and human well-being. The inhabitants of El Maghara area are among the poorest and least served in Sinai, and probably in Egypt. El Maghara also remains as one area in the whole of Sinai where pristine Bedouin culture and practices prevail. The area where the assessment was conducted has been exposed to severe environmental degradation and loss of natural resources. The area also lacks basic social, health, and other services. A key factor in the

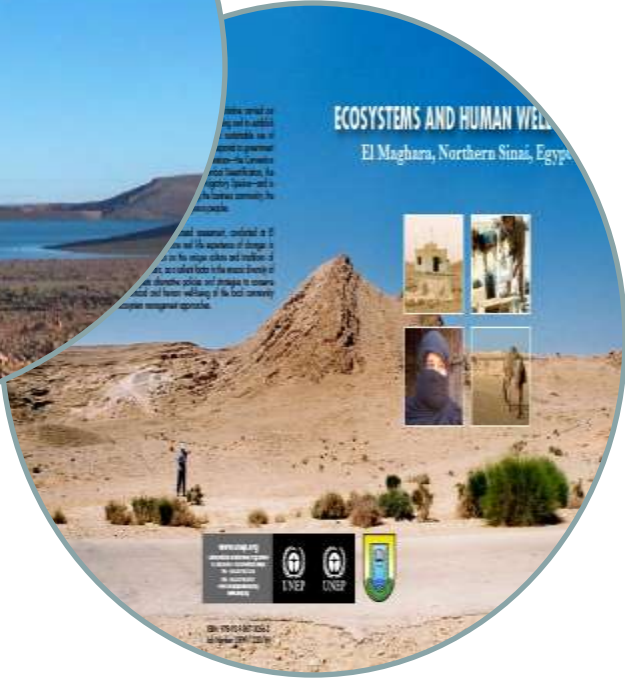
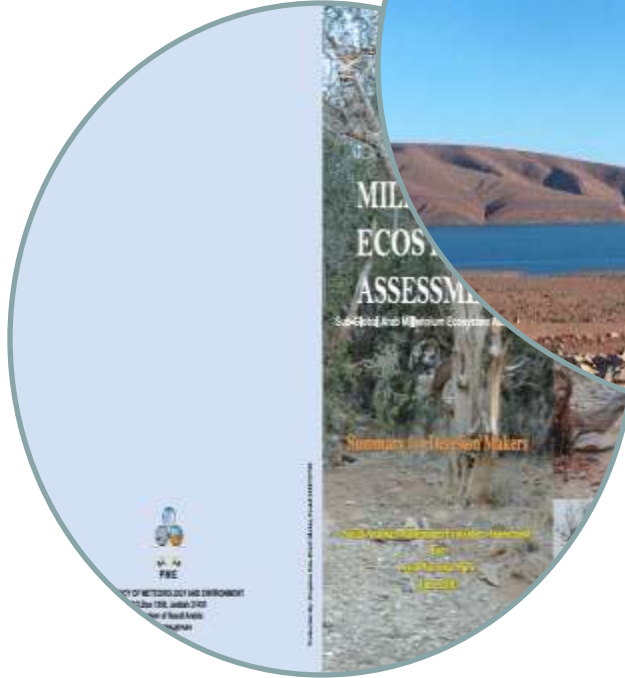
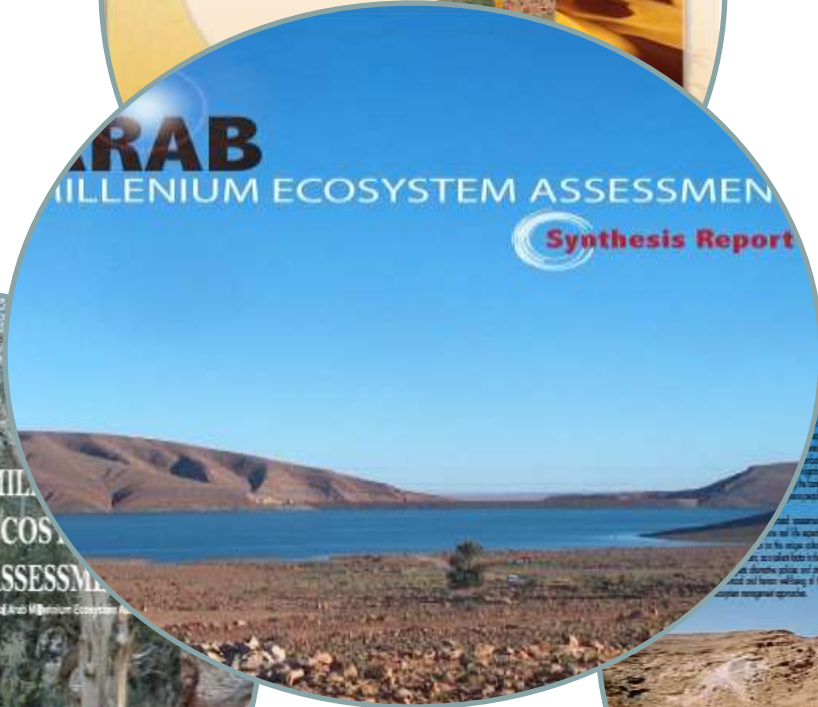
## MA Main findings

Over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fibre, and fuel. This has resulted in a substantial and largely irreversible loss in the diversity of life on Earth.

The changes that have been made to ecosystems have contributed to substantial net gains in human well-being and economic development, but these gains have been achieved at growing costs in the form of the degradation of many ecosystem services, increased risks of nonlinear changes, and the



UNEP





# التنبؤات البيئية الإقليمية

# Regional Environmental Alerts



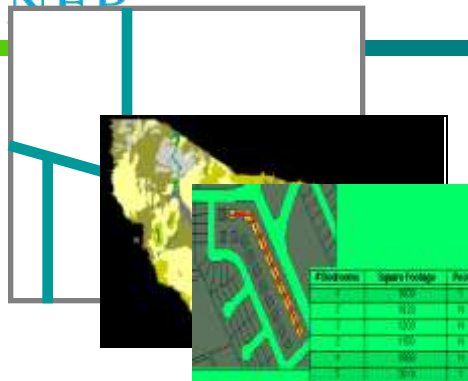


# التتبع الذكي للبيئة

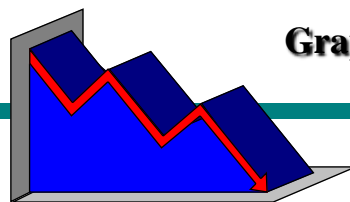
## Smart Environmental Tracking



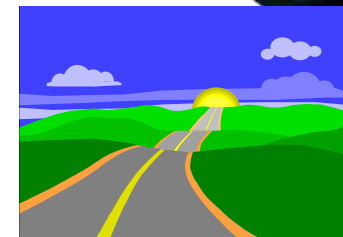
Maps



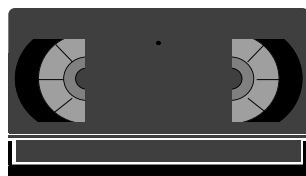
Graphs



Pictures



# Data, Indicators and Networks



Videos

Images



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| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
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## Sustainable Development Indicators for the Arab Region

### Guiding Principles and Methodologies

**September 2012**

United Nations Environment Programme (UNEP)  
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Website: [www.unep.org/rowa](http://www.unep.org/rowa)

Economic and Social Commission for Western Asia (ESCWA)  
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Website: [www.escwa.un.org](http://www.escwa.un.org)

League of Arab States (LAS)  
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Website: [www.arableagueonline.org](http://www.arableagueonline.org)

Abu Dhabi Global Environmental Data Initiative (AGEDI)  
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Website: [www.agedi.ae](http://www.agedi.ae)

مؤشرات التنمية المستدامة  
في المنطقة العربية  
في النسخة الأولى والمختصرة

## Sustainable Development Indicators for the Arab Region

### Guiding Principles and Methodologies






**September 2012**



# Arab Region Environmental Information Network





*eye on earth*

**ABU DHABI 2011 SUMMIT**

CONVENE | CONVERGE | COLLABORATE

# Special Initiatives



- Eye on Water Security
- Eye on Disaster Management
- Eye on Community Sustainability and Resiliency
- Eye on Oceans and Blue Carbon
- Eye on Biodiversity

- Eye on Access for All
- Eye on Environmental Education
- Eye on Global Network of Networks



Eye on  
**Global Network  
of Networks**



# UNEP Live

Building knowledge

Monitoring change

Designing solutions

Emerging issues

Global Network of Environmental Professionals & Entrepreneurs

## People

Organizations

Disciplines

Interests

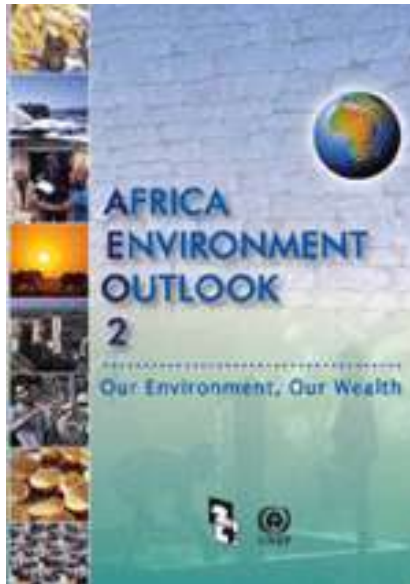
Cultures

Backgrounds

UNEP

Live

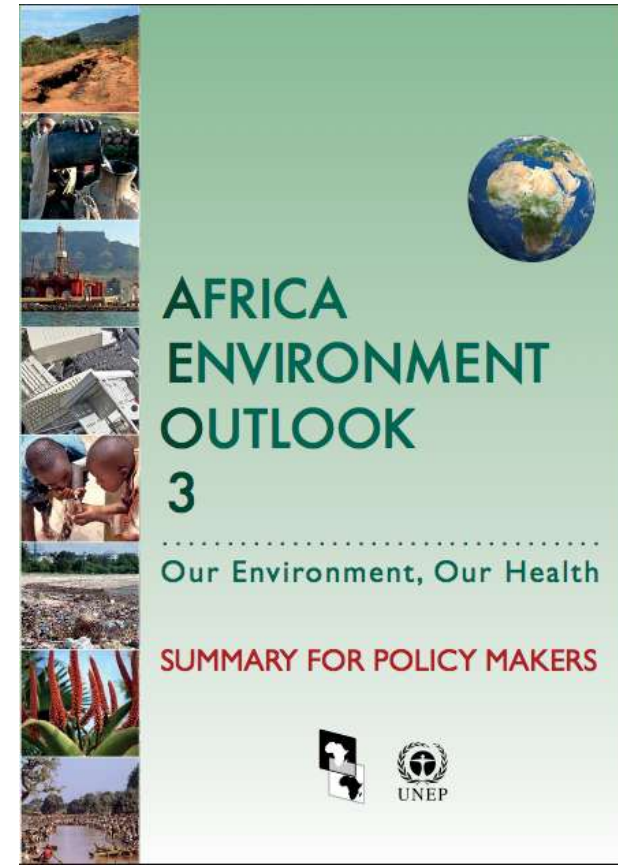
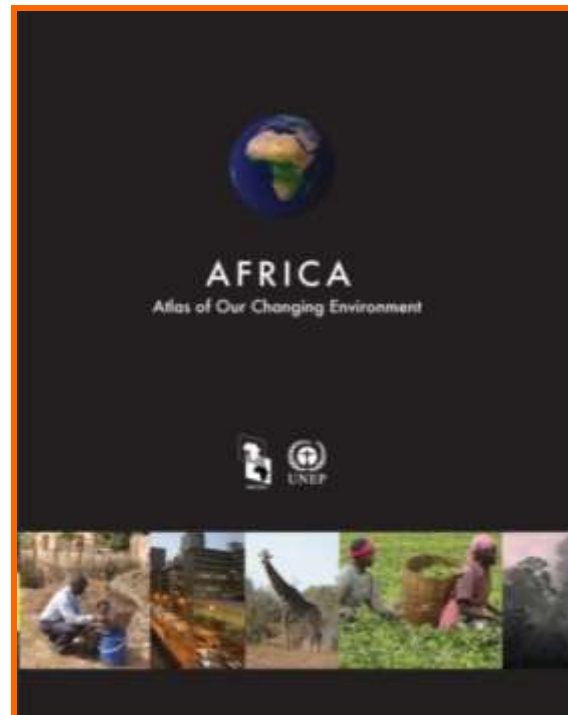
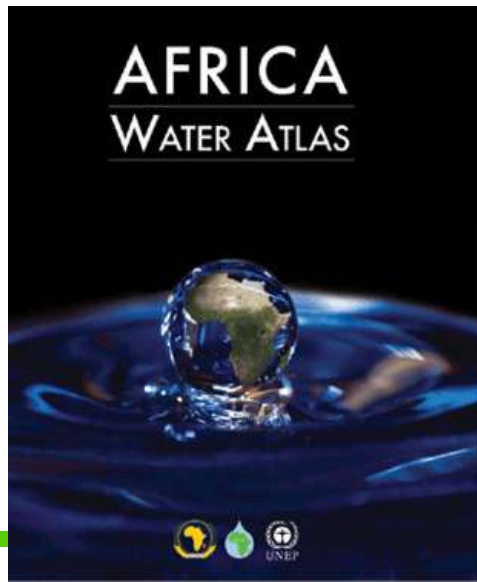
# Regional: Africa Environmental Outlook



# Africa Environmental Information Network

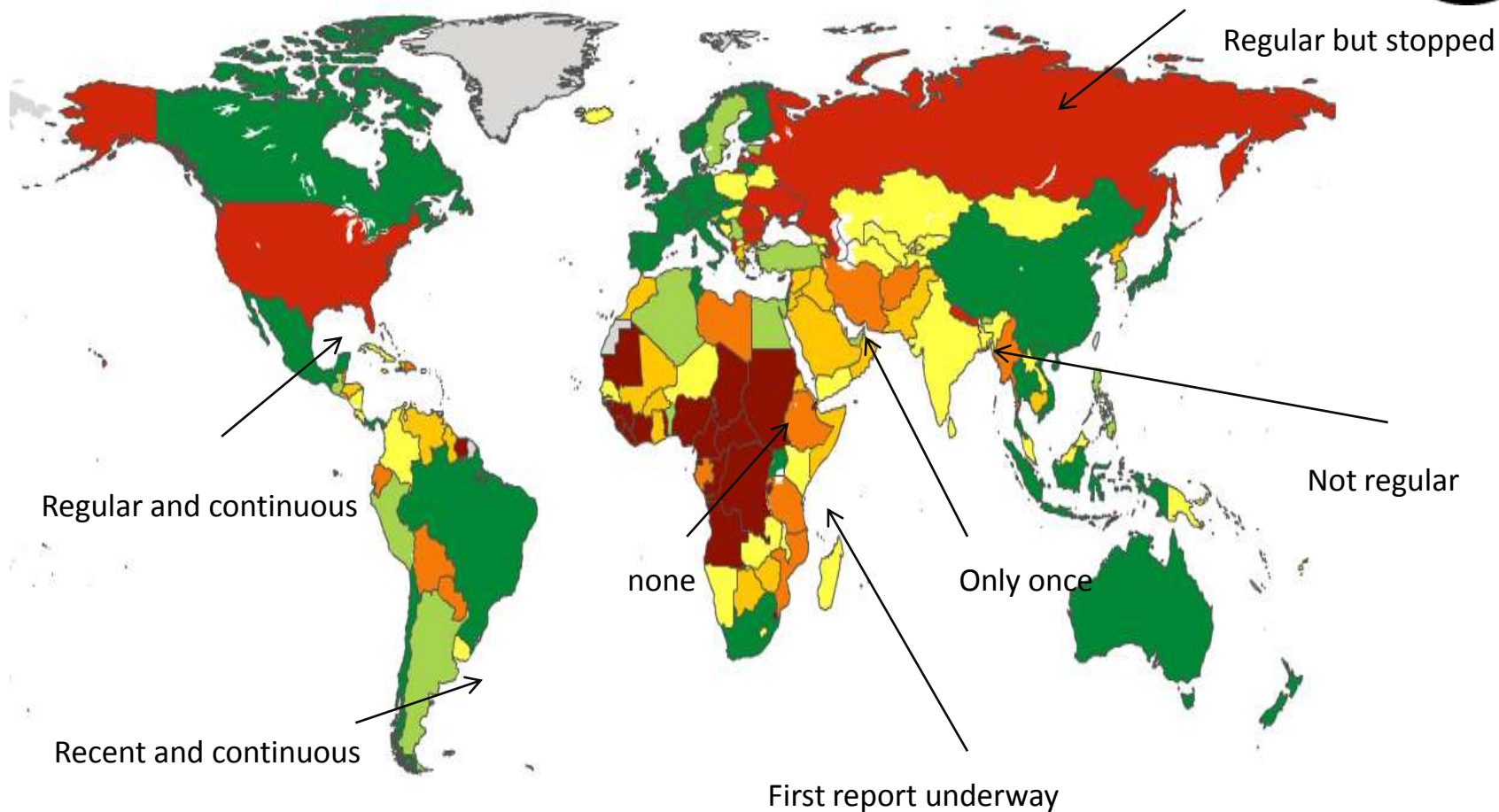


- Under development since mid-1980s and currently involves a total of 24 countries.
- Serves as a basis for developing national, sub-regional and regional-level products (Atlases, SoEs et al. see below) *plus regional inputs to GEOs.*
- From North Africa, Egypt, Libya and Morocco have already joined...



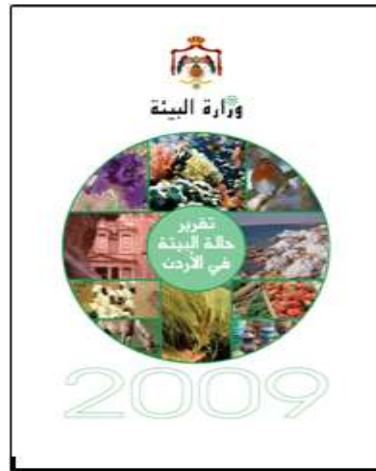


# Frequency of the National SOE Reporting Processes in 196 countries



**Twenty-fifth session of the Governing Council/  
Global Ministerial Environment Forum**  
Nairobi, 16–20 February 2009  
Item 4 (a) of the provisional agenda

# West Asia – the national SOE reporting perspective





# KSA

## STATE OF THE ENVIRONMENT REPORT (SOE)



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Lien 1

Lien 2

Portail Marocain de l'Environnement

Ministère de l'Energie, des Mines, de l'Eau et de l'Environnement  
Division de l'Observatoire National de l'Environnement

## Portail de l'Environnement du Maroc

Français | Contact | Aide | Admin

Le Portail d'Environnement du Maroc est la source de référence pour les **données** utilisées par le Ministère de l'Environnement du Maroc (REM) ainsi que dans d'autres processus intégrés d'évaluation de l'environnement de **500 variables différentes**: - statistiques au niveau national et sous-national - données géospatiales (cartes) - l'air, la population, les forêts, les émissions, le climat, les désastres, la santé et le PNB. Il est possible de les visualiser dans un **tableau** ou encore de les télécharger dans différents formats.

**18 month project in 2011/2012:  
Support for National Environmental Report,  
including IEA Training Workshops, guidance  
and adaptation of Global Environmental Data  
Explorer to National Environmental Data  
Portal for Morocco**

### Recherche dans la base de données EDE



Enter les mots à rechercher:

p.e. eau, forêt, population ou un nom d'un pays ?

ou utilisez un sous-thème

Toutes les Sous-Thèmes REEM

Recherche

ou utiliser la Recherche Avancée

### l'environnement en chiffre

#### Emissions de CO2

47'945 Tons Kilo



#### Zones Protégées

1.53 Pourcent



#### Capture de Poisson

880'443 Tons Métrique



#### pour commencer

tip galerie REEM  
tip tutoriel & mode d'emploi

#### liens

GEO archive de données  
centres de collaboration  
contact  
liste des données  
fournisseurs des données  
homepage de GEO  
tip indicateurs GEO  
new posters "Basic Facts"  
régions & sous-régions de G  
accord d'utilisateur  
services web  
Google Search

#### annonces

Entrer "Indicateur" dans la boîte de recherche pour visualiser les Indicateurs de Clé actuels.

2012-02-20

Nouvelles données ajoutées/mises à jour: Nappes Phréatiques

2011-12-07

Nouvelles données ajoutées/mises à jour: Population, Population Urbaine

...cliquer pour la suite...

...lire laide...

RSS



# National SOE reports in West Asia – ongoing and planned



## Current national level SOERs:

- Iraq
- Saudi Arabia



## Under discussion:

- Kuwait
- United Arab Emirates
- Bahrain
  
- Others upon request



# SOER – Abu Dhabi

AGEDI | GEO Portal | Eye On Earth

State of the Environment Abu Dhabi

HOME | Themes | Pressures | Goals & Indicators | Environmental Outlook



Click to view the Environment Outlook for Abu Dhabi

Home > Environment Outlook





## تقرير حالة البيئة لإمارة أبوظبي

### State of the Environment Abu Dhabi

بحث



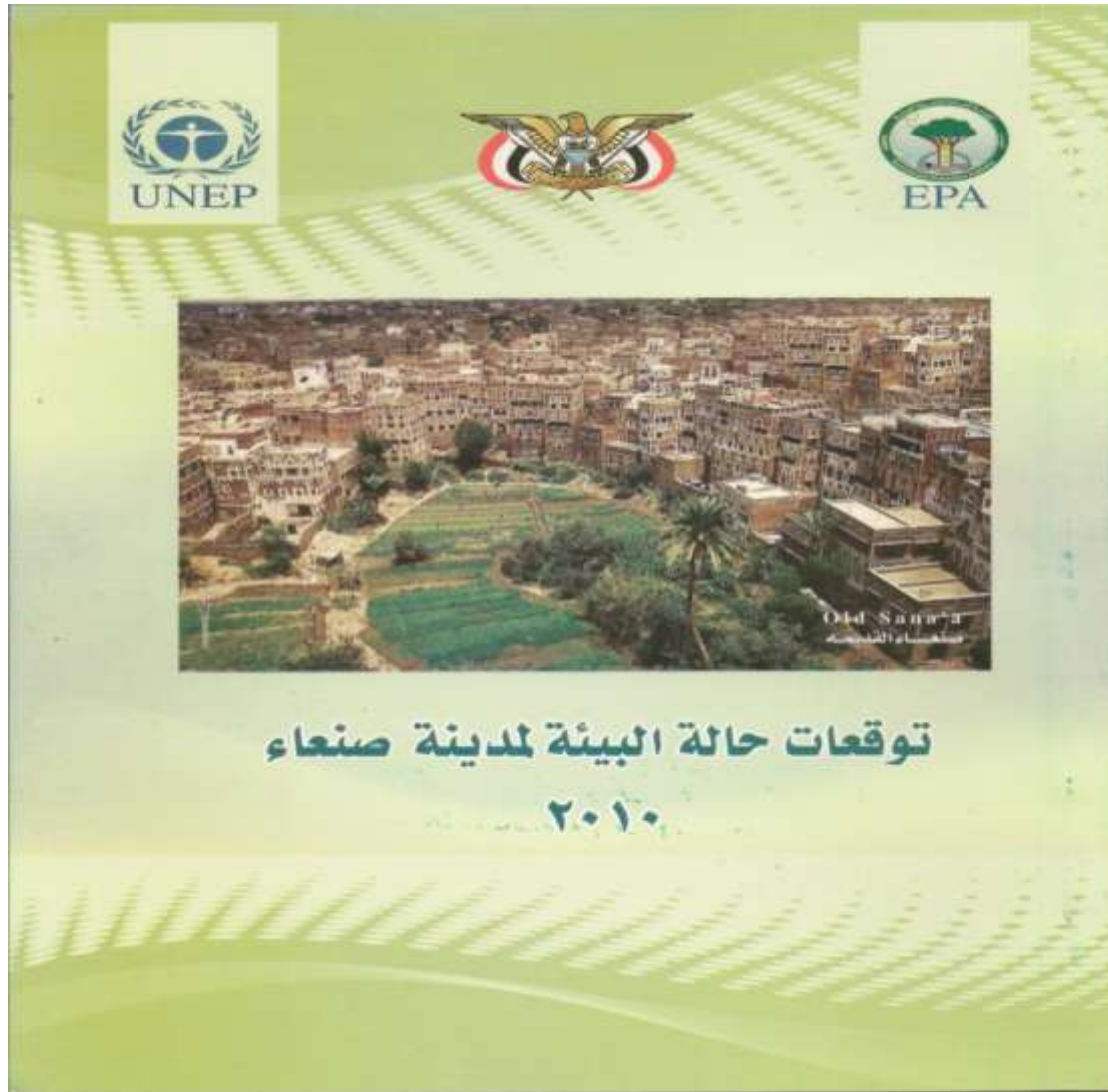
الوكالة البيئية - أبوظبي  
Environment Agency - ABU DHABI

مبادرة أبوظبي  
العالمية للبيانات البيئية



Zayed : A Determined Spirit

| المواضع المستفيدة   | الإدارة البيئية   | المؤثرات   | التنمية   | المواضع   |
|---|---|--|---|---|
| السيناريوهات<br>الأعمال المطلوبة<br>القضايا الرئيسية<br>حكايات نجاح | بناء القدرات<br>الإعلام<br>الاستجابة لحالات الطوارئ<br>الآطار المؤسسي<br>الاتفاقيات<br>نظم المعلومات<br>القوانين والقواعد التنظيمية<br>التقنيات | الغلاف الجوي<br>التنوع البيولوجي<br>الأراضي<br>البحرية<br>النفايات<br>المياه | الجغرافيا الطبيعية<br>الوضع الصحي<br>التنمية الاقتصادية<br>النمو السكاني<br>التجارة | المياه<br>الغلاف الجوي<br>التنوع البيولوجي<br>الموروث الثقافي<br>استخدامات الأراضي<br>الموارد البحرية<br>النفايات |





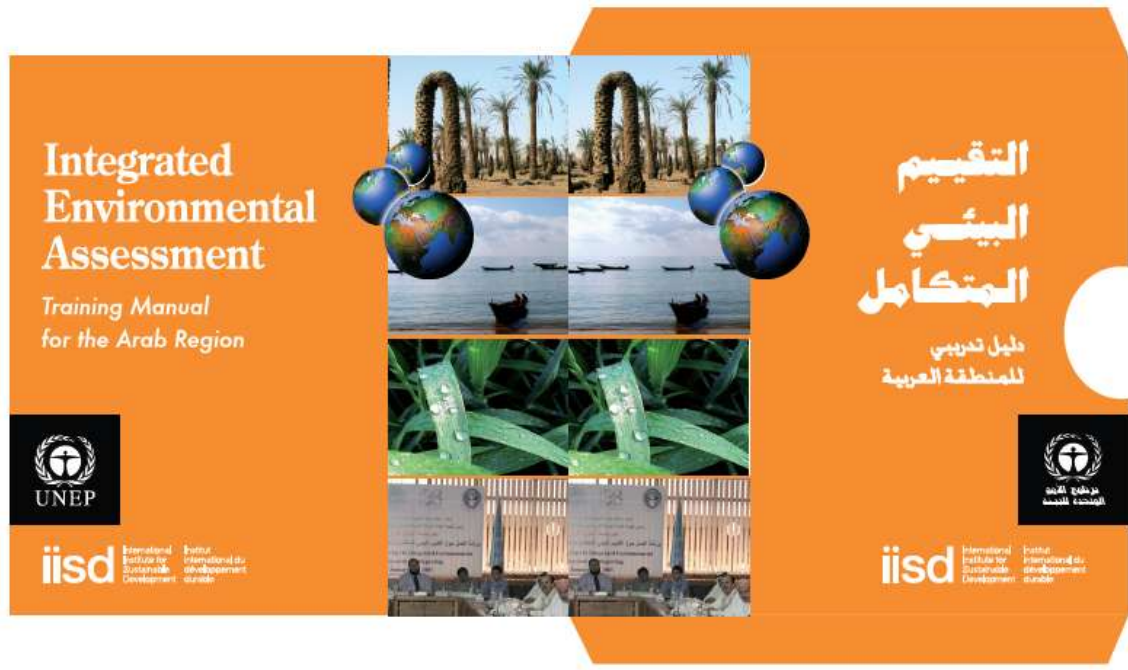
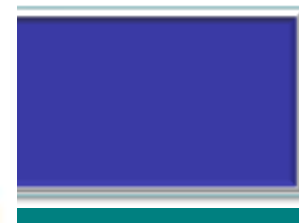
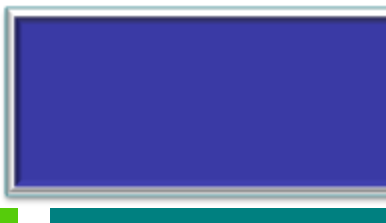


# Capacity building: Bali Strategic plan





UNEP

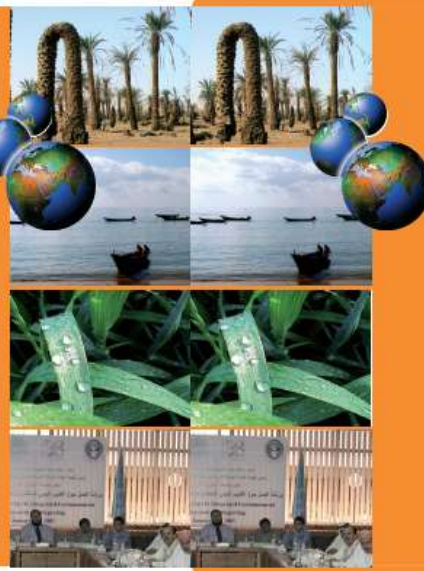


# Integrated Environmental Assessment

Training Manual for the Arab Region



iisd International Institute for Sustainable Development



# التقييم البيئي المتكامل

دليل تدريبي للمنطقة العربية



iisd International Institute for Sustainable Development



# دليل تدريبي على التقييم البيئي المتكامل للمنطقة العربية

|                          |                          |                          |                       |                       |  |
|--------------------------|--------------------------|--------------------------|-----------------------|-----------------------|--|
| <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">ebook</a> | <a href="#">ebook</a> | الوحدة التدريبية رقم 1: نهج توقعات البيئة العلمية نحو التقييم البيئي المتكامل                              |
| <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">ebook</a> | <a href="#">ebook</a> | الوحدة التدريبية رقم 2: تصميم عملية التقييم البيئي المتكامل الوطنية وتنظيمها                               |
| <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">ebook</a> | <a href="#">ebook</a> | الوحدة التدريبية رقم 3: وضع استراتيجية تأثر لتقييمك البيئي المتكامل  |
| <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">ebook</a> | <a href="#">ebook</a> | الوحدة التدريبية رقم 4: الرصد والبيانات والمؤشرات  |
| <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">ebook</a> | <a href="#">ebook</a> | الوحدة التدريبية رقم 5: التحليل المتكامل للاتجاهات والسياسات البيئية                                       |
| <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">ebook</a> | <a href="#">ebook</a> | الوحدة التدريبية رقم 6: وضع السيناريوهات وتحليلها  |
| <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">ebook</a> | <a href="#">ebook</a> | الوحدة التدريبية رقم 7: مياغة مخرجات اتصال من خلال التقييم   |
| <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">ebook</a> | <a href="#">ebook</a> | الوحدة التدريبية رقم 8: الرصد والتقييم والتعلم - من أجل تحسين عملية التقييم البيئي المتكامل وزيادة تأثيرها |
| <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">Download</a> | <a href="#">ebook</a> | <a href="#">ebook</a> | الوحدة التدريبية الخاصة بتقييم قابلية التأثر - تقييمات قابلية التأثر والتكيف لتغير المناخ                  |



**UNEP** **L i v e**  
OUR CHANGING ENVIRONMENT: PLACE BY PLACE

# What is UNEP Live?

**An UN system-wide open platform of environmental information designed for global, regional and national data sharing and assessment**



# UNEP

# Live

OUR CHANGING ENVIRONMENT: PLACE BY PLACE

To facilitate:

streamlined exchange and sharing of up-to-date data, information, assessments and knowledge amongst UNEA member countries, research networks, communities of practice, major groups, indigenous peoples and civil society

enlarging the knowledge base for global environmental policy through community and mesh networking and strengthened assessment methodologies

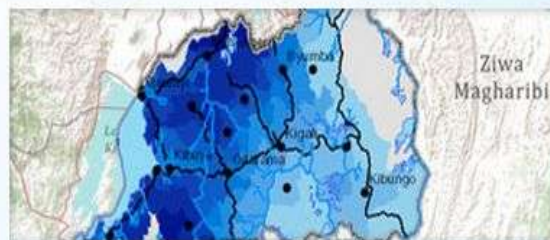
global efforts to build capacity in knowledge management



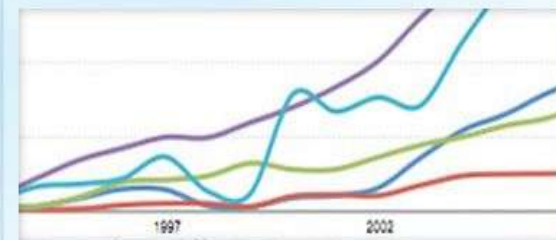
## Find Reports »



## Find Maps »



## Find Indicators »



## Identify Emerging Issues »



## Track State of the Environment Live »



Partners



European Environment Agency





## Environmental Data Explorer

The Environmental Data Explorer is the authoritative source for **data sets** used by UNEP and its partners in the Global Environment Outlook (GEO) report and other integrated environment assessments. Its **online database** holds more than **500 different variables**, as national, subregional, regional and global statistics or as geospatial data sets (maps), covering themes like Freshwater, Population, Forests, Emissions, Climate, Disasters, Health and GDP. Display them on-the-fly as **maps, graphs, data tables** or download the data in different formats.

### search the EDE Database



Level: **All** National Subregional Regional more »

**Enter words to search for:**

e.g. water, forest, population or a country name ?

or use a data category

All GEO Subthemes

**Search**

or use the [Advanced Search](#)

*see: [geodata.grid.unep.ch](http://geodata.grid.unep.ch)*

### the global environment in numbers

#### Consumption of ODS

**45745** ODP Metric Tons



#### Marine Aquaculture Production

**19393462** Metric Tons



#### Protected Areas

**11.88** Percent





United Nations Environment Programme  
environment for development

Google Custom Search



LATEST: Tanzania. 2012 Annual rainfall patterns for Mwanza and Dodoma < >

UNEP Live Bulletin

# UNEP Live

OUR CHANGING ENVIRONMENT: PLACE BY PLACE

SELECT

COUNTRY / REGION

THEME



GO

SEARCH



My UNEP Live

About Us | Contact Us | Help







## MyCountry

Combines the most up-to-date information taken directly from the national provider with UNEP's assessments, reports and analyses

Users can access:

- Country profiles
- Maps and satellite imagery
- Core sets of indicators of environmental performance
- Links to national website
- Access to other data providers
- Simple comparative toolkits
- Search for related publications

UNEP Live

SEARCH

Last updated: 00:00 GMT

## Country Profile: Kenya

### Summary

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

MY COUNTRY INDICATORS

Renewable Energy Supply Index

Renewable Energy Supply Index

Intensity of CO2 from Fuel Sub.

DOWNLOAD DATA DATA SOURCES / METHODOLOGY

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Follow UNEP

## Country Profile

- From a dashboard of indicators, users can select a set and visualize them using different methodologies
- Countries can be added for comparative analysis
- Data are drawn from the EDE, national and regional bodies
- Options to compare countries and regions with global data

### Country Profile: Kenya





# Dashboard of Core Indicators

While clear goals, concrete numerical targets and solid data are often lacking, a general snapshot of the global environment and of progress towards environmental sustainability is presented here through a dashboard of key environmental indicators. Together these show at least the direction in which changes are taking place at global, regional and local levels. However, for several issues, even the most basic data are not available for most parts of the world, in order to be able to depict consistent and long-term trends, such as for the use of chemicals, waste collection and treatment, air quality and land degradation.

## Select a Theme



Atmosphere



Biodiversity



Chemicals & Waste



Governance



Land



Water

Deforestation rate  
Forest harvest rate  
FSC certification

The set of key indicators in the 'dashboard' correspond to major environmental themes: atmosphere, land, water, biodiversity, chemicals & waste and environmental governance. Click below on the global summary, or on any of the icons for more details - from the global down to the national level.

## Summary of Key Environmental Trends





# UNEP

# Live

OUR CHANGING ENVIRONMENT: PLACE BY PLACE

## MyUNEPLive

- **Access to data** and ability to build communities for **Open Access reports, data, articles**
- **Explore** interactive maps and data
- **Contribute** your environmental data and observations/geo-spatial content to share with others
- **Create** customised e-books and products and share them with others
- **Citizen Science platforms:** collect and compile environmental data from diverse sources and transform that data into relevant information

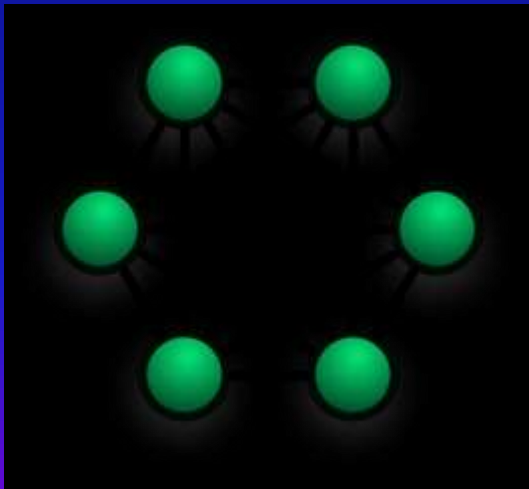




**Rapid  
assessments**



**Mesh  
networking**



**Open access research  
communities**



**Dynamic  
translation**

**Collaboration and co-operation**





# UNEP Live

OUR CHANGING ENVIRONMENT: PLACE BY PLACE



### Citizen Science - Watches



### Twitter Commentary



### Sharing Video



### Sensor webs



### Communities



### Social media integration



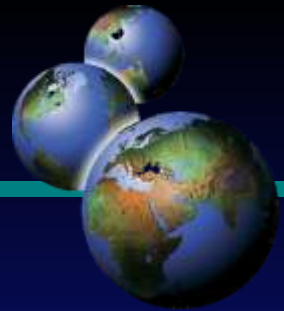
### Japan Earthquake

### Open access research



### OpenAIRE

Engaging Researchers & Citizens – social media integration



understanding sustainability & prosperity

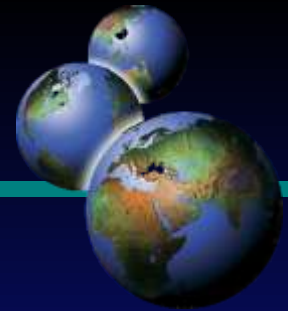
transforming responses to change

building collective intelligence

creating a regenerative economy



# Tracking Development

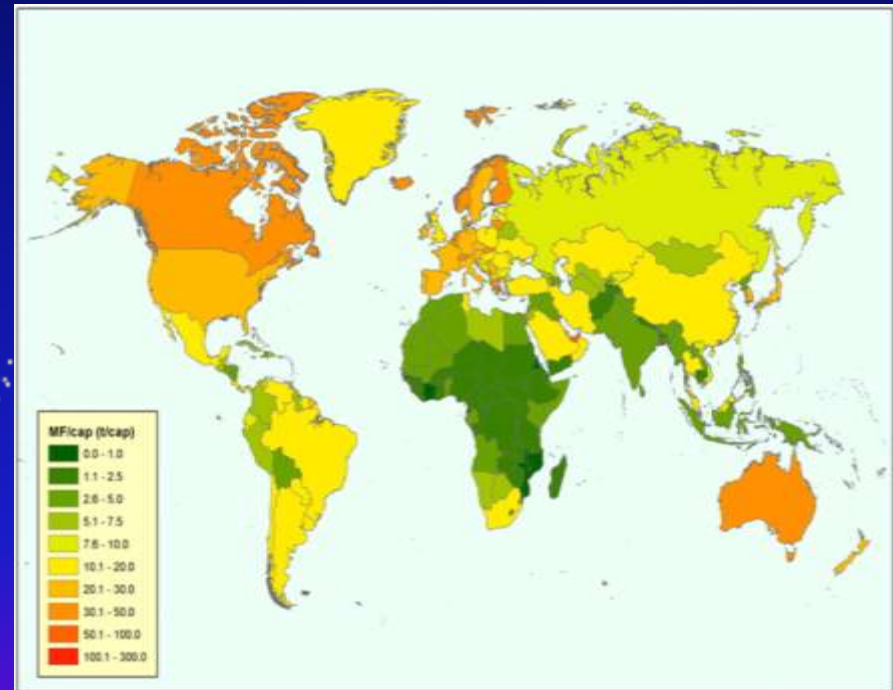


Human Development Index 2013



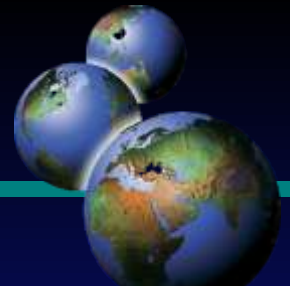
UNDP 2013

Material Footprint per capita 2008



Wiedmann et al. PNAS 2013





# Science policy perspective



## Resources.



Energy



Materials



Land Use



Climate



Eutrophic

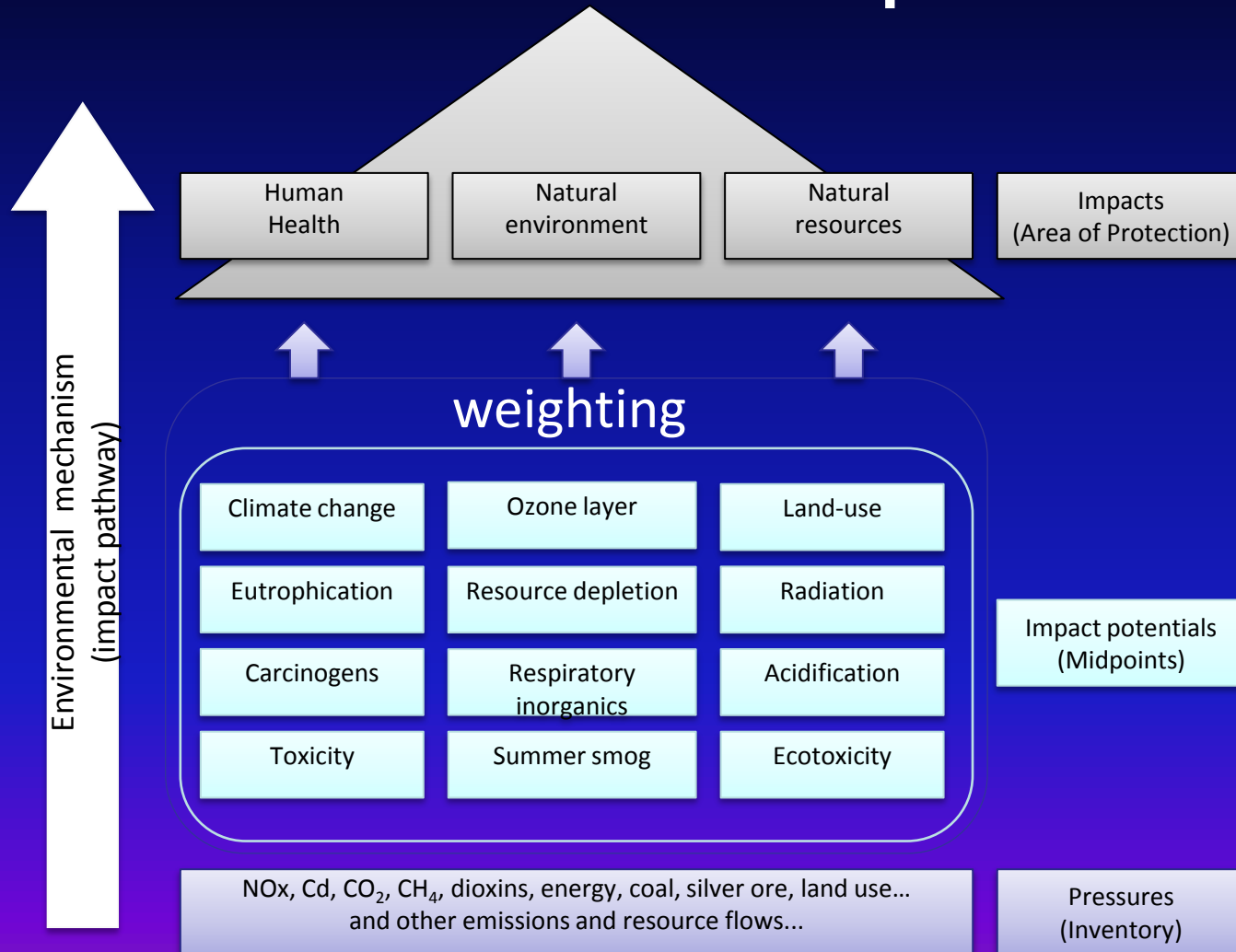


Toxic Pressure

to protect, conserve and enhance **Natural Capital**

life cycle thinking as fundamental to sustainable development

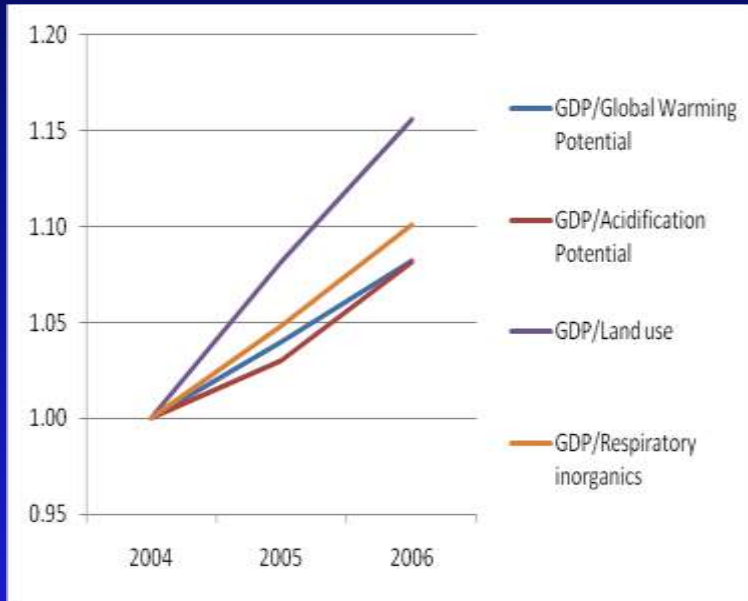
# Measuring overall environmental impacts



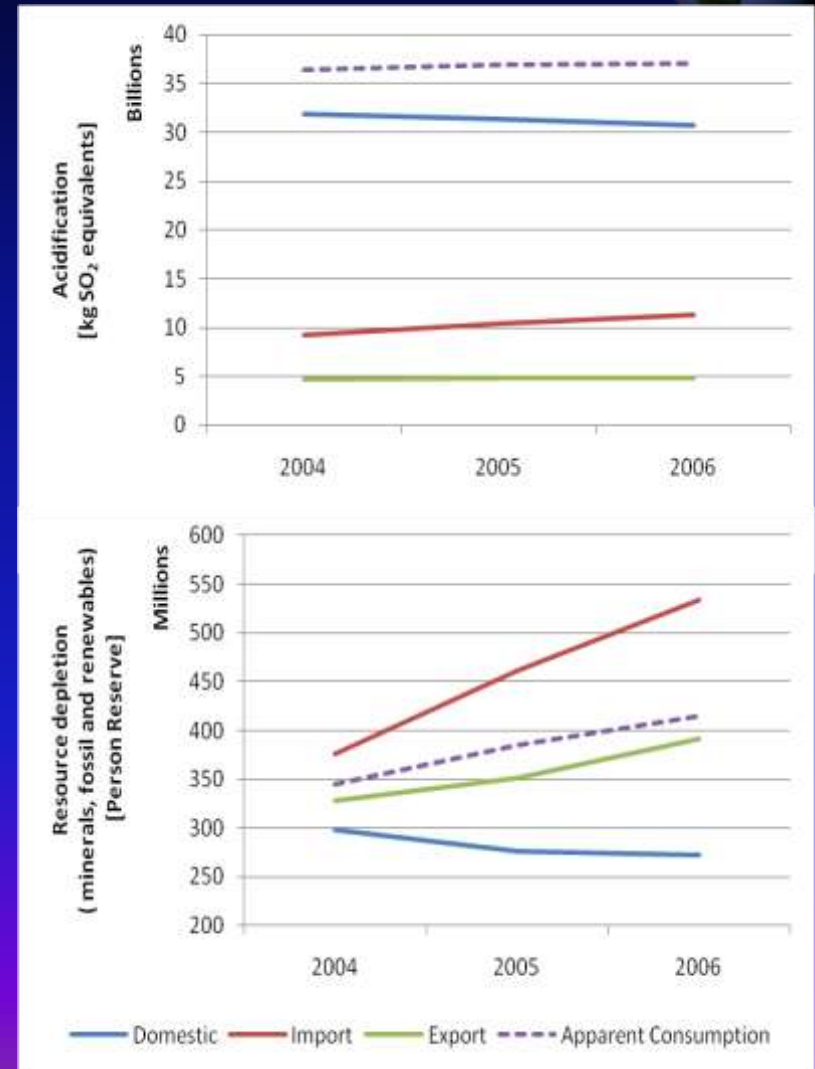
# Tracking progress: Eco-efficiency & Decoupling



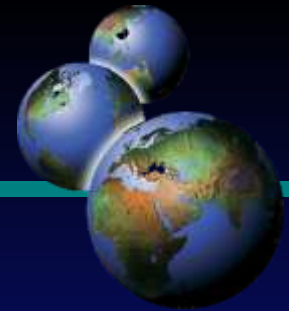
EU27 is decoupling growth from emissions



..but shifting overseas impacts of emissions and resource use



# Spatial analysis of natural capital

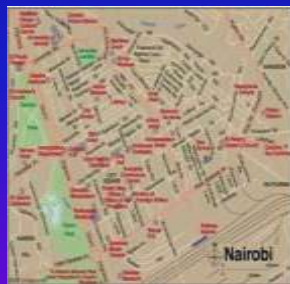


Global level data – e.g. satellite data on land use

Data consistency and comparability



Ecosystem Capital Water Accounts will operate at river basin level



Local level data at 1km<sup>2</sup>, collected by local administrations



# Responses to change are emerging everywhere



**Sand motor' beach replenishment, Ter Heijde, Netherlands**



**Campaign to prevent insect-borne diseases, Emilia-Romagna, Italy**



**New grape variety research, Spain**



**Restoration of the Danube, Kalimok marsh, Bulgaria**



**Peatland restoration, Lough Boora, Ireland**

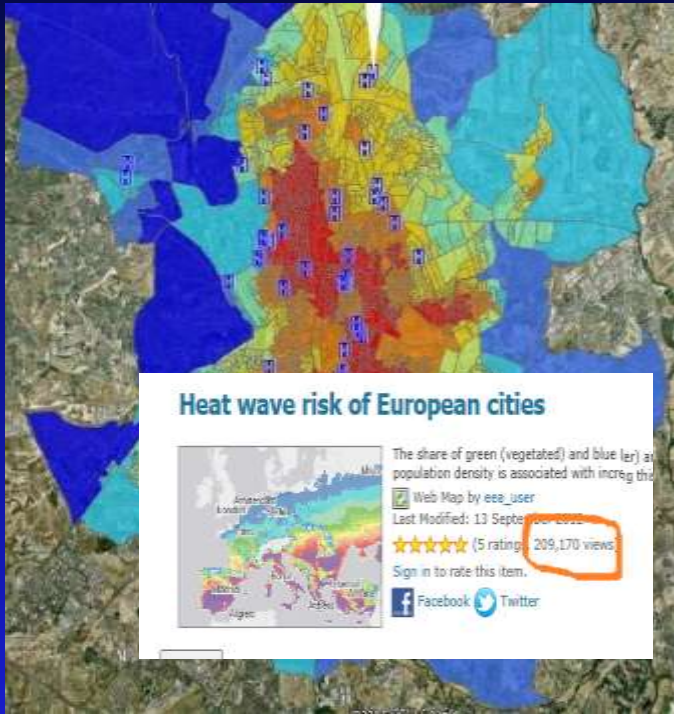


**Cantonal Insurance Monopolies, Switzerland**

# Social intelligence: redefining



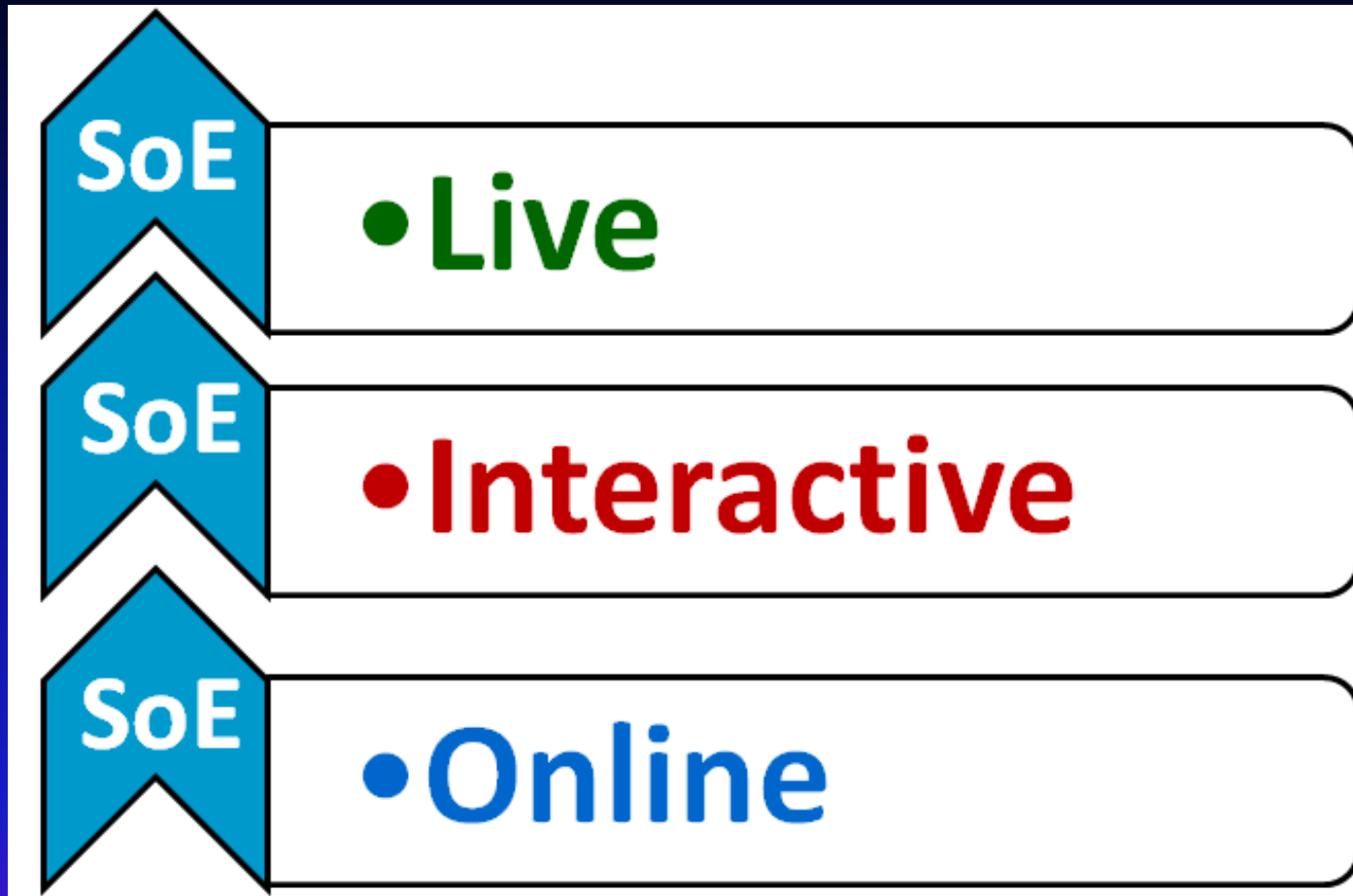
needs



*EU cities adapt project*  
<http://eucities-adapt.eu>

More efficient  
use of water

# Different types of digital SOERs



The Vision – to migrate towards  
the SOE-Live approach



PROTOTYPE

## UNEP Live

Tracking the State of Our Environment

Current state of ...

Atmosphere

Biodiversity

Chemicals & Waste

Land

Water

Welcome to the UNEP Live gateway on the state of the global environment: SOE-Live!

Here you will find the up-to-date information, based on scientifically credible findings of UNEP assessments, organized across the domains of atmosphere, biodiversity, chemicals, land and water.

The content of SOE Live is created, maintained and regularly updated in collaboration with interdisciplinary experts and UNEP Live communities of practice.

[Search SOE Live](#)





Thank  
You