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Policy issues: state of the environment

Overview of environmental assessment landscape at national level: State of state-of-the-environment reporting

Note by the Executive Director[1]

Summary

The annex to the present note contains addition information on matters referred to in document UNEP/GC.25/4/Add.1 on the international assessment landscape. The annex presents an overview of the environmental assessment landscape at the national level in 196 countries and territories.

It has been issued without formal editing.

* UNEP/GC.25/1.

1 The designations employed and the presentation of the material in this report do not imply the expression any opinion whatsoever on the part of the secretariat of the United Nations Environment Programme concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

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Annex

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OVERVIEW OF THE ENVIRONMENTAL ASSESSMENT LANDSCAPE AT NATIONAL LEVEL

The state of state of the environment reporting

INTRODUCTION

1. Agenda 21, in its chapter 40 on Information for Decision-making, called for improvement in data collection and use, the development of indicators of sustainable development, and the production of information usable for decision-making. While some countries began environmental assessments twenty years earlier, the adoption of Agenda 21 in 1992 encouraged all countries to develop national assessment processes to allow them to measure their progress in environmental management and sustainable development. One typical product has been what is often called a state of the environment (SOE) report, and this term is frequently enshrined in national legislation.

2. Traditional State of Environment reporting provides information on the biological and physical environment and trends in key environmental variables (UNEP/IISD 2007). However the concept has evolved and broadened over the years. In particular, the growing concern for sustainable development called for reports that covered economic and social as well as environmental dimensions. UNEP has led the development of Integrated Environmental Assessment (IEA) that links the analysis of environmental state and trends with policy analysis; incorporates global and sub-global, and historical and future perspectives; covers a broad spectrum of issues and policies; and integrates the consideration of environmental change and human well-being (UNEP/IISD 2007). Since many national assessments and reporting processes have followed this evolution, this review considers all reports with a significant environmental component within the general heading of state of environment reporting, regardless of the precise title and methodology used.

3. Now, more than 15 years after Rio, it is appropriate to make a critical in-depth review of integrated and thematic environmental assessments undertaken by countries from 1992 to 2008 to keep their national environmental situation under review. How successful has the assessment and reporting process been at the national level? What lessons can be learned to guide future action? Are there examples of effective reporting that can serve as models for other countries? This review aims to distil the experience of many countries in a form that can be beneficial to all of them.

4. This document contributes to the response to *Decision SS.X/5: Global Environment Outlook: environment for development, Para. 7(b)* requesting the Executive Director to present an overview of the international environmental assessment landscape, identifying possible gaps and duplications, in close cooperation with multilateral environmental agreements and other United Nations entities.

METHODOLOGY AND LIMITATIONS

5. This review focuses on assessment processes at the national and also sub-national levels, since some countries have decentralized the process to provincial, state, district, watershed or even local levels. It considers assessments produced under a national mandate which may be legal, administrative or based on voluntary guidance. In a few cases, comparable assessments by scientific or non-governmental organizations can also make a significant contribution to a national assessment process, and these are included where appropriate.

6. There has never been a complete inventory of national environmental assessments since 1992 on which a comprehensive review could be based, so this is only a first attempt to identify and collect all national State of the Environment (SOE) reports. It is particularly difficult to identify earlier reports published only in hard copy and often with limited distribution, those issued only in the local language, and those not accessible through an Internet search. The European Environment Agency has attempted through its State of Environment Report Information System (SERIS) to inventory SOE reports within Europe, but even this is not complete. Only the Secretariat of the Pacific Regional Environment Programme (SPREP) has developed a relatively complete collection of country profiles and national reports from its region. UNEP has set up PEARL (Prototype Environmental Assessment and Reporting Landscape) http://www.unep.org/pearl "to provide governments and the international community with a comprehensive overview from both a thematic and geographic perspective of the various environmental assessments completed or being undertaken globally." However filling the system with content will be a long process and is far from complete. That said, the content of PEARL provided the starting point for this study, and has in turn been enriched by it.

7. This review has considered information that could be obtained about 196 countries including the full United Nations membership. This covers countries in various parts of the world and at different stages of development that illustrate the challenges and successes of state of the environment reporting. It still falls short of being a complete

review of national SOE reporting. The classification of countries on the list only reflects information on their SOE reporting process available to UNEP up to November 2008. About 1700 SOE reports were inventoried for this review, and over 1200 were individually examined, but many were probably missed because they were published long ago, or only in printed form or as sales publications, or in languages that are not easily searched on the Internet, or were otherwise unavailable. Africa is particularly under-represented, but it is not clear if this reflects a low level of SOE reporting or the poor quality of web sites and electronic document access in Africa. Nevertheless, the country coverage is not complete, this review is based on a significant proportion of countries and reports, giving weight to the lessons that can be learned from the reports produced.

8. Environmental reporting is much less well developed than, say, economic reporting, and governments are still learning how to do it. Where a country has established a regular and continuing SOE reporting process, it can be assumed that it finds this useful. Evidence of changes in the nature, size and frequency of the reports themselves helps to document the learning process as reporting becomes more user driven and effective. This study found only two countries that have published reports evaluating the SOE process itself: South Africa commissioned an evaluation of the effectiveness of its 1999 SOE report in preparation for its 2006 report (South Africa 2005), and in 2001 Canada prepared a future vision for SOE reporting (Canada 2001). This review aims to analyze national experience to date and to identify trends across many countries in order to identify lessons learned and highlight some best practices that can be useful to other countries in designing or improving their own national SOE reporting.

PART 1 - GLOBAL OVERVIEW AND EVALUATION OF SOE REPORTING

9. Reports on environmental issues fall into two broad categories: those intended primarily for internal use to guide decision-making for sustainable environmental management and public information, and those directed externally to report, for instance, on how a country is meeting its obligations under multilateral environmental agreements, to inform decision-making at international conferences, or to attract donor support. An intermediate use is reporting in support of the UN Development Assistance Framework (UNDAF) where a clear definition of environmental problems and priorities can help to focus donor support where it is most needed. The full range of such reports is included in this review, as the assessment processes are often the same, or at least overlapping, even if the form of the reports is very different for each audience.

10. Two key purposes of national State of the Environment (SOE) assessment-based reports for internal use are to foster the use of science in policy- and decision-making and to fulfill a government's obligation to the public to report on the state of their environment (Canada 2001). This obligation is often incorporated in national legislation, as well as in international agreements such as the Aarhus Convention (see http://www.unep.org/pearl/Browse/Menu.aspx for an Overview of National Mandates Governing Environmental Assessment and Reporting). A national SOE assessment process should produce reports that meet these purposes as effectively and economically as possible.

11. An environmental assessment process is one of the principal ways that scientific advice is compiled, organized and focused on government policy and decision-making. A nation's environment is the physical setting where its population lives and within which its development takes place. A quality environment is fundamental to human well-being. Governments have learned that environmental damage can put their people at risk and negate efforts to raise their standard of living. As development becomes constrained by environmental resource limits, achieving sustainability becomes essential to a nation's future. Scientific data and credible analysis are an inescapable requirement for effective policy-making. The best-laid development plans and sustainable development strategies are of little use if there is no way to measure their implementation through monitoring and the use of science-based indicators. Hence a well-conceived and efficient environmental assessment and reporting process is today an essential component of good governance.

12. The Canadian government went to considerable effort to prepare a coherent vision for SOE reporting and this can serve as an international model. It included the minimum criteria for an SOE report based on international practice. In summary, they are as follows:

    With respect to content, SOE reports should:

    - state and define a broad public policy question (a public concern);
    - provide an overview of the most current scientific understanding on the issue in question; examine the key trends within the issue and, where applicable, cross links with other issues, and the significance of those trends; describe the efforts of governments, industry, and others in addressing the issue of concern;
    - include the scientific responses to the policy question, as part of its analysis and in its executive summary or highlights section;

- include the indicators that track key trends in the issue being addressed, making use of relevant existing national environmental indicators; and
- include an analysis of environment-related changes since the last assessment, if applicable.

With respect to presentation, a SOE report should:

- include a concise executive summary or highlights section that outlines the key findings of the assessment and can be easily understood by the non-scientist (i.e., uses plain language);
- make reference to appropriate monitoring programs that are the source of ecological data, support the indicators, and provide information for answering policy questions; and
- document the contributors to, and reviewers of, the report.

Summary or overview SOE documents should be written in a non-technical manner that non-specialists can understand. (Canada 2001)

A. OBJECTIVES

13. Within the two main purposes of guiding policy-making and informing the public, it is possible to define some more explicit objectives or functions for SOE reports at the national level against which actual practice can be measured.

14. Environmental assessments provide scientific information for decision-making and planning. They help to identify problems and monitor environmental trends and provide early warning of emerging issues. They provide the basis for setting priorities depending on the level of threat, the speed of change and the relative costs and benefits. They are often required as a basis for reporting on international commitments to multilateral environmental agreements (MEAs). They can help to determine the costs of inaction and the loss of ecosystem services.

15. By providing governments with the scientific basis for environmental management, they help a country to protect its citizens from the economic, social and health impacts of pollution and environmental degradation. They should thus be an essential component of a government's information system for decision-making.

B. CRITERIA FOR EVALUATION

16. The Global Environmental Assessment Project (http://www.hks.harvard.edu/gea/index.html) identified a set of criteria for evaluating state of the environment assessments, including scientific credibility, policy relevance (salience), communication, legitimacy and usefulness. This review has attempted to use these criteria in its evaluation of national reporting. However, a review based only on the evidence of the reports themselves cannot go very far in the absence of further data, direct in-country experience, and research on user responses. This section discusses each criterion, how it was applied in this review, and what would be needed to take such an evaluation further. Metadata relevant to these criteria were either entirely absent or too variable and inadequate to rank each of the reports inventoried by all of the criteria, but they were used more qualitatively in the appreciation of the overall assessment processes. Some criteria are also contradictory. For instance, the features required for scientific credibility may make a report less useful for policy making or reduce its ability to communicate to the general public. This is one factor that has led to multiple outputs from an assessment process responding to different criteria. In such cases, the evaluation is best applied to the process as a whole.

Scientific credibility

17. Scientific credibility is strengthened when the authors are recognized scientists or government experts in each field being assessed, the data are sufficient and statistically significant, sources are documented, the report has been subject to peer review, and there is independence from political processes. National SOE reports are more scientifically credible if they list a large number of authors, include or refer to data tables, describe the consultation and review process leading to the final report, and include a substantial bibliography.

Policy relevance

18. The primary purpose of national SOE reporting is to serve as a guide to government action on environmental protection and management. Features that serve as indicators of policy relevance are:
    a. a national legislative mandate for SOE reporting;
    b. delivery of the report to the head of government, the cabinet or council of ministers, the legislature, or some other high policy-making body;
    c. use of the report as the basis for a government white paper or other policy document;
    d. responding to an international obligation to a regional organization or under an international convention.

Communication

19. A review of many SOE reports quickly illustrated various criteria for effective communication:

    e. *Size*: a 700 page report may look impressive in a bookcase, but who will have time to read it? It is a reference work for experts. On the other hand a 20 page national SOE report, or a few paragraphs per topic on a web site, can only be superficial. There seems to be convergence on 50-100 pages including numerous graphics and tables as a reasonable size for SOE reports.

    f. *Format*: The early SOE reports were often masses of dense text and data tables which would put off all but the most determined readers. Many reports are now full of colour graphics, maps and photographs, and some have very impressive graphic layouts that make them both attractive and effective in communicating complex information. UNEP/GRID-Arendal is a pioneer and leader in graphic communications of SOE information, based on its research on the impact of reporting formats (GRID-Arendal 2001, 2005).

    g. *Availability:* A report can only communicate to those who can obtain and read it. Printed reports with limited circulation will have little impact. The internet has completely transformed the potential availability of SOE information as demonstrated by this survey, but it requires well-designed web sites with SOE reports clearly featured, links that work, documents without defects, and files of a reasonable size. A surprising number of national SOE reports were in fact unavailable because of technical problems, web site redesign or poor design.

    h. *Accessibility:* A report can only communicate if it is in a language the user understands, with a normal vocabulary, concepts that are readily understood, and describing situations the user can relate to and ideally do something about. Multilingual countries need to consider multilingual versions of their SOE reports. There are some excellent examples of SOE reporting for the general public, and some especially targeted at youth, such as GEO Youth reports in Argentina, Mexico and Uruguay. New Zealand has even encouraged a SOE process for the Maori people in their own cultural context. In Spain, the Basque region issues its own SOE reports in Basque.

Legitimacy

20. An SOE reporting process acquires legitimacy through such things as stakeholder involvement in its design and review, the inclusion of local experts and traditional knowledge of the environment, and reflecting different gender perspectives. The more people buy into a process and see it as their process responding to their needs and concerns, the more they will pay attention to the results and take action or change their behaviour accordingly.

Usefulness

21. Obviously the purpose of any report is to be useful, have an impact and produce positive results. However this is impossible to measure through the report itself, and can really only be determined objectively through independent surveys and research among users. This review only uncovered one government attempt to measure the usefulness of a SOE report, that of South Africa for its 1999 SOE report (South Africa 2005). This review has only been able to judge usefulness through the evolution of the national assessment process itself Many countries have modified the size, scope, frequency and format of their reports over time, presumably to increase their impact and use. The fact that more than half of the countries surveyed are maintaining a more or less regular SOE reporting process is itself a demonstration that they find it useful. It would be interesting in the future to explore in more detail why some countries abandoned SOE reporting after maintaining the process for some time.

22. Given the lack of data available to support evaluation by these criteria, it has not been possible to apply them systematically to all SOE reports, and such detail would not add to the overall conclusions. This review has simply tried to reflect them to a reasonable extent in the summaries of national SOE reporting experience in part 2. They should, however, be useful to governments in their internal evaluations and in the design of future assessment processes.

C. EVALUATION OF THE SOE REPORTING PROCESS

23. In addition to the evaluation of individual SOE reports, it is perhaps even more important to evaluate the whole process by which such reports are produced, as this determines the quality of the final products and their impact. This section not only describes the criteria used for this part of the review, but also outlines what might be considered as best practice in the field.

Institutionalization

24. Perhaps the most significant aspect, featured in the classification that follows in section 2, is the extent to which the SOE assessment and reporting process has become institutionalized and is able to produce a series of SOE reports and other outputs at regular intervals. This is a practical demonstration that the government gives priority to its environmental management responsibilities. An excellent SOE report that is prepared through an *ad hoc* process by a team of experts assembled for the occasion, without any institutional home or follow-through, will have less impact than one that is imbedded in national decision-making processes. Institutionalization also shows that SOE reporting is valued at the political level. Too often governments produce reports (not just SOE) only to respond to some external demand, such as pressure from a donor or international agency, or the availability of funds. A number of countries surveyed only produced SOE reports while external assistance was provided. The result was not sufficiently useful to convince them to continue on their own.

Initiation and framing

25. A second critical aspect of the process is the initiation and framing of SOE reports. Which national institution called for the reports, and who defined their objectives and scope? The higher the level of the demand, and the more involved the ultimate users, the better the chance that the reports will have an impact on policy and decision-making. This helps to ensure the policy-relevance of the reports.

Participation

26. The legitimacy of SOE reports depends very much on the participation of all stakeholders in their preparation. The principal government decision-makers should be consulted on what kind of guidance they want, what they expect from the reporting process, and what reporting format would be most useful to them. Scientists and other experts will obviously contribute most of the substance for the report, and must ensure that the report meets scientific standards of objectivity, credibility, and balance on contentious issues, and is based on the latest scientific findings. Similarly, there should be involvement of the private sector users, NGOs, and representatives of civil society. Where a report is prepared for international use, say in reporting to a convention, there will be standards and formats to be respected.

27. Intergovernmental organizations such as UNEP and the specialized agencies of the UN system are also of great help in setting standards and defining models and processes which help to ensure legitimacy. In some national SOE reporting processes, there is a first set of consultations with stakeholders on the scope of the report and the priority issues to be included, and a second round to review and comment on the draft report.

Timing

28. The timing of reporting is one area in which there are many different national approaches, none of which is necessarily better than any other. Perhaps the most important criterion is the relationship to the policy cycle. Annual reporting may be justified when legislation is reviewed and funds allocated on an annual basis. If the government and/or legislature are renewed every 4 years, it may make more sense to present the SOE report early in the governmental cycle when new policy is being formulated. Many national processes produce a variety of outputs with different frequencies and functions, perhaps an annual set of headline indicators for politicians and the general public, a comprehensive SOE report every 4-5 years to document medium term trends, and thematic reports to treat certain critical issues in more detail.

Data quality

29. One of the greatest hurdles to effective SOE reporting is the quality, adequacy and availability of the underlying environmental data. Data collection and processing are expensive and require a certain expertise and infrastructure. It is especially important for SOE reporting to have robust and credible data that are up-to-date and reflect the current situation. The most impressive layout and graphics are worthless if the data behind them are weak or questionable. One report reviewed covered an impressive number of topics with indicators, but a quick check showed that some, at least, were based on only a few observations ten years old. Designing and maintaining an effective environmental monitoring system is an essential part of the SOE reporting process.

Trends

30. The environment is dynamic and subject to constant change from both natural variation and a wide range of human impacts. A snapshot of the state of the environment at one specific point in time (the starting point for most SOE reporting) is only of limited usefulness. Much more significant are the trends over time in various environmental and socio-economic parameters and the dynamic transformation of the state of the environment as these trends interact. Knowing your bank balance is useful, but knowing the amounts of deposits and withdrawals is essential to

manage the account sustainably. In the absence of long-term time-series data, comparisons between different national SOE reports can give a qualitative estimate of environmental trends and changing priorities. Regular reporting, and maintaining access to old SOE reports, is therefore an important first step towards a more dynamic assessment of the state of the national environment.

Maps

31. It is also important to capture the spatial dimension in SOE reporting, and most effective reports include maps showing the location of measurements, resources and ecosystems so that users in different parts of the country can immediately see how their own area relates to the national situation. For large countries where the scale of the whole country hides relevant detail, some countries have even decentralized SOE reporting down to the provincial, district, river basin or even municipal level. The rapid development of electronic information management and geographic information systems (GIS) is opening up whole new possibilities for SOE reporting where the users can define, create and manipulate outputs according to their own criteria and needs. This potential is only just beginning to be realized in SOE reporting.

Evaluation

32. The process should include procedures for evaluating its own effectiveness and impact. This can be judged to some extent by the responses observed in the adoption or revision of policy, in new legislation, the creation of protected areas, and other measurable actions, including by other levels of government, businesses and the public. For this review, the evolution of the SOE process itself was taken as an indicator; a process that failed to take off, or was abandoned may not have been effective (although other extraneous reasons like political unrest or conflict were responsible in some cases), whereas a continuing process is already one sign of success.

Efficiency

33. The SOE process should be efficient, producing the information needed to have the desired impact for a reasonable investment in effort. Most nationally-led processes seem to have been reasonably efficient (from the information available), although there were sometimes delays, with a report announced for a certain year but only being issued a year or two later. More serious, perhaps, were cases in a few countries where more than one SOE report was produced at the same time by different entities, including one case where three donor-driven processes led to three separate SOE reports the same year, and another with six reports from separate donors in five years.

Process benefits

34. Finally, it is essential to realize the importance of the SOE process itself and the benefits it produces for the country concerned. Reporting on the state of the environment requires building government awareness of the environmental issues and their relevance to other government functions. The necessary cross-ministerial collaboration can break down traditional barriers and establish cross-sectoral working relationships with many other benefits. The experts involved in an SOE report become an informal network united by a common purpose, a network that can extend far beyond government to the academic, business and NGO communities. The capacities that have to be built for SOE reporting also have other uses in research and analysis, web site design, data processing, effective communications, the organization of stakeholder processes, etc. And the whole process influences the attitudes of all involved, educating them to the complexity of the issues, their interrelationships, and the collaboration necessary to respond to them effectively. It also builds relationships beyond the national level, with neighbouring countries and others with similar problems, with the relevant regional and international organizations and multilateral environmental agreements, and with the international NGO and scientific communities.

PART 2 - SUMMARIES OF NATIONAL ASSESSMENT PROCESSES

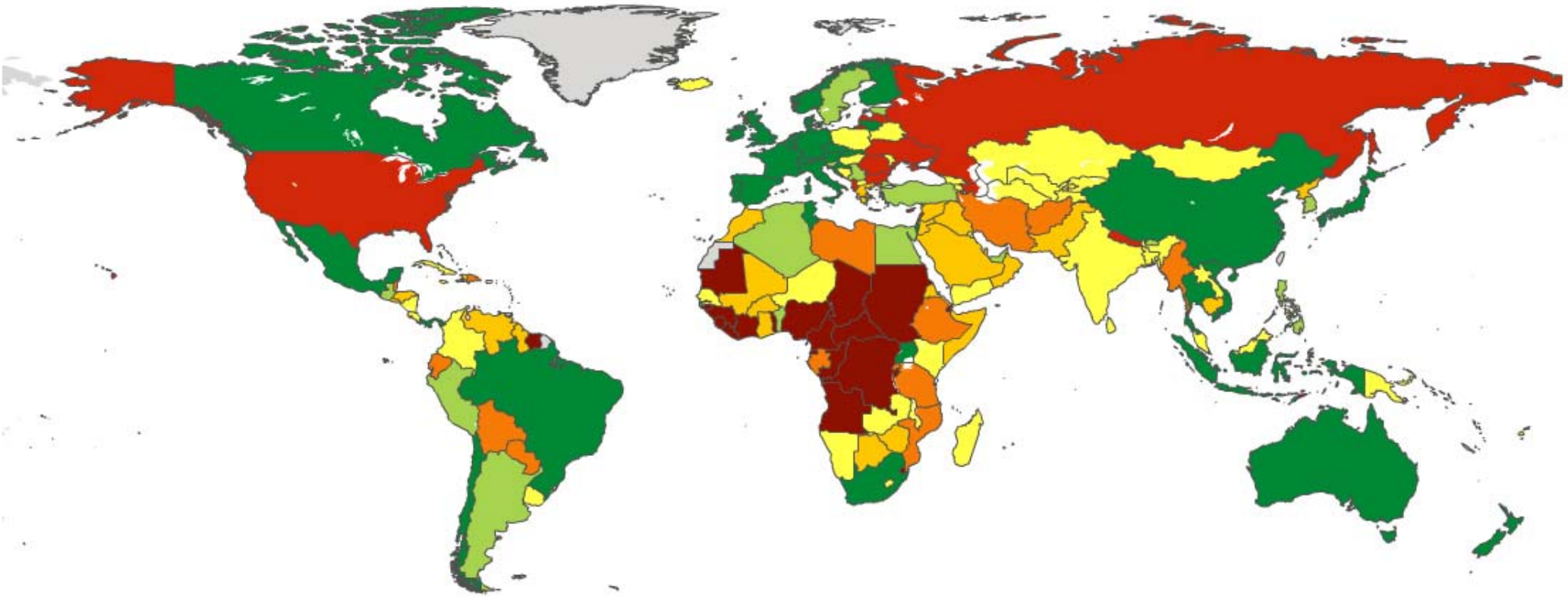
35. For the purposes of this review, countries have been allocated to seven categories based on the frequency and regularity of their national SOE reporting process:
    - *Regular and continuing*: these countries started SOE reporting at a defined frequency soon after Rio (or even earlier) and the process is still continuing.
    - *Recent and continuing*: countries that only started SOE reporting since 2000 but now have a regular programme in place.
    - *Regular but not continuing*: countries that produced a series of SOE reports for several years, but then stopped.
    - *Irregular*: countries that have produced reports from time to time, but not as a regular series.
    - *Once*: countries that have only prepared one national SOE report since 1992.
    - *First SOE report In-process*: countries that are now preparing a first national SOE report, or that have an assessment process producing other kinds of outputs

- *None*: no evidence was found of any national SOE assessment and reporting process

36. This classification can help to draw attention to examples of good practices, especially in countries that may be similar in environmental features, geography, culture, level of development and environmental challenges. It is not intended to be critical of any country, but simply to provide an objective description of the present situation to 1 November 2008 as far as it could be determined from the information available. Where there are errors of documentation, UNEP would appreciate receiving the additional documentation on SOE processes necessary to correct them. The table below shows the distribution across the seven frequency of reporting categories of the 196 countries surveyed and the accompanying map gives a geographical presentation. A regional analysis of the findings is also presented using a series of pie charts.

REGULAR & CONTINUING 35 (18%)	RECENT & CONTINUING 15 (8%)	REGULAR BUT DISCONTINUED 11 (6%)	IRREGULAR 43 (21%)	ONCE 40 (20%)	FIRST SOE REPORT IN PROCESS 18 (9%)	NONE 35 (18%)
Australia	Algeria	Albania	Armenia	Bahamas	Afghanistan	Andorra
Austria	Argentina	Azerbaijan	Bahrain	Barbados	Belize	Angola
Belgium	Benin	Bulgaria	Bangladesh	Botswana	Bolivia	Antigua and Barbuda
Brazil	Bhutan	Latvia	Belarus	Brunei Darussalam	Dominican Republic	Bermuda
Canada	Egypt	Lebanon	Bosnia and Herzegovina	Burkina Faso	Ecuador	Burundi
Chile	Estonia	Nepal	Colombia	Cambodia	Ethiopia	Cameroon
China	Guatemala	Romania	Costa Rica	Cook Islands	Gabon	Cape Verde
Croatia	Korea Rep	Russia	Cuba	El Salvador	Iran	Central African Republic
Czech Republic	Peru	Trinidad and Tobago	Georgia	Eritrea	Libya	Chad
Denmark	Philippines	Ukraine	Hungary	Federated States of Micronesia	Liechtenstein	Comoros
Finland	Serbia	USA	Iceland	Fiji	Mozambique	Congo
France	Slovenia		India	Gambia	Myanmar	Côte d'Ivoire
Germany	Sweden		Jamaica	Ghana	Nauru	Cyprus
Indonesia	Turkey		Kazakhstan	Greece	Paraguay	Djibouti
Ireland	United Arab Emirates		Kenya	Guyana	Rwanda	Dominica
Israel			Kiribati	Haiti	Tanzania	DR Congo
Italy			Kuwait	Honduras	Tonga	Equatorial Guinea
Japan			Kyrgyzstan	Iraq	Vanuatu	Grenada
Lithuania			Lao PDR	Jordan		Guinea Bissau
Luxembourg			Lesotho	Korea, DPR		Guinea
Mexico			The former Yugoslav	Mali		Liberia
Netherlands			Republic of Macedonia	Marshall Islands		Mauritania
New Zealand			Madagascar	Montenegro		Mauritius
Norway			Malawi	Morocco		Monaco
Panama			Malaysia	Niue		Nigeria
Portugal			Maldives	Oman		Saint Vincent
Slovakia			Malta	Pakistan		San Marino
South Africa			Moldova	Palau		Sao Tome
Spain			Mongolia	Qatar		Sierra Leone
Switzerland			Namibia	Saint Lucia		Saint Kitts and Nevis
Thailand			Nicaragua	Saudi Arabia		Sudan
Tunisia			Niger	Seychelles		Suriname
Uganda			Occupied Palestinian	Singapore		Swaziland
United Kingdom			Territory	Solomon Islands		Timor Leste
Vietnam			Papua New Guinea	Somalia		Togo
			Poland	Syrian Arab Republic		
			Samoa	Tuvalu		
			Senegal	Venezuela		
			Sri Lanka	Zimbabwe		
			Tajikistan			
			Turkmenistan			
			Uruguay			
			Uzbekistan			
			Yemen			
			Zambia			

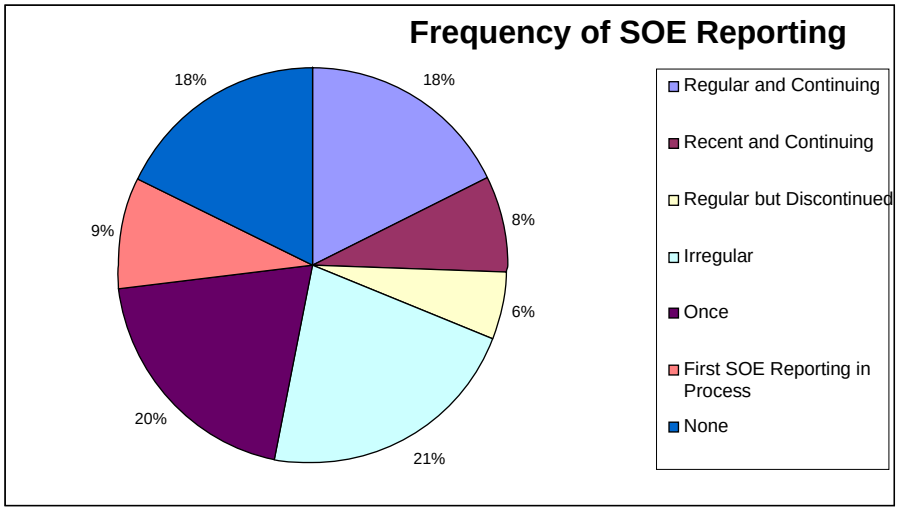
Frequency of the National SOE Reporting Processes in 196 countries



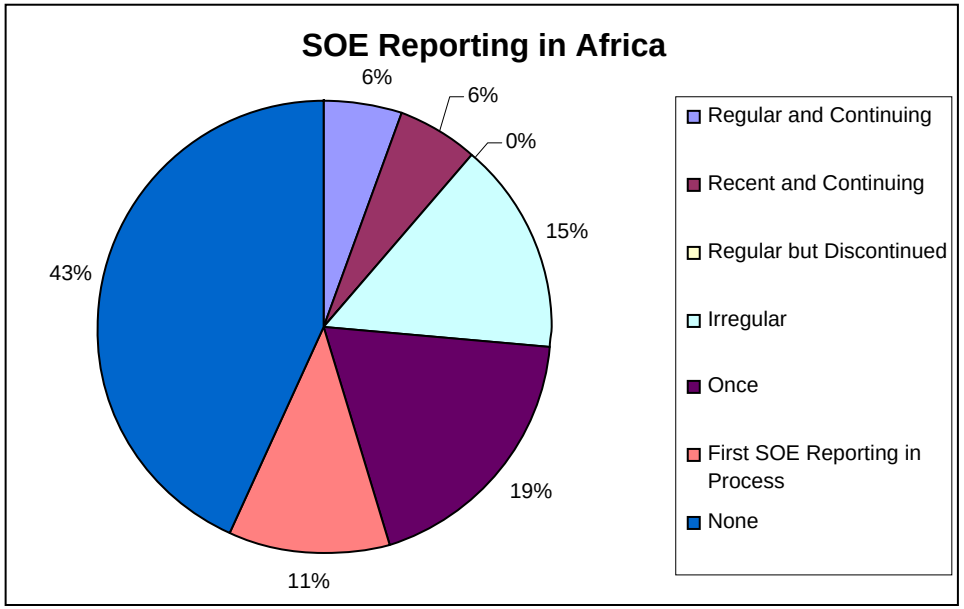
Key					
☺		😐		☹	
	Regular and Continuing		Irregular		Regular but Discontinued
	Recent and Continuing		Once		None
			First SOE Report In Process		

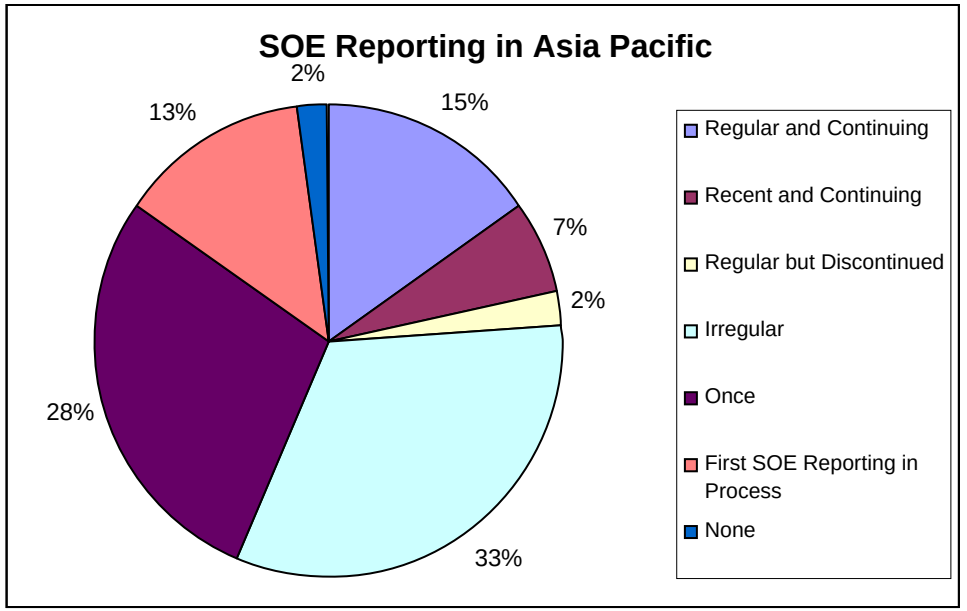
Frequency of SOE Reporting by Region

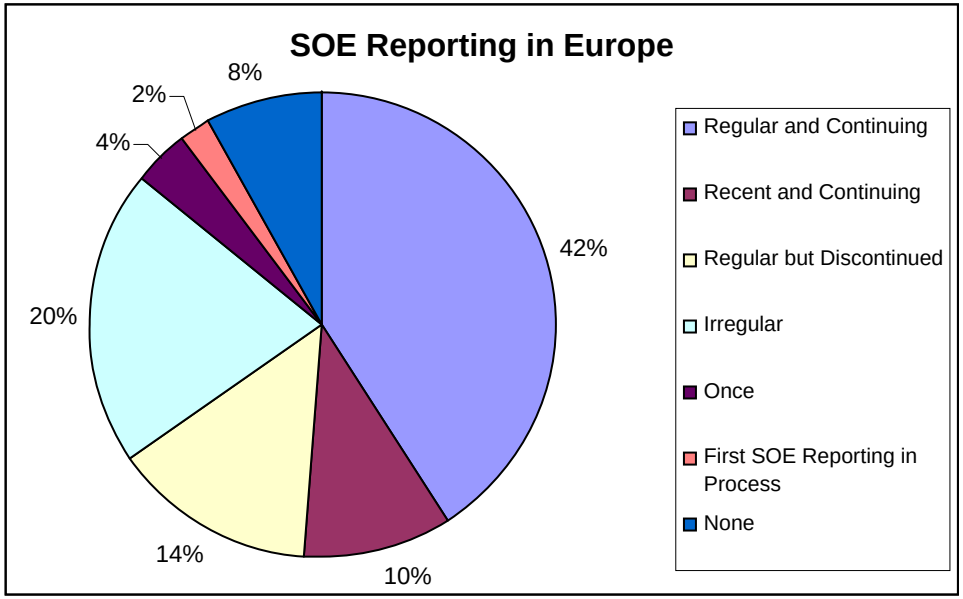
Frequency of SOE Reporting by Regions	Africa	Asia Pacific	Europe	North America	Latin America and Caribbean	West Asia	Total
Regular and Continuing	3	7	20	1	4	0	35
Recent and Continuing	3	3	5		3	1	15
Regular but Discontinued	0	1	7	1	1	1	11
Irregular	8	15	10		6	4	43
Once	10	13	2		8	6	39
First SOE Reporting in Process	6	6	1		5	1	19
None	23	1	4		7	0	35
Total	53	46	49	2	34	13	196

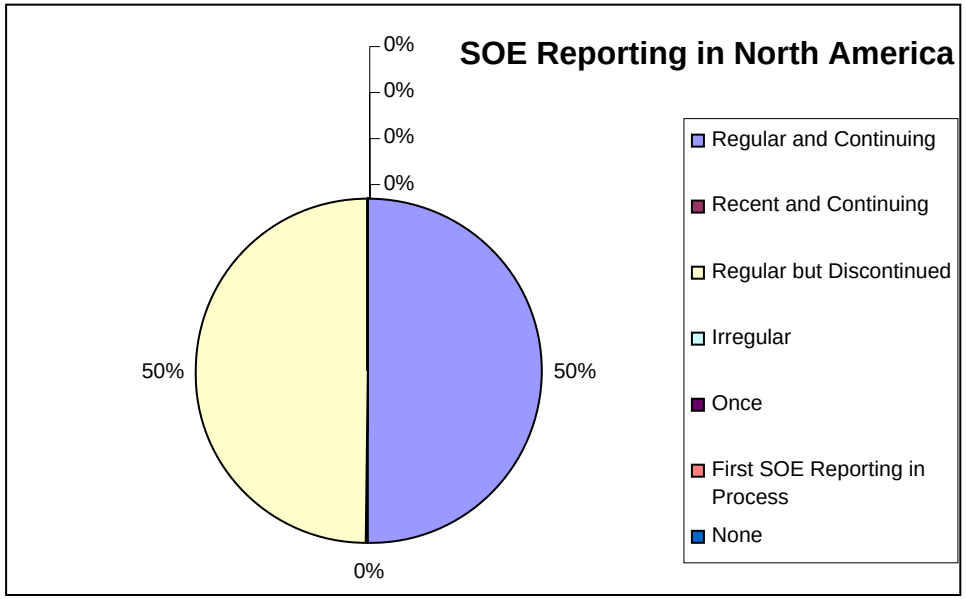


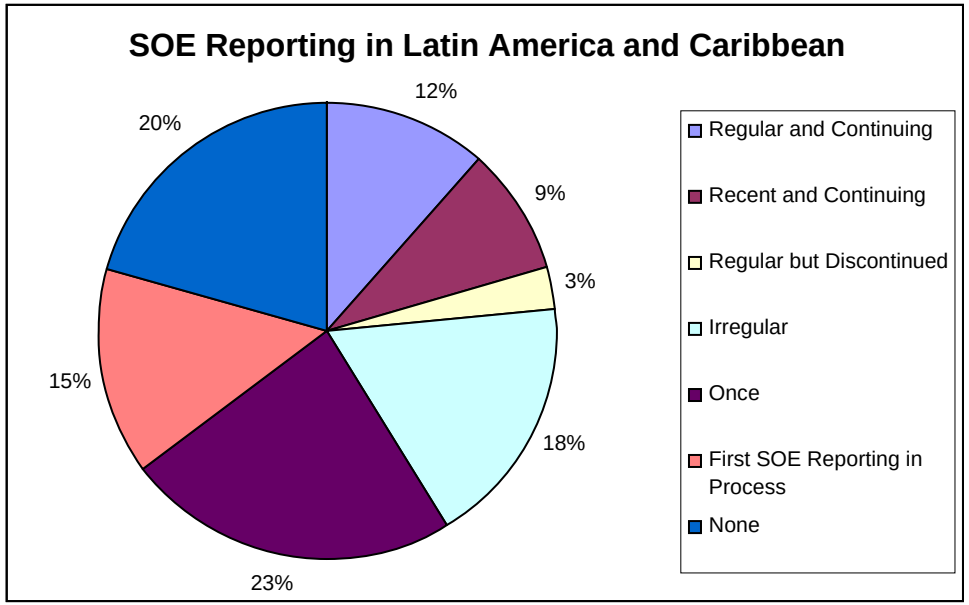
The following series of pie charts illustrate the variation of SOE reporting in each of UNEP's six regions (data extracted from columns of global table)

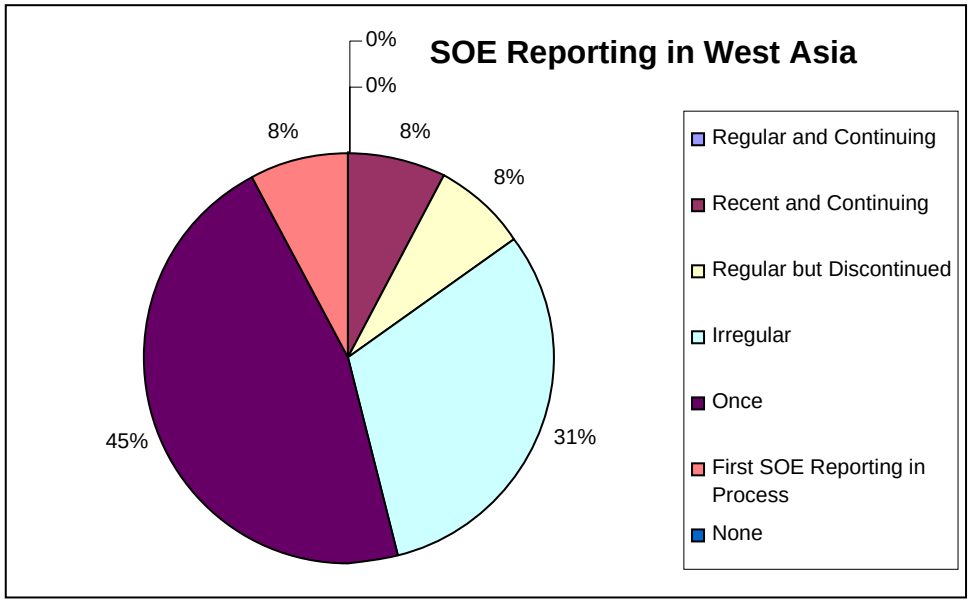

SOE Reporting in Africa
6%
6%
0%
15%
43%
19%
11%
Regular and Continuing
Recent and Continuing
Regular but Discontinued
Irregular
Once
First SOE Reporting in Process
None


SOE Reporting in Asia Pacific
2%
13%
15%
7%
2%
28%
33%
Regular and Continuing
Recent and Continuing
Regular but Discontinued
Irregular
Once
First SOE Reporting in Process
None

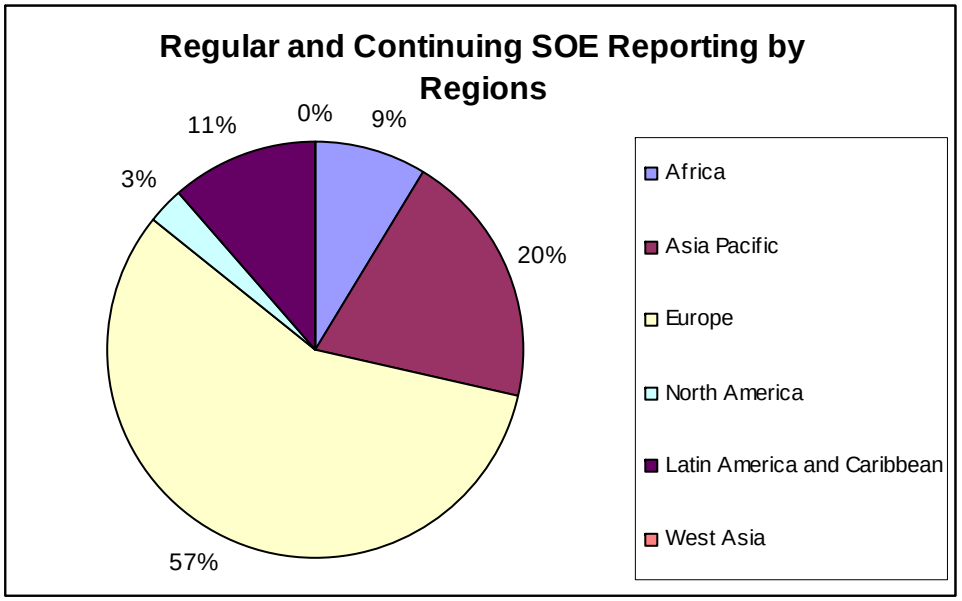

SOE Reporting in Europe
8%
2%
4%
42%
20%
14%
10%
Regular and Continuing
Recent and Continuing
Regular but Discontinued
Irregular
Once
First SOE Reporting in Process
None

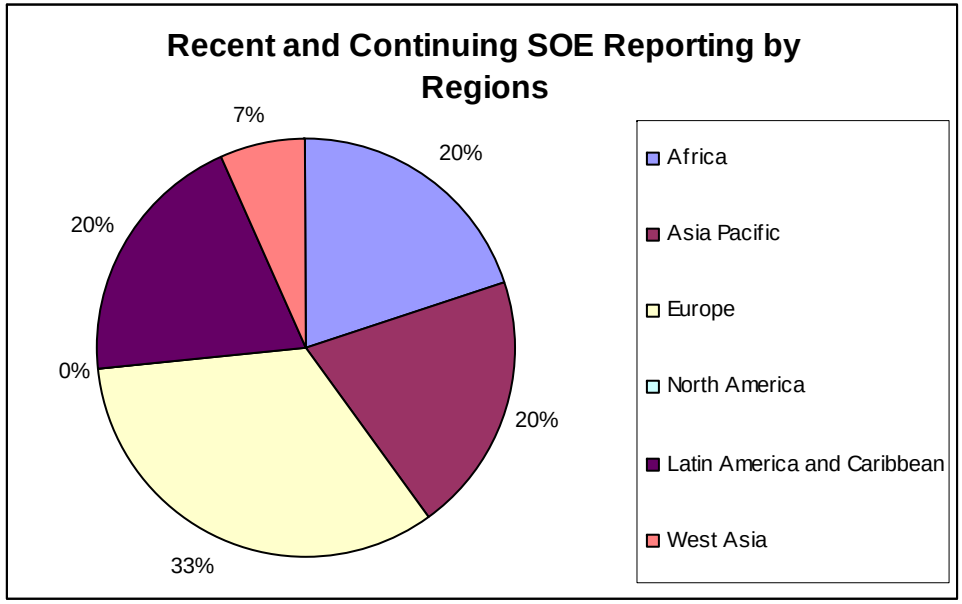

SOE Reporting in North America
0%
0%
0%
0%
50%
50%
0%
Regular and Continuing
Recent and Continuing
Regular but Discontinued
Irregular
Once
First SOE Reporting in Process
None

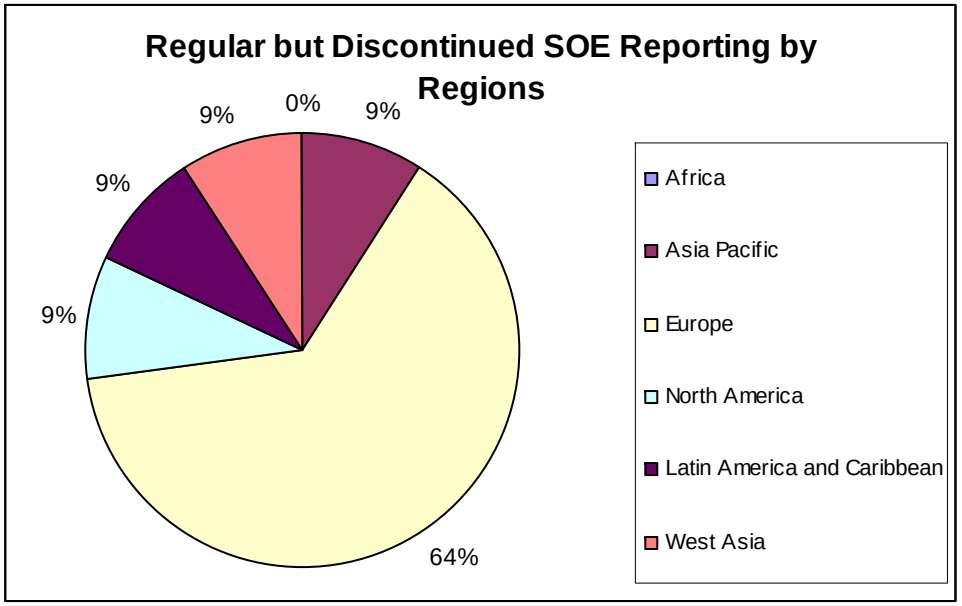


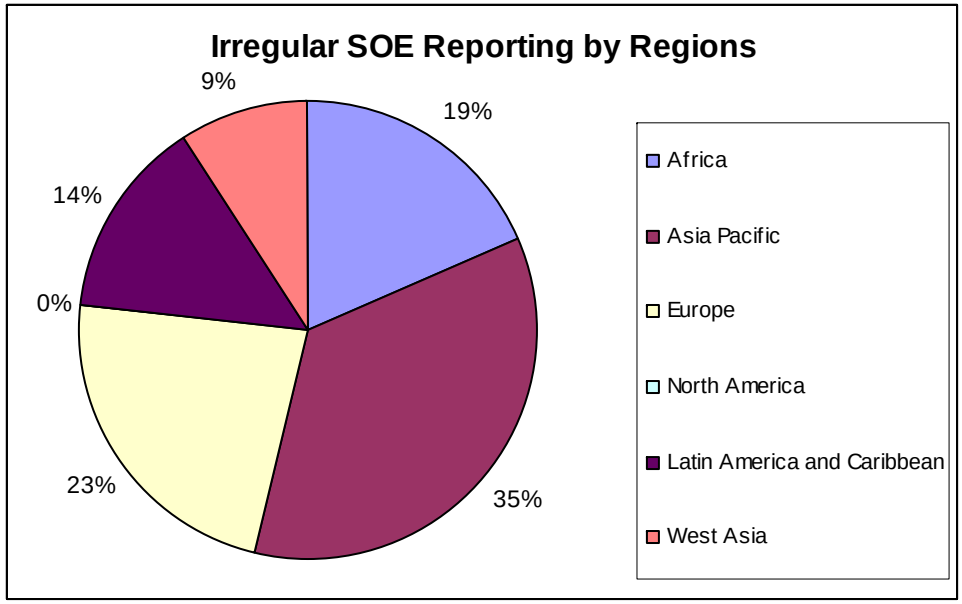


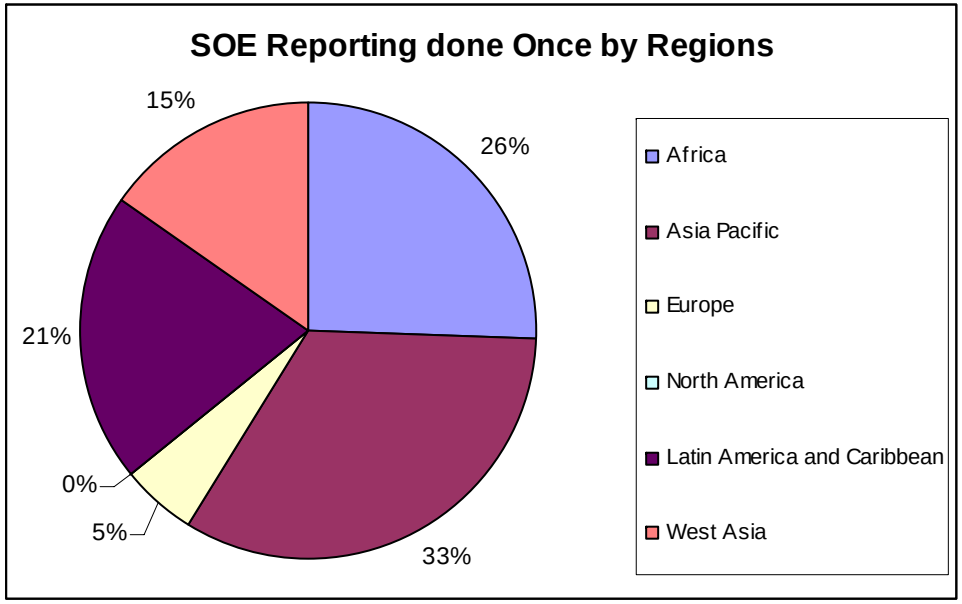
The following series of pie charts illustrate the regional variation for each of the seven categories of SOE reporting (data extracted from rows of global table)

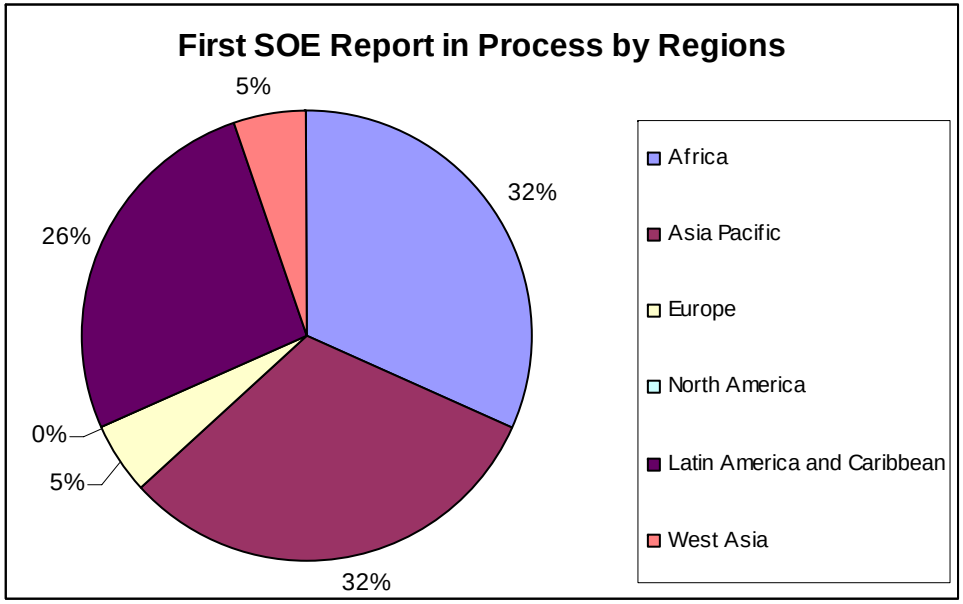

Regular and Continuing SOE Reporting by Regions
0%
9%
11%
3%
20%
57%
Africa
Asia Pacific
Europe
North America
Latin America and Caribbean
West Asia

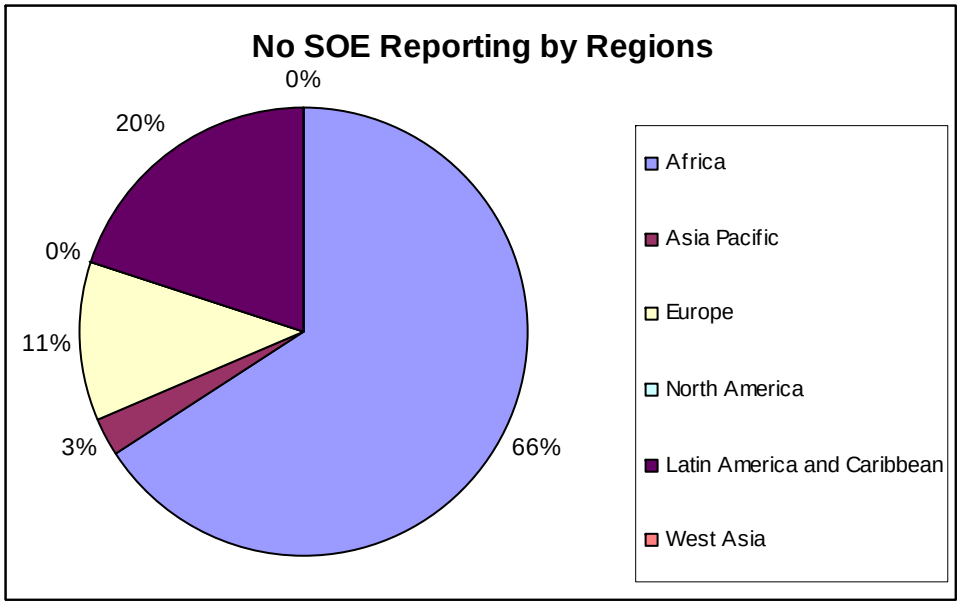

Recent and Continuing SOE Reporting by Regions
7%
20%
20%
0%
20%
33%
Africa
Asia Pacific
Europe
North America
Latin America and Caribbean
West Asia


Regular but Discontinued SOE Reporting by Regions
9%
0%
9%
9%
9%
64%
Africa
Asia Pacific
Europe
North America
Latin America and Caribbean
West Asia


Irregular SOE Reporting by Regions
9%
19%
14%
0%
23%
35%
Africa
Asia Pacific
Europe
North America
Latin America and Caribbean
West Asia


SOE Reporting done Once by Regions
15%
26%
21%
0%
5%
33%
Africa
Asia Pacific
Europe
North America
Latin America and Caribbean
West Asia


First SOE Report in Process by Regions
5%
32%
26%
0%
5%
32%
Africa
Asia Pacific
Europe
North America
Latin America and Caribbean
West Asia


No SOE Reporting by Regions
0%
20%
0%
11%
3%
66%
Africa
Asia Pacific
Europe
North America
Latin America and Caribbean
West Asia

37. The following short descriptions of each country's SOE reporting process illustrate the wide variety of approaches taken. They will serve as the basis for an analysis of lessons learned in the next section of the report. For each country, the description given is derived from a more detailed SOE reporting country profile and these SOER profiles are accessible at http://www.unep.org/pearl/Browse/Menu.aspx.

A. Countries with regular and continuing SOE reporting

38. AUSTRALIA: After Rio, Australia established an assessment process, the National SOE Reporting Framework (NSOER- Australia), with the goal "to provide a broad assessment of Australian progress in implementing sustainable development since the Earth Summit in 1992. It also aims to show Australia's considerable progress since 1992 in assimilating sustainable development into decision making processes of government, in industry and in the wider community and sets out some of the most significant steps taken as a country." The first independent national SOE report was published in 1996, involving over 200 scientists, 7 expert groups for each sector, a State of Environment Advisory Council, and approval by the Department of the Environment; Sport and Territories. Such reports are produced every 5 years (1996, 2001, 2006). In addition, Australia undertook a major National Land and Water Resources Audit in 1998-2002, which produced 69 sectoral reports on agriculture, coasts, dryland salinity, irrigation, land, natural resource economics, people, rangelands, soils, vegetation and biodiversity, water, and an *Australian Natural Resources Atlas*. Some additional topical SOE have also been produced, such as the *State of the Marine Environment Report* in 1995, and a series of water resources assessments.

39. AUSTRIA: Austria has produced regular SOE reports to the National Assembly of the Austrian Parliament since about 1992, every 2 years until 2001, then every 3 years.

40. .BELGIUM: Belgium has a unique political situation where SOE reporting is undertaken separately in Flanders, Wallonie and Brussels Capital. Only SOE statistics are compiled annually by the National Statistical Institute to provide an integrated view at the national level. Flanders began an *Environment and Nature Report* in 1994, first every 2 years, then becoming annual in 1998, and gradually evolving into separate *Focus Reports* and *Indicator Reports*, with a *Policy Evaluation Report* giving an in-depth evaluation of components of the policy chain every 3 years. In Wallonie, SOE has been a legal requirement since 1987. SOE reports were published in 1993, 1994, and 2000, and a set of 6 sectoral SOE reports in 1995-96. Since 2003, annual *Dashboards of the Wallon Environment* (tableau de bord) are complemented by an analytical report every 5 years, with the first produced in 2007. In Brussels, SOE has been a legal requirement since 1992. An order from March 2004 imposes the production by Brussels Environment of a detailed SOE every 4 years and a synthesis every 2 years. Syntheses were published in 1996 and 2001 and detailed SOEs in 2003, 2004 and 2007.

41. BRAZIL: Brazil has produced GEO Brazil 2002: using the GEO methodology; Thematic sectoral GEOs: GEO Brazil water, GEO Brazil Forest, GEO Brazil coastal and marine; GEO for cities: GEO Manaus (2002); GEO Rio de Janeiro (2002); GEO GEO Sao Paulo (2002); GEO Ponta Pora, GEO Maraba, GEO Pirahnas, GEO Beberibe (due for publication in 2008); GEO Goias: a SoE report at state level produced in 2002 using the GEO methodology: GEO for Youth Brazil: launched in June 2008)

42. CANADA: Canada provides an interesting case study of the evolution of the SOE reporting process that is well documented, and unfortunately not very encouraging. SOE reporting was established in Canada in 1986, with a first SOE report written by two government experts and intended mainly for a scientific audience. The legislative mandate for SOE reporting dates from 1988. A Public Advisory Committee on SOE Reporting representing 10 NGOs was also established in 1988. The next SOE report in 1991 was written for a non-scientific audience, and involved a hundred experts. The 750 page book with 27 chapters addressed four basic questions, and was produced through a participatory process with wide peer review. The third SOE report in 1996 added an ecosystem approach and addressed requirements for sustainability. It was produced in a web-based format by a State of the Environment National Network of 14 federal agencies, 12 provinces, NGOs, chapter coordinating committees and 70 external reviewers, but it already faced reduced funding.

43. In 1997 the five natural resources departments agreed to a new Vision for Federal SOE Reporting in Canada and a task force defined the implementation of that vision in a report updated in 2001 (Canada 2001). The report is worth quoting at length because it defined the problem and proposed solution clearly: "Currently, in Canada, we have: extensive but uncoordinated monitoring systems; national environmental indicators that need to be routinely updated by the agencies responsible; numerous assessments related to priority issues or regions that could also be, with a little extra effort, SOE reports; and no agreed-to mechanism for systematically reporting to Canadians on the state of the environment. " It proposed a new approach "to build on existing knowledge, to take advantage of ongoing monitoring and research, to use advanced technology, to stress partnerships, and to incorporate SOE reporting criteria into the design of policy-driven, science-based assessments. This is to be supported by a

nationwide ecological monitoring network and linked to regularly reported indicators." It called for a radical new direction in SOE reporting. "Ongoing, well-timed issue- or area-based assessments, incorporating integrated SOE information, will replace the comprehensive five-year national SOE report in a cost-effective manner. Many scientific assessments are currently under way or planned throughout the federal government. Some of these are driven by protocols, agreements, and commitments that Canada has made nationally and internationally. The high-priority issues and concerns that these assessments address assure both funding and completion in a timely manner. There is added value in presenting the results of these initiatives within the framework of a coordinated federal SOE Reporting Program."

44. The task force defined the criteria that would need to be met for SOE reporting, and identified a number of other key elements of the SOE reporting process. Indicators that track trends in specific nationally significant environmental issues "will continue to be updated and reported in a concise, understandable manner and linked to the assessments. Once routine, the regular reporting of indicators will be institutionalized within lead agencies. New indicator development will focus more on sustainable development links." "The Ecological Monitoring and Assessment Network (EMAN) can provide information from long-term ecological monitoring and research sites to examine how ecosystems are changing, to identify new issues, and to establish and evaluate defensible control measures. It is one of the cornerstones that helps link and integrate ecological data that support the indicators and assessments of ecological change." "The State of Canada's Environment InfoBase, already in place and on the Green Lane, Environment Canada's World Wide Web site..., provides a single-window access to SOE reporting products. The InfoBase will continue to be maintained by Environment Canada and will electronically link the SOE products of other partner departments/agencies." "Together, these four principal components will constitute a cohesive approach to responding to the needs of both decision-makers and the public by providing relevant information on the changing Canadian environment."

45. The challenge in this approach is to ensure that the result is cohesive and integrated SOE reporting. The task force suggested in a second phase "reviewing the need for periodic, succinct SOE documents that look at cross-cutting issues from a national overview perspective and, if required, preparing short, summary SOE reports of "how we are doing" that provide broad, integrated perspectives across sectors, issues, and ecosystems." (all quotes from Canada 2001, 5NR MOU ad hoc SOE Working Group, *A Vision for Federal State of the Environment Reporting in Canada*)

46. As a result of this new vision, regular national SOE reporting shifted to Statistics Canada in 2000, which began producing annual thematic reports. An Interdepartmental Advisory Group on SOE Reporting was to be established to oversee the new process and decide which reports met the SOE criteria. However the 5NR interdepartmental agreement ended in March 2003, and apparently implementation of the vision ended with it, as there are no SOE reports after 2003 listed on the SOE web site.

47. CHILE: After a first academic report on the environment in Chile in 1994, the National Commission on the Environment requested the University of Chile to prepare a SOE report through expert working groups in 1999. A second substantial (over 400 page) SOE report was issued in 2002 at the request of the Presidency, with support from UNDP and UNEP through the GEO project, followed by a third report in 2005. Two GEO for cities reports have also been prepared.

48. CHINA: In China, the Environmental Protection Law (Article 11) requires SOE reporting, Short SOE reports have been produced annually since 1989, and in English as well as Chinese since 1995. In 1997-2001, indicator-based electronic SOE reports were prepared by the State Environmental Protection Administration (SEPA) with the assistance of UNEP/GRID-Arendal and Norwegian funding. These then continued independently. The SOE reports have generally been highly critical of the environmental situation in China, documenting the continuing ecological destruction in some areas. More recently targets were set and the situation stabilized or even improved for some factors. Sectoral assessments on climate change and biodiversity have also been prepared.

49. CROATIA: After producing several incomplete reports on environment and development in 1992, Croatia published SOE reports on a 5 year cycle in 1998 and 2003. There has been a parallel development of a standardized environmental reporting system and indicators.

50. CZECH REPUBLIC: The Czech Republic has undertaken annual SOE reporting since 1991, with a *Statistical Environmental Yearbook* with data and facts without comments, as a joint publication of the Ministry of the Environment and of the Czech Statistical Office, paired with a *Report on the State of the Environment* with policy-related analyses, presented yearly by the Minister of the Environment for approval to the Government of the Czech Republic and for discussion in the Parliament. By government resolution in 1994, the report is submitted by 30 September each year. In 1995–1999, the reports on the State of the Environment were the competence of the Territorial Departments of the Ministry of the Environment and the Capital City of Prague. By a 1998 Act, the Ministry of Environment is responsible since 1999 for preparation of the SOE report. Independent reports on the State of the Environment in the individual regions of the Czech Republic were published in 2002. This process

provides the government with basic scientific data plus analyses of the state of the environment based on these data, and indicates the follow-up process related to the principal document of the Ministry of the Environment, the "*State Environmental Policy*", with as its main orientations the integration of environmental aspects into the policies of the economic sectors and harmonisation with the European Union.

51. This is a good example of the close integration of SOE reporting into the policy-making process, and it helps to explain the country's relatively good environmental performance as compared to its inherited environmental situation.

52. DENMARK: Denmark began publishing an annual *Nature and Environment* report in 1991 tracking 100 indicators. After 2001, the report changed format from tracking the same full set of indicators every year to more limited thematic reports with selected indicators. For SOE reporting, the report "*Environmental Indicators 1992: What is the State of the Environment Like?*" was followed by the first complete SOE report in 1993, updated every 4 years (1997, 2001, 2005). The SOE report is followed after two years by an Environmental Policy White Paper, providing for an alternation of assessment and policy review. SOE reporting has been legally required since ratification of the Aarhus Convention. To ensure public participation, a first round of public hearings is organized on the structure and content of the SOE report, followed by a second set of hearings on the content of the draft report.

53. FINLAND: Finland published an SOE report for the general public in 1992, and a report on the *Future of the Finnish Environment* in 1996, discussing alternative scenarios and choices. A multimedia SOE publication was released in 2000, and another popular SOE report in 2003. At a more technical level, Statistics Finland began publishing the annual review *Finland's Natural Resources and the Environment* in 1994, first as an appendix to the budget proposal, then since 1995 in Statistics Finland's Environment series. The review is compiled jointly by Statistics Finland and different government ministries, especially the Finnish Ministry of the Environment. The work is also supported and guided by a working group appointed by the Ministry of the Environment and composed in addition of representatives from Statistics Finland, the Ministry of Finance, the Ministry of Trade and Industry, the Ministry of Transport and Communications, the Ministry of Agriculture and Forestry and the Finnish Environment Institute. Other sectoral SOE reports are produced occasionally by other ministries on topics such as forestry and coastal waters.

54. FRANCE: In France, the Decree of 1991 creating the French Institute for the Environment (IFEN) required an annual SOE report, but in fact, alongside other products, the main SOE report *L'environnement en France* is published every 4 years (1994, 1998, 2002, 2006).

55. GERMANY: The Federal Environment Agency issues *Data on the Environment – State of the Environment* reports every four years since 1984, in addition to environmental indicator reports. There are also now web sites continuously updated for Environmental Information On-line, Environmental Indicators (over 50), and an Environmental Barometer of nine selected indicators.

56. INDONESIA: Indonesia has issued annual SOE reports since 1992, and used the OECD pressure-state-response format since 2002. These are extensive and very impressive reports, mostly in Indonesian. While this excellent SOE reporting process appears to document clearly the environmental destruction in the country, it does raise the question whether SOE reporting has any impact in slowing or preventing environmental damage.

57. IRELAND: The Ireland Environmental Protection Agency publishes SOE reports every four years (1996, 2000, 2004), alternating with an indicator report "*Environment in Focus*" (1999, 2002, 2006), as well as occasional sectoral reports on transport in 2000 and the Rural Environment, and on Biodiversity in 2001.

58. ISRAEL: Israel produces a SOE at four-year intervals, and is now developing environmental and sustainable development indicators.

59. ITALY: In Italy, the Ministry of the Environment produces major SOE reports (1996, 2001, 2005) while the Agency for the Protection of the Environment and for Technical Services (APAT) has published an annual *Environmental Data Report* since 2002. From 2007 this will only be available in an electronic (pdf) version, both a thematic volume on key policy issues and a pocket summary with an on-line database, with paper versions only printed every three years. APAT is also creating an online environmental data network. The government is in competition with SOE reporting by a non-governmental organization, Legambiente, which has produced an annual SOE report of over 200 pages, with a thematic first section and a second section with up to 100 indicators, starting in 1990.

60. JAPAN: After the establishment of the Environmental Agency in 1971, an "Annual Report on the Environment in Japan" was published from 1972 to 2000. After the establishment of the Ministry of Environment in 2001, annual reports on "Sound Material-Cycle Society in Japan" and "Annual report on the Environment in Japan" were

published annually until 2006. After 2007, these two reports were integrated into one report, which is called "Annual Report on the Environment and the Sound Material-Cycle Society in Japan," and has been published annually. Recently, a graphical version, a cartoon version and an audio version of the report have been made available.

61. LITHUANIA: Lithuania has demonstrated good capacity for SOE reporting by preparing national SOE reports at reasonable intervals since 1995. UNEP/GRID-Arendal assisted with a web-based report in 1998, as well as a biodiversity report in 2000, but the government did not continue in this format, preparing substantial indicator-based SOE documents for downloading from the Ministry web site in pdf format in 2001, 2002 and 2004.

62. LUXEMBOURG: Luxembourg has prepared SOE reports with indicators at 5-year intervals since 1993, and set up a web site for environmental and sustainable development indicators in 2004.

63. MEXICO: Mexico has a long history of SOE reporting with a variety of formats. The 1991-1992 biennial SOE report was the fourth in the series and these reports continued until 2002, when they became triennial. A separate *General Report on Ecology* was published by the National Commission on Ecology in 1988 and 1991. A first *Compendium of Environmental Statistics* was prepared in 1994 and issued again in 1996. From 1997 this compendium was integrated into the SOE report, but it was also issued separately again in 2005 and 2006. Simultaneously the big SOE report was complemented in 2002 and 2005 by a new series, the *Environment in Mexico in Summary*. An additional report on *Basic Indicators of Sustainable Development* was also issued in 2005, making a range of four outputs targeted at different audiences. A GEO Mexico 2004, some GEO city reports, and a report on sustainable development indicators to a Latin American standard, have also been added.

64. NETHERLANDS: The Netherlands has had a comprehensive SOE reporting programme for many years which has evolved in format over time. Starting with its first *Environmental Outlook* in 1988, it produced 5 updates every 3 years until 2000. An additional pair of annual SOE publications, *Environmental Balance* and *Nature Balance*, was started in 1997-98, and, together with a *Dutch Environmental Compendium*, replaced the *Environmental Outlook* series in 2001. In 2004, the *Environmental Data Compendium* became a web site with regularly updated data sets. A *Sustainability Outlook* was published in 2005. SOE reporting was initially the responsibility of the National Institute on Public Health and the Environment (RIVM), until it became a partner in a new Netherlands Environmental Assessment Agency, responsible for the *Environmental Balance* and *Nature Balance* reports.

65. NEW ZEALAND: New Zealand has prepared a comprehensive SOE report every 10 years, although Cabinet agreed in 2006 to a new framework for national reports every 5 years and annual updates on specific topics. The first report on *The State of New Zealand's Environment* was produced in 1997. A new overarching report, "*Environment New Zealand 2007*" was released early in 2008. It is based on a core set of national environmental indicators which provide a benchmark for regular ongoing reporting by the Ministry for the Environment, which also produces thematic reports. Local and regional governments also frequently produce SOE reports, and the Ministry has encouraged *Takiwa*, a Maori culture-based environmental monitoring and reporting system reflecting traditional values.

66. NORWAY: Norway's excellent human development and environmental performance has been accompanied by a strong SOE reporting programme. The world's first digitized national SOE report was prepared by UNEP/GRID-Arendal for the Rio Earth Summit in 1992, and then updated for the Norwegian government in 1995, 1997 and 1998, when it was replaced by a continuously updated *State of the Environment Norway* web site. In complement, Statistics Norway has prepared an annual report since 1998 on *Natural Resources and the Environment*, with environmental statistics and socio-economic analysis of the status and trends in important environment and resource issues. Norway was also the first country to undergo an Environmental Performance Review by OECD in 1993. Norway also demonstrated a local SOE report for Arendal in 1999, and even an SOE of the city of Vennesla in 2002 prepared by secondary school students with support from UNEP/GRID-Arendal.

67. PANAMA: Panama prepares a SOE report every 5 years since 1999, and in addition issued a GEO report for Panama City in 2007. A web site with a first set of environmental indicators was launched in 2006 and is to be updated in 2008.

68. PORTUGAL: Portugal has been preparing annual SOE reports under legislative mandate since 1987, and has recently added pocket book SOE reports with 26 key indicators.

69. SLOVAKIA: The Ministry of the Environment of the Slovak Republic has produced SOE reports annually since independence in 1993. The format has varied from year to year between hard copy/pdf and web-based (or both). In addition, a Rio+10 report was prepared in 2002 and a ten-year summary report in 2003. Two series of regional SOE reports were prepared in 1998 and 2002. This effective SOE reporting may be one reason why Slovakia rates as high as 17 in the Environmental Performance Index.

70. SOUTH AFRICA: South Africa has been very systematic in learning from its experience in state-of-the-environment reporting, using a variety of approaches, and building capacity throughout the country to use such reporting for policy guidance. Its first national SOE report was prepared in 1992 for the Rio Earth Summit. A prototype electronic report was prepared in 1995 but not published. At the same time it became a pilot country in the first trial of indicators of sustainable development under the work programme of the UN Commission on Sustainable Development. For its next series of SOE reports it prepared a national report in 1999, together with a number of preliminary reports at the provincial level. In the following years, each province produced its own SOE report, and a series of state-of-the-rivers reports was prepared for the major drainage basins, as well as topical reports on the state of estuaries and of living marine resources. When it decided in 2004 to prepare another national report, it commissioned a review of the effectiveness of the 1999 report (South Africa 2005), and launched a broad expert consultative process to identify appropriate indicators for each sector to be assessed in the new report. Based on this thorough preparation, the *South Africa Environment Outlook* was completed in 2006 and a youth version in 2007. This process has resulted in a total of 65 SOE reports over the 15 year period.

71. SPAIN: Spain began developing environmental indicators from 1996 and SOE reports from 1997, becoming annual in 1999. An additional indicator-based environmental profile was added in 2004. Different regions issue their own reports in their respective languages.

72. SWITZERLAND: Switzerland provides a good example of multiple SOE products for different audiences prepared jointly by the Swiss Federal Statistical Office and the Swiss Federal Office of the Environment. While earlier Swiss publications are not available on the Internet, making it difficult to trace Swiss experience back to 1992, a report on the *Environment in Switzerland* has been published every 5 years (1997, 2002, 2007) but the frequency is to be increased to 2 years. In addition, "*Swiss Environmental Statistics: A Brief Guide*" is published annually at least since 2002. The government has made a major effort to develop a complete set of sustainability indicators based on the policies and goals it has set, and these are used effectively in the SOE reports. There are also a variety of thematic reports on issues such as air pollution, climate change, biodiversity, wetlands and road noise. A State of the Environment web site provides current information in maps, thematic reports and graphics, with links to the publications and data sets.

73. THAILAND: While Thailand has published annual reports on the State of the Environment, the State of Pollution, and Environmental Statistics since the early 1990s, the World Bank found a need to make raw data and statistical outputs more useful for policy making, and has been preparing its own Thailand Environment Monitors since 2000. This is a case of excellent SOE reporting on an annual basis with a good legislative foundation, but that is apparently still not feeding well enough into decision-making processes to halt environmental deterioration.

74. TUNISIA: Tunisia has issued a *National Report on the State of the Environment* annually since 1993. In 1995, with support from UNDP, it initiated the Tunisian Observatory of the Environment and Sustainable Development to monitor the state of the environment and to report on indicators of sustainable development.

75. UGANDA: In Uganda, the National Environment Agency is required by statute to prepare and disseminate a national state of the environment report every two years. Districts are also required to produce a district SOE report every year. However, while 27 districts have each produced a SOE report, mostly in 1997-1998, there is no evidence that SOE reporting has been repeated at the district level.

76. According to the National Environmental Management Authority, the first three national reports (1994, 1996, 1998) were organized on a sectoral basis, but they became rather repetitive, with content that was not comprehensive and integrated enough, lacked policy relevance, and did not look into the future. In the 2001 SOE report, it was decided to focus on key issues in each thematic area, following the PSR framework and the UNEP GEO process.

77. The foreword to the most recent SOE report (2005) describes the impact of the SOE process: "State of the environment reports so far developed have greatly supported the purpose and facilitated the execution of informed decisions and policies. The 1994 National State of Environment report mainly took stock of environmental goods and services of the country and this gave a baseline of the natural resources at that time. By 1996 a new constitution was in place and decentralization of environmental management was underway. The effects of a growing and expanding economy were reflected in the 1996 report. Among the key environmental problems and the drivers listed were the degradation of fragile ecosystems such as wetlands, mountains, river banks and lake shores. This report also listed the land tenure system and lack of land use planning as some of the key issues contributing to environmental degradation.

"At the beginning of 1998, many of the problems predicted in the 1996 reports were manifested in disasters in mountainous areas, increased loss from soil erosion, conflicts in the wetlands among others. Similarly the 2000 and 2002 reports warned on the declining per capita arable land because of the increasing population. These situations

call for urgent and continuous review and refocus of the country's development strategy in order to bring about the overall goal of sustainable development pursued by Government.
"The 2004/05 report in a similar vein to the 2002 focuses on the poverty and environment linkage under the thematic areas of forests and woodlands, water, human settlements, biodiversity, land, atmosphere and energy. " (from the foreword to the "*State of the Environment Report for Uganda 2004/05*")

78. UNITED KINGDOM: While it has not been possible to document SOE reporting in the United Kingdom back to 1992, several different SOE processes have evolved. At the national level, the Department for Environment, Food and Rural Affairs and National Statistics have collaborated in SOE reporting. The first government sustainable development indicators were developed in 1996, and incorporated in the 1999 "*Quality of Life Counts*" report, a baseline assessment with a core set of 147 indicators and 15 headline indicators as a benchmark against which future progress could be measured. The Sustainable Development Unit then reported annually on achieving a better quality of life at both the national and regional levels until 2004. In that year a new format was adopted for "*Sustainable Development Indicators in your pocket*" published annually. A new strategy in 2005 required a new set of 127 indicator measures making up 68 indicators and another baseline assessment, but still published in the same format.

79. Beyond this, SOE reporting was decentralized to the Environment Agency (England and Wales) and the Scottish Environmental Protection Agency (SEPA). In England and Wales, the 11 regions and the city of London have their own SOE reporting processes with some diversity of forms. Most regions have an SOE page on their web site that is regularly updated, with fewer dated and printed reports. There are also some thematic SOE reports. Scotland produced a first SOE report in 1996 and updated it in 2006. In between it produced thematic SOE reports on water, air and soil quality.

80. VIET NAM: Since 1994, the Ministry of Science, Technology and Environment of Vietnam has annually developed a national *State of the Environment Report*. Over this period, there has been some evolution in the formats and an alternation of general and thematic SOE reports on topics such as water, solid waste and biodiversity. The four most recent reports have been published separately by the Vietnamese government, with assistance from UNEP in 2001, and by the World Bank in its Environment Monitor series.

B. Recent and continuing SOE reporting

81. ALGERIA: Algeria produced its first SOE report in 2000 and has issued two subsequent reports.

82. ARGENTINA: While Argentina only began SOE reporting since 2000, it is now issuing a variety of products including national and city GEO reports, environmental statistics, and sustainable development indicators.

83. BENIN: Although there is a legal obligation from 1999 to produce an annual SOE report, Benin has only produced reports in 2002 and 2005.

84. BHUTAN: Despite a legislative requirement for regular SOE reporting adopted in 1992, the first SOE report for Bhutan was produced in 2001 with support from the regional UNEP RRC.AP project. It was then decided to repeat such SOE reports every 4-5 years. The National Environment Commission then prepared a short (20 p.) report to the National Assembly in 2004, which requested annual reports. Another short SOE report was published in 2005. and the next report the *Bhutan Environment Outlook* (BEO) produced with assistance from UNEP, will be launched on 19 November 2008. An assessment of Thimphu City has also been produced.

85. EGYPT: Egypt is an example of the difficulty in going from legislative intent to practical action leading finally to a sustainable SOE reporting process. The 1994 law on Environmental Protection requires an annual SOE to be submitted to the President, Council of Ministers and People's Assembly. However implementation was delayed pending the creation of the Ministry of State for Environmental Affairs in 1997 and the development of the necessary information infrastructure. The first SOE report was prepared with CEDARE and UNEP support in 2004 and followed the Global Environment Outlook methodology. SOE reports are now issued annually (2004, 2005, 2006), although the most recent report is less than a quarter the size of the initial report, suggesting adjustments in the format to avoid unnecessary repetition. An Environmental Indicators Newsletter was started in August 2007.

86. ESTONIA: Estonia has had an intensive SOE reporting programme for two decades, with some interruption. In 1988-1997 the Estonian Environment Information Centre compiled and published, with the support of national monitoring programmes, an annual environmental overview in two languages (English and Estonian). An additional publication *Environmental Monitoring* of almost 100 pages describing changes and trends in the environment was published three times (1994, 1995, 1996). After the coordination of national environmental monitoring programme was transferred to the University of Tartu in 1999 these publications ended. The Centre produced a new SOE report in 2000, followed by an *Environmental Review* (2005). A new directive of 2005

requires the publication of an environmental review every 4 years. A web site of *Environment Indicators of Estonia* started with the indicators from EU DADAM project (1998) with 13 themes and 130 indicators, and was revised in 2006.

87. GUATEMALA: Guatemala produced it first SOE, GEO Guatemala, in 2003. The university and an institute produced significant national environmental profiles in 2004 and 2006. A second GEO Guatemala is in preparation for 2009 in a collaboration between the Ministry and the University. A city GEO report is also just being completed.

88. KOREA, REPUBLIC OF: The Republic of Korea produced its environmental management reports in 1982, 1984, 1986 and 1988, and has produced annual environmental management reports since 1991, with increasing SOE content. The Ministry of Environment has also published Environmental Statistics Yearbook since 1988, as well as thematic annual reports on water, air, waste, and wastewater..

89. PERU: Peru has produced national GEO reports in 2000 and 2004, plus three GEO city reports, and a sustainable development indicators report is in preparation.

90. PHILIPPINES: The World Bank has prepared annual Environment Monitor reports on the Philippines since 2000. Sectoral reports are also produced.

91. SERBIA: Serbia has initiated regular SOE reporting every 2-3 years since 2000 under the responsibility of a Department for the monitoring of the state of the environment in the Serbian Environmental Protection Agency. In 2007 they issued both a substantial indicator-based review of the environment and a shorter publication illustrated with graphics.

92. SLOVENIA: Slovenia produced two SOE reports in 1996 and 2002 before shifting to environmental indicators publications every two years starting in 2003.

93. SWEDEN: The Swedish Parliament adopted a set of environmental quality objectives in 1999, and annual reports on those objectives have been published since 2000. Every four years, the Environmental Objectives Council prepares an in-depth evaluation assessing progress towards the objectives and proposing further measures, starting in 2004.

94. TURKEY: Turkey was late in starting an SOE reporting process, but its recent progress is impressive. The Environmental Portal for Turkey provides access to district SOE reports for 81 districts, often with several annual or biennial reports for each district since about 2000. A major *Turkey State of the Environment Report* was published in 2007.

95. UNITED ARAB EMIRATES: Abu Dhabi initiated annual SOE reports in 2006. For 2008, the report is based on extensive papers covering eight sectors.

C. Regular reporting now discontinued

96. ALBANIA: In Albania, the National Law on Environmental Protection 1993 mandated a state-of-the-environment report every two years. Four reports were produced up to 1998, after which no further reports were produced. The government has been reporting since 2000 to the Convention on Biological Diversity (CBD).

97. AZERBAIJAN: In Azerbaijan, early SOE reporting by the State Committee for the Environment (1990-1995) was followed by two SOE reports in 1997, one by the State Committee with UNDP support, and another by the Green Movement, and SOE reports in 1998 and 2004 produced with the support of UNEP/GRID-Arendal.

98. BULGARIA: In Bulgaria, an annual SOE report is required by the Law on Environment Protection, to be prepared by the Executive Environment Agency, and adopted by the Council of Ministers. SOE reports were published in 2000, 2001 and 2002, but the last report listed on the web site is 2002.There is an extensive environmental monitoring programme and a three-month data bulletin for the state of the environment in Bulgaria.

99. LATVIA: Latvia prepared several SOE reports up to 1998, the last two with assistance from UNEP/GRID-Arendal. In the 1998 report the Environmental Consulting and Monitoring Centre of the Ministry of Environment announced its intention to publish annual SOE reports. However starting in 1998, the Central Statistical Bureau began issuing annual *Environmental Indicators in Latvia* publications, and no further SOE reports as such were apparently produced.

100. LEBANON: Lebanon produced the most concrete SOE reports in the West Asian region, and the only one in the DPSIR framework using the integrated environmental assessment methodology. However the series of SOE reports and an excellent project developing indicators stopped in 2001 due to political discord.

101. NEPAL: Nepal's Ministry of Environment, Science and Technology produced 6 SOE reports between 1998 and 2004, including a general one in 2000, followed by thematic reports: agriculture and forests (2001), rural energy (2003) and eco-tourism (2004). The UNEP RRC.AP project also assisted Nepal to produce a *State of the Environment 2001* in its format as part of its regional project. An Environmental Assessment of Nepal was produced in 2006, funded by the Asian Development Bank. UNEP RRC.AP also helped to produce a *Kathmandu Valley Environment Outlook* in 2007.

102. ROMANIA: In Romania the environment ministry produced SOE reports almost every year from 1998 to 2003, and the National Commission of Statistics produced an environmental publication in 2001. However the only more recent report was on the environmental status of the Hungarian-Romanian border region in 2007.

103. RUSSIAN FEDERATION: The Russian Federation produced annual SOE reports from 1992 to 1996, and a report for the Aarhus Ministerial Conference in 1998. A popular SOE report with cartoons was published in 2003. If reporting has continued after the abolition of the Ministry of Environment, the reports must only be in Russian and not amenable to an internet search.

104. TRINIDAD AND TOBAGO: In Trinidad and Tobago, the Environmental Management Authority is required to submit an annual SOE report to parliament, and it started doing so in 1996. After the first year reviewing six focal areas, the subsequent reports became thematic and considered just one area at a time. A combined 2001-2002 report used the Environmental Vulnerability Index of 48 indicators. However there is no indication of further SOE reports after 2004.

105. UKRAINE: Ukraine had a well-established SOE reporting process since 1992, first with biennial reports, then annual reports from 1998, but there is no evidence of regular national SOE reports after 2002.

106. UNITED STATES OF AMERICA: The United States pioneered SOE reporting before abruptly abandoning it. The Council on Environmental Quality published *Environmental Quality Reports* each year from 1970 through 1997. However, a 1995 Act of Congress on the simplification of government and the removal of excess reporting requirements abolished SOE reporting at the federal level. Today SOE reporting in America is a private initiative.

D. Irregular SOE reporting

107. ARMENIA: After Armenia's first National Ecological Report in 1993, the next reports were produced with external support and technical assistance from UNEP/GRID-Arendal in 1998, 2000 and 2002, together with a city SOE for Yerevan in 2002 and a GEO for Cities for Yerevan in 2007. There have been no further national SOE reports, although reporting has continued to the conventions.

108. BAHRAIN: Bahrain produced SOE reports in 1989 and 2003, and is preparing a new report.

109. BANGLADESH: SOE reporting in Bangladesh started with UNEP RRC.AP assistance and Norwegian funding, including a land cover report (1997), a SOE report (2001) and a SOE of Dhaka City (2005). Other reports have been produced with UNDP support in 2004 and 2006.

110. BELARUS: Belarus produced a SOE overview in 1998 and a SOE for the general public in 2005.

111. BOSNIA & HERZEGOVINA: Two national SOE reports (1998 and 2002) have been produced, together with a biodiversity report (2000) with UNEP/GRID-Arendal assistance.

112. COLOMBIA: After an early SOE report in 1992, a decree of 1994 called on the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) to provide the Ministry of Environment with an annual evaluation of the state of the environment suitable for the public. The first SOE was published in 1998 and a second edition in 2001. An impressive report on indicators for sustainable development was published in 2007. A GEO for Youth report was produced in 2008, and two GEO Cities reports have been prepared recently.

113. COSTA RICA: Costa Rica prepared a national SOE report (GEO) in 2002 and one for its major urban area in 2006, as well as an ILAC indicators of sustainable development report in 2005.

114. CUBA: After an Environment Law was passed in 1997, annual SOE reports began in 1998 and continued until 2004. A more substantial *Environmental Panorama* was produced in 2000 with UNEP support. The next GEO

Cuba will be launched in 2008. GEO La Habana was published in 2004 and other GEO cities reports are being finalized. The National Statistical Office also publishes compilations of environmental statistics annually, including an attractive publication of environmental indicators *Medio Ambiente en Cifras* (starting in 2000) and a professional publication for registered users *Diagnostico de la Gestion Ambiental* (from 2002). In 2006, it published a *First Compendium of Environmental Statistics 1990-2004* which includes 30 pages of general SOE information and extensive maps and graphics illustrating the data tables.

115. GEORGIA: Georgia provides an example of a country where considerable effort from UNEP/GRID-Arendal went into building a SOE reporting capability that could not be sustained. A first web-based SOE report in 1996 (archived at GRID-Arendal) was followed by a second national SOE report in 1998 for the fourth pan-European conference of environment ministers in Aarhus, Denmark, and a biodiversity report in 1999. GRID established an office in Georgia (GRID-Tbilisi) and a third SOE report focussing on health and environment, as well as a local report on the State of the Environment in Tbilisi (archived on CEROI) were produced in 2000. This seems to have been the end of SOE reporting in Georgia, apart from an external ECE Environmental Performance Review in 2003. The 1998 and 2000 SOE reports have disappeared from the web and the GRID-Tbilisi web site domain name is for sale.

116. HUNGARY: Hungary started early to produce *Environmental Indicators of Hungary* reports in 1994, 2000, 2001 and 2003. More recent reports were not found in this survey. UNEP/GRID established a national branch in GRID-Budapest that produced a web-based SOE report in 1999, but this has closed and the web site formerly hosting the report no longer exists. The report may be lost if it has not been archived somewhere. UNEP/GRID-Arendal assisted with a web-based biodiversity report in 2001.

117. ICELAND: Apart from an excellent strategy for sustainable development with indicators in 2006, Iceland's SOE reporting is in Icelandic, making it difficult to analyze.

118. INDIA: India has a high scientific capacity and an excellent remote sensing programme. One SOE report was produced on the Internet in 1999, and a second was prepared as part of the UNEP RRC.AP regional project in 2001. Since then, SOERs and the necessary capacity have been developed for all the States in the country. A national environmental information system has been established successfully, and state-level SOE reports are now being produced, as this is a more relevant level of SOE reporting for a large country such as India.

119. JAMAICA: Jamaica produced its first SOE report in 1996, and these were intended to be annual, but after a second report in 1997, only one further report was prepared in 2001, incorporating environment statistics as well.

120. KAZAKHSTAN: After preparing its own SOE reports in 1993 and 1995, Kazakhstan became dependent on the UNEP/GRID-Arendal project for web-based SOE reports in 1998, 1999 and 2000, and a biodiversity report in 2000. The government again produced an updated SOE report in 2004, starting an annual series (2005, 2006, but not on Internet).

121. KENYA: In Kenya, a 1999 act requires the preparation of an annual SOE report. The first report was issued in 2003 under a UNDP project to fund annual reports for 2003-2008. There are references to SOE reports for 2004 and 2005, but only the 2003 report is shown on the NEMA web site.

122. KIRIBATI: After a first SOE in 1994, Kiribati prepared a second for 2000-2002 and a third is in preparation in 2008. It is also reporting actively to the UNFCCC, UNCCD and CBD. A full inventory lists 28 SOE-relevant reports since 1992.

123. KUWAIT: Kuwait has produced SOE reports irregularly since 1984, but mostly reporting progress on work done.

124. KYRGYZSTAN: Kyrgyzstan prepared three web-based SOE reports with UNEP/GRID-Arendal support in 1998, 2000 and 2001, as well as a local SOE report for Bishkek in 2001. This external support did not lead to a continuing SOE reporting capacity. However, with renewed UNEP support, an integrated environmental assessment is now in the final stages of preparation.

125. LAO PDR: The Lao PDR has had to depend on outside assistance through the regional UNEP RRC.AP project for its first national SOE report in 2001, and a national Environment Outlook in preparation in 2008.

126. LESOTHO: Lesotho prepared a first SOE report in 1997 and a second in 2002.

127. THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA: In the former Yugoslav Republic of Macedonia, the Ministry of Environment and Physical Planning produced SOE reports in 1998-2000, and the State Statistical Office published a set of environmental statistics and national indicators in 2007.

128. MADAGASCAR: The National Office of the Environment (ONE) is responsible for SOE reporting. A first SOE process began with reports in 1992 and 1994, and a web site that has not been updated since 1997. A second process with a new web site began issuing *National Environmental Dashboard* reports in 2001-2003 intended to be updated annually, together with 16 provincial and regional SOE reports in 2002-2007. These indicator-based decision-support tools with many tables and maps were published as pdf documents, a CDROM and an interactive web site, but their usefulness was limited by inadequate available data. There is no reference to further national reports after 2003 on the web site.

129. MALAWI: In Malawi, the 1996 Environment Management Act mandates the districts to produce State of the Environment Reports every two years. A first national SOE report was written in 1998 and a second in 2002. For the latter, 9 districts and 7 localities wrote their own state of the environment reports in order to produce the national report.

130. MALAYSIA: The Malaysian government has produced an *Environmental Quality Report* in 1997, 1998, 2004, 2005 and 2006, but this covers only air and water quality and pollution sources. Significant dimensions of environmental quality such as land cover, forests and nature conservation that are included in most other SOE reports are not assessed.

131. MALDIVES: The Maldives has produced SOE reports in 1994, 2002 (with assistance from the regional UNEP RRC.AP project) and 2004.

132. MALTA: The first Malta SOE report in 1998 of over 400 pages expressed the hope that SOE reporting would become annual, as one of a regular series of snapshots of the state of the local environment. However the next SOE report by the Malta Environment and Planning Authority was only issued in 2005. It was much shorter than the 1998 report, but supplemented with on-line materials on the web site. The SOE indicators were updated in 2006.

133. MOLDOVA: Moldova had already started preparing reports on the state or quality of the environment in 1995 and 1997 (announced as an annual report). The 1998 summary web-based report was prepared with the assistance of UNEP/GRID-Arendal, as was a biodiversity report in 2000. There was then a gap before national SOE reporting began again in 2002 and 2003. UNEP/GRID-Arendal again assisted in the preparation of a popular SOE report in 2004. For the Conference of the Parties to the Convention on Biological Diversity in 2000, UNEP/GRID-Arendal assisted with a country overview on biodiversity, pending publication of a first national report, also in 2000, with World Bank support, followed in 2001 by another biodiversity assessment by USAID.

134. MONGOLIA: As far as can be determined with an English language search, the government of Mongolia has published several SOE products, including a *Nature and Environment* report in 1996, a SOE report with assistance from the regional UNEP RRC.AP project in 2002, and *Sustainable Development Indicators in Mongolia* (2003). There is also a reference to a draft SOE report 2003, but no information on its publication. In addition, the World Bank produced substantial *Mongolia Environment Monitor* reports in 2002, 2003, 2004, and the Asian Development Bank produced reports on Mongolia's environment in 2002, 2004 and 2005, which may seem like excessive SOE reporting.

135. NAMIBIA: Unlike most other countries, Namibia established an information and communication service for sustainable development in 1998 with seven sectors, each with a thematic SOE report: Freshwater resources (2000?); Social and economic environment; Agriculture and land resources; Biodiversity, parks and tourism (2000); Industrialisation (mining, industry, energy and transport) (1999); Waste management and pollution control (2001); Marine, fisheries and coastal resources (2003). An Environmental Monitoring and Indicators Network Workshop in 2001 reviewed 184 indicators and selected 142. In 2004 an integrated SOE report was drafted but was still awaiting peer review in 2005. A Regional Environmental Profiles Project, begun in 1995 with support from the Netherlands, has produced 2 reports and databases: Caprivi Region and North-central Namibia. A third environmental profile in the Kavango has also been initiated, and a profile of Kunene Region will begin later.

136. NICARAGUA: Nicaragua has produced two SOE reports in the GEO format in 2001 and 2003.

137. NIGER: Niger has produced three integrated state of the environment reports in 1998, 2002 and 2005.

138. OCCUPIED PALESTINIAN TERRITORY: There are several SOE reports covering all or part of the Occupied Palestinian Territory between 1994 and 2002, as well as two reports by the UNEP Post-conflict Assessment Unit in 2003 and 2006.

139. PAPUA NEW GUINEA: With no SOE reporting between 1980 and 2002, the government prepared reports to WSSD (2002) and the Mauritius International Meeting (2005), while it was flooded with donor-driven reports: SPREP/GEF/UNDP 2002, World Bank 2002, Japan International Cooperation Agency 2002, CSIRO 2003, Asian Development Bank 2005, European Commission 2006. PNG is once again preparing to produce an SOE.

140. POLAND: In Poland, the Central Statistical Office has produced annual Environment reports since 1972 and on CD-ROM since 2001. However complete SOE reports have been more irregular. The State Inspectorate for Environmental Protection has produced three SOE reports, first in 1997 and 1998 with the collaboration of UNEP/GRID-Warsaw and then by itself to review the period 1996-2001 followed by an SOE indicators report in 2004. The 1998 SOE report was prepared as a sophisticated web report in Polish, an abridged version with links to the full report, and a shorter web version in English. The more recent reports are pdf documents. It is not clear if a 3-year SOE reporting cycle will be maintained.

141. SAMOA: While the Pacific Island countries started very early with national SOE reporting in 1980 at the creation of the Pacific Regional Environment Programme (SPREP), more recently reporting has only been intermittent. Samoa produced a SOE report in 1993, a compendium of national environmental statistics in 1998, another SOE in 2000 focusing on water resources, and a report to WSSD in 2002. Another SOE report was released in draft form in 2007. However a more complete inventory by SPREP of reports and country profiles with SOE information includes 10 general reports and more than 20 thematic reports since 1992.

142. SENEGAL: In Senegal, the Centre for Ecological Monitoring, part of the Ministry of the Environment and Nature Protection, prepared a first web-based *Directory of the Environment and Natural Resources of Senegal* in about 1999, and a second *Report on the State of the Environment in Senegal* in 2005. The Organization for the Development of the Senegal River (OMVS) has an environmental observatory which is supposed to produce annual SOE reports for the river basin with indicators covering 13 themes, although only the 2006 report was found in this review.

143. SRI LANKA: The government of Sri Lanka produced one SOE report in 1994, and was assisted through the UNEP RRC.AP project to produce another in 2001. A *Sri Lanka Environment Outlook* (SLEO) is under preparation, and will be published in 2009.

144. TAJIKISTAN: Tajikistan developed an SOE reporting capacity with UNEP/GRID-Arendal assistance, preparing SOE reports in 1998, 2000 and 2002, as well as a state of biodiversity report (2000) and a city SOE for Dushanbe (2001), but with the end of this assistance, SOE reporting stopped until UNEP/RRC.AP supported another SOE in 2005.

145. TURKMENISTAN: From the information available (without a Russian language search), Turkmenistan produced national SOE reports in 1993 and 1999, and with UNEP/GRID-Arendal assistance developed web-based SOE reports in 1998 and 2000, as well as a biodiversity report in 2002. An Integrated Environmental Assessment is currently in preparation and likely to be finalized in 2009.

146. URUGUAY: After a first national GEO report for youth in 2003, Uruguay released a full national GEO report in 2008, and has several GEO city reports completed or in preparation.

147. UZBEKISTAN: As with many countries of the former Soviet Union, there was very active national SOE reporting immediately after the Rio Conference 1993-1996. Then UNEP/GRID-Arendal stimulated another wave of SOE reporting in 1998-2001, including local and biodiversity reports. After the end of that support, there was a gap before the first Uzbek language report in 2006. The State Committee on Nature Protection launched a trilingual website for environmental education in 2006.

148. YEMEN: Yemen has produced at least four SOE reports since 1995, including one just published.

149. ZAMBIA: While Zambia has not been very regular in its SOE reporting, it has been consistent. After a first SOE in 1990, the Environmental Council of Zambia has prepared two SOE reports in 1994 and 2000. The next report was intended for 2006 but is behind schedule, partly because of the adoption of a new Integrated Environmental Assessment approach to the report. A stakeholders' workshop selected themes for the report to be developed by thematic working groups. Training was held in indicator development, and a national process launched to develop a set of environmental indicators. SOE outlooks are also being prepared at district level and the first for Lusaka was produced in March 2008. This new process is intended to produce national SOE reports every 5 years.

E. One national SOE report

150. BAHAMAS: The Bahamas produced its first GEO report in 2005.

151. BARBADOS: Barbados has produced a single full SOE report, Barbados GEO 2000, plus reports to UNCED and the Mauritius International Meeting on SIDS.

152. BOTSWANA: The Botswana Department of Environment is mandated by the National Policy on Natural Resources Conservation and Development to prepare State of the Environment Reviews (SOERs). The government web site announces "The SOER project started in February 2000 and will complete in September 2002. After this SOER will be produced routinely at predetermined intervals to prepare and update the State of the Environment Review on a regular basis." However no further SOE reports have been produced.

153. BRUNEI DARUSSALAM
154. The first SOE report for 2006 was released in 2008.

155. BURKINA FASO: Burkina Faso has produced one national SOE report in 2002.

156. CAMBODIA: Cambodia's first integrated environmental assessment is in preparation, although the World Bank prepared an Environment Monitor report in 2003.

157. COOK ISLANDS: With only a single true SOE report in 1992, most SOE reporting in the Cook Islands is incidental to reports prepared for international conferences (UNCED, WSSD, Mauritius SIDS) or conventions (UNCCD, UNFCCC), or for donor-driven processes, rather than as a systematic assessment of the environment for national decision making. However the small scale of the country means that decision-makers are already well aware of environmental problems.

158. EL SALVADOR: GEO El Salvador was published in 2002 and a GEO city report will be released in 2008.

159. ERITREA Eritrea produced its SOE report in 2006, and has also reported under the UN conventions.

160. FIJI: Fiji started with a SOE report in 1992, but since then reporting has been to external conferences (UNCED, WSSD, Mauritius SIDS) and the international conventions (CBD, UNFCCC, and UNCCD).

161. GAMBIA: The Gambia provides a good example of the challenges of SOE reporting in a small developing country. A National Environment Agency (NEA) was created in 1993, and the National Environmental Management Act 1994 mandated SOE reports at suitable regular intervals. The first SOE report was published in 1997 with support of the World Bank, GTZ, UNDP, UNSO and FAO. It was intended that a SOE report would be produced at least every 5 years, but this does not seem to have been possible.

162. An undated report to the UN Statistics Division sheds light on the difficulties encountered: "The first SOER for the Gambia was released in 1997. However, the data collection and compilation activities for the second SOER are currently experiencing difficulties with the end of the GEAP project due mainly to financial constraints.

163. "Owing to the rising demand for statistics on the environment, at national, regional and international levels, the Central Statistics Department (CSD) established an environment statistics unit in 1997. The unit was not fully operational because of bottlenecks such as computer equipment, standardization, training, etc. Further more, collaboration between the unit and the NEA has not been close and effective enough.

164. "NEA plans to mobilize funds in order to prepare, publish and disseminate the second State of The Environment Report of The Gambia. The CSD plans to mobilize funds to build the capacity of its Environment Statistics Unit. The unit will use the framework that would be prepared by this workshop. Some modifications will be made in the framework to incorporate national and sub-regional concerns and data needs. Develop and implement a Memorandum of Understanding (MOU) between the CSD and the NEA in order to link the environment unit to the NEA's inter-sectoral network coordination." It seems clear from this example that, despite good intentions, some countries will not be able to maintain a regular SOE reporting capacity without continuing assistance.

165. GHANA: The Ghana Environmental Protection Agency has tried to produce SOE reports several times since 1996 but lacked adequate information. With UNDP support it published a single SOE report in 2004.

166. GREECE: Greece prepared one concise SOE report in 2001, and launched an SOE portal on the Internet in 2007.

167. GUYANA: The EU financed the production of a Country Environmental Profile for Guyana in 2006. A GEO for cities for Georgetown, the capital of Guyana, is in preparation.

168. HAITI: A first GEO Haiti report in draft form was available in 2008.

169. HONDURAS: GEO Honduras was produced in 2005.

170. IRAQ: Iraq has had some environmental reports by the UNEP Post-Conflict Assessment Unit, and one single-author SOE report in 2004.

171. JORDAN: While the Jordanian government publishes annual environmental statistics, the only SOE report is by an NGO in 2001. A national SOE report is in preparation in 2008.

172. DPR KOREA: The Democratic People's Republic of Korea was assisted by the UNEP RRC.AP regional project and UNDP support to prepare a SOE report in 2003 involving 20 agencies and 60 individual experts.

173. MALI: Apart from a report for WSSD, Mali completed an integrated environmental assessment report in 2005.

174. MARSHALL ISLANDS: The single SOE report from 1992 is accompanied by reports to UNCED, WSSD and the Mauritius International Meeting on SIDS, as well as reports to the CBD, UNFCCC and UNCCD.

175. MICRONESIA, FEDERATED STATES OF: Micronesia produced one SOE report with SPREP assistance in 1993, as well as reports to UNCED and WSSD. It has reported to the CBD, UNFCCC and UNCCD, and seen a major effort in the last decade to prepare reports on the state of biodiversity, for a total of 26 SOE-relevant reports.

176. MONTENEGRO: The Ministry of Environmental Protection and Area Planning, Republic of Montenegro, prepared its own SOE report in 2001, in addition to the SOE report of the Government of Federal Republic of Yugoslavia in 2002.

177. MOROCCO: Morocco had a burst of SOE activity in 2001-2002 with a national SOE report, a report to WSSD and a first national communication to the UN FCCC, but there is no evidence of continuing activity before or after.

178. NIUE: Niue has a SOE from 1993, plus substantial reports to UNCED and WSSD, and reporting to the CBD, UNFCCC and UNCCD. This is quite a reasonable effort for a country with such a small population.

179. OMAN: Oman prepared a single SOE report in 2001.

180. PAKISTAN: The Ministry of Environment, Pakistan Environmental Protection Agency is mandated to produce annual SOE reports since 1997, but has so far prepared one draft report (2005) with UNDP support.

181. PALAU: The only true SOE report for Palau dates from 1994, with reports also prepared for WSSD and the Mauritius International Meeting on SIDS. Palau has reported to the CCD and CBD.

182. QATAR: Qatar produced a sustainable development indicators report in 2006 and is completing a SOE report in 2008.

183. SAINT LUCIA: St. Lucia prepared its first SOE in 2006 in the GEO format with UNEP and IISD assistance.

184. SAUDI ARABIA: Apart from a single SOE report in 2000, Saudi Arabia does issue annual sustainable development reports.

185. SEYCHELLES: The only SOE report is a UNEP post-tsunami environmental assessment, but there is a project to develop a SOE reporting capacity.

186. SINGAPORE: Singapore has only recently begun SOE reporting. The Ministry of the Environment and Water Resources produced a SOE report in 2005 and Key Environmental Statistics in 2007.

187. SOLOMON ISLANDS: Apart from reports to UNCED and WSSD, the Solomon Islands has only produced a SOE and national environmental management strategy in 1993 with SPREP support. It has provided initial reports to the CBD, UNFCCC and UNCCD in 2001-2002.

188. SOMALIA: The UNEP Asian Tsunami Disaster Task Force prepared a SOE for Somalia as a desk study in 2005.

189. SYRIAN ARAB REPUBLIC: After preparing a SOE report in 1997, a new SOE report is awaiting final approval.

190. TUVALU: Tuvalu began with a report to UNCED and an SOE in 1993, but its next report was to the Mauritius International Meeting in 2003. It has reported to the UNFCCC and UNCCD.

191. VENEZUELA: Venezuela has produced a GEO Venezuela 2008.

192. ZIMBABWE: The Zimbabwe Central Statistical Office issued a booklet on Environmental Statistics in 1994 and announced that it would be published every 3 years, but no further reports have been found. A major (500 page) SOE report was published in 1998, but despite a legislative mandate to submit a SOE report to parliament every 5

years, no further report has been completed. A 2001 implementation plan says these reports will be based on regularly updated district profiles.

F. First SOE report in process

193. AFGHANISTAN: For Afghanistan, given the circumstances, SOE reporting has depended on external assistance. A SOE report is now in preparation with UNEP assistance.

194. BELIZE: A GEO Belize is in preparation for 2008. Starting in 1993, the government has organized periodic national symposia on the state of the environment with wide participation, which seems an innovative way in a small country to assess and build awareness of the state of the environment.

195. BOLIVIA: Bolivia has produced no national SOE reports, but one GEO cities report and another being completed.

196. DOMINICAN REPUBLIC: A GEO city report has been prepared for Santo Domingo in 2007, and a national GEO process is beginning.

197. ECUADOR: A GEO Ecuador report is nearly completed, and two GEO city reports were published recently.

198. ETHIOPIA: A first SOE report is nearly published.

199. GABON: The first Gabonese SOE report is in press.

200. IRAN: Iran State of the Environment report has been prepared with UNEP support and is about to be published.

201. LIBYA: Libya is now preparing a national SOE report.

202. LIECHTENSTEIN: Apart from a report to WSSD, Liechtenstein does not appear to have engaged in SOE reporting.

203. MOZAMBIQUE: A national SOE report is in preparation.

204. MYANMAR: Myanmar has no SOE reporting programme. However, under an ADB/GMS programme, all Greater Mekong Subregion countries prepared national environmental performance assessments in 2007.

205. NAURU: SOE reporting has not previously been a priority for a country with such obvious environmental impact from mining, but it did report in 2004 to the Mauritius International Meeting on SIDS, and has begun reporting to the UNFCCC and UNCCD.

206. PARAGUAY: Paraguay is preparing both a GEO Youth report and a GEO city report on Asuncion in 2008.

207. RWANDA: A national SOE report is now being prepared.

208. TANZANIA: A national SOE report has just been submitted to Parliament for approval.

209. TONGA: Tonga has reported to UNCED, WSSD and the Mauritius International Meeting on SIDS, and has reported to international conventions (UNCCD, UNFCCC, CBD), but has never prepared a national SOE report. The focus for decision-making at the national level is on strategies and action plans.

210. VANUATU: No SOE report has been produced as a policy and planning tool for Vanuatu. All of the national reports with SOE content were for external reporting and were prepared with the assistance of outside agencies, except one prepared by an NGO in 2002 for WSSD. However the government has prepared 8 of 12 sectoral SOE reports for reporting to international bodies including the CBD, UNFCCC and UNCCD. SOE reporting seems largely driven by outside demand.

G. No SOE Reports identified

211. No assessment process or SOE report has been identified for the following countries

Andorra, Angola, Antigua and Barbuda, Bermuda, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Cyprus, Djibouti, Dominica, DR Congo Equatorial Guinea Grenada, Guinea Bissau, Guinea, Liberia, Mauritania, Mauritius, Monaco, Nigeria, Saint Vincent, San Marino, Sao Tome, Sierra Leone, Saint Kitts and Nevis, Sudan, Suriname, Swaziland, Timor Leste, Togo

PART 3 - ANALYSIS OF NATIONAL EXPERIENCE 1992-2007

212. This section provides a synthesis of national experience, impeding factors, and best practices, based on the available sample of countries. Where individual countries are mentioned, further details are available in part 2.

A. THE NATIONAL ASSESSMENT LANDSCAPE

213. As part of the analysis of national experience for this review, the grouping of countries by their SOE reporting situation as described in part 2 was extended to explore the influence of possible correlating factors. These included the state of development (GDP/capita, Human Development Index, Global Competitiveness Index), continental or regional grouping, and relationships with peer groups of similar countries (transition economies, land-locked countries, small island developing states), but in the absence of complete coverage of all countries it was not possible to draw any significant conclusions. There was no evident correlation of SOE reporting with such national advantages or disadvantages. While clearly fewer poor countries seem to be able to afford an effective SOE reporting process, there are exceptions. Conversely, a surprising number of countries that could easily afford an SOE process and have the scientific capacity do not have one.

214. A second approach was to explore the relationship between SOE reporting and other measures of environmental quality or management, such as the Environmental Sustainability Index, Environmental Performance Index, Environmental Vulnerability Index, Ecological Footprint, and Biocapacity. This would address the question whether SOE reporting has a measurable impact on a country's state of the environment and demonstrates improvement over time. Again the number of countries surveyed and the length of experience with SOE reporting were not yet sufficient to draw conclusions, but in some comparisons of like countries, those with regular SOE reporting appeared to show improvements in environmental performance. This is an area where future research could be of considerable interest.

B. DEFINING THE TARGET AUDIENCE

215. One common feature in the experience of many countries is the changing nature of the audience targeted by SOE reports. Some of the first reports were prepared by scientists for a scientific audience of government experts, with descriptive text full of scientific terminology, data tables and perhaps a few graphics but no illustrations. Since these still had to be translated by expert advisers to policy-makers, there was a rapid move towards reports with more of a policy focus, but still the desire to be comprehensive resulted in massive reports of 500 pages or more that no decision-maker would ever have time to read.

216. As the reporting process matured, it became increasingly important to reach out to the general public and to influence public opinion in favour of environmental action and sustainability. With the advent of electronic formats and the Internet, UNEP/GRID-Arendal pioneered a new web-based SOE format, assembling a variety of types of environmental information into graphics and maps with short text easily accessible to the general public, but perhaps oversimplified for other uses. With the new portable document formats (pdf), it became possible to produce attractively laid out and abundantly illustrated reports with short indicator tables, graphics, maps and photographs that could both be printed and be distributed electronically at low cost over the Internet. This has become the dominant format for SOE reports that now average 50-100 pages.

217. In the more highly evolved SOE reporting processes, there is an evolution towards a variety of different outputs or report formats adapted to different target audiences. These can include an executive summary for policy-makers; a comprehensive report for experts, researchers and students; a massive data compilation for statisticians; a pocket version of SOE indicators for the general public; an interactive SOE web site; and perhaps a version for young people. For example, in Mexico, which reports on a 3-year cycle, the outputs include a 100 page summary report, a 360 page comprehensive report with statistical annex, a report with basic indicators, and a compendium of environmental statistics on the Internet that is updated annually.

C. WIDENING FOCUS

218. SOE reporting has reflected the evolution in thinking about environmental issues over the last few decades. There has been a widening of focus from strictly environmental issues like pollution and nature conservation to the broader framework of sustainable development, often with the explicit inclusion of economic and social dimensions and indicators alongside the environmental data. What started as SOE reporting is now frequently called sustainability reporting, with the same function and target audience. This reflects the recognition that the solution to environmental problems will only be found in the larger context of national and international sustainability.

D. INTEGRATED ASSESSMENTS

219. There has also been a growing recognition that SOE reporting requires more than a simple compilation of information on each sector or sequence of sectoral reports. One of the earliest approaches was the Pressure-State-Response (PSR) framework pioneered by the Organization for Economic Cooperation and Development (OECD) and sometimes expanded into a DPSIR (driving force, pressure, state, impact, response) framework. This made it easier to explore causes of environmental problems and corrective measures in a more integrated and dynamic way, but it still frequently left the information organized by sectors. More recent approaches go beyond the sectors to explore how the different components of the environment, the economy and society interact. UNEP helped to set an example with its *Global Environment Outlook* reports including future projections and analyses of vulnerabilities. Some national SOE reports in Africa, Latin America and Asia-Pacific have begun to follow the GEO methodology and are called Environment Outlooks or Integrated Environmental Assessment (IEA) reports, using a participatory, structured approach to linking knowledge and action (UNEP/IISD 2007).

220. This evolution has been helped by improvements in data availability, such as remotely-sensed imagery providing uniform coverage over the whole national territory; massive increases in data processing capabilities; tools such as Geographic Information Systems (GIS) that facilitate the overlay of many kinds of data and an integrated analysis; and computer systems modelling that makes it possible to explore the behaviour of the whole environmental-economic-social system. The development of scenarios to explore alternative future options adds another dimension of particular relevance for policy making.

E. COUNTRIES THAT ABANDONED SOE REPORTING

221. Among the countries surveyed, 7% seem to have stopped SOE reporting after having published reports for several years, if not decades. The documentation on SOE reporting processes seldom indicates why a government stops producing SOE reports. It should first be noted that it is impossible at a distance to judge the outside factors (political upheaval, economic crisis, etc.) that may have disrupted a government at a particular point in time, with SOE reporting as an incidental casualty. Even the best SOE process can be interrupted in such circumstances when the government has more immediate priorities.

222. A significant change of government can threaten the SOE process where this has received partisan political support. The new party comes into power and changes everything (and sometimes everyone) associated with the previous administration.

223. In a few cases there may be a reaction against the environment as an area of government responsibility, such as the abolition of the environment ministry in the Russian Federation, or the congressional decision in the United States to abolish what was seen as excessive reporting by government. In Canada, the interdepartmental consortium set up to oversee SOE reporting was terminated just as its strategy was being implemented.

224. The negative pressure can also be less obvious. No government likes to be shown in a bad light or open to criticism for neglecting environmental problems, so eliminating reporting is one way to avoid attracting attention to sensitive issues. There are even cases where SOE reports avoid certain subjects that might raise questions of mismanagement or corruption in high places.

F. ENVIRONMENT MINISTRY VERSUS STATISTICAL OFFICE

225. One interesting dimension that became evident in this review is the relationship between environment ministries or departments with their scientific capacity and assessment functions, and national statistical offices, which may have more competence in data collection and management (and are often on a more stable budget). Government statistical services make a point of being neutral and apolitical; they produce reliable numbers using standard internationally-accepted protocols, and leave the interpretation to the politicians. Given the sensitivity of many economic, social and environmental issues, this neutrality is an essential protection, and can be an advantage for the environment ministry as well. At the same time, underfunded environment departments often have difficulty in maintaining data collection and analysis services. The complementarity is evident.

226. In some countries, the two offices collaborate in a single SOE report; in others the SOE report includes a statistical annex; yet again there may be an environmental indicators report prepared by the statistical office, and another SOE report with analysis and policy recommendations by the environment department. Often there has been an evolution, starting with a single SOE report and evolving towards a more indicators driven SOE process, or even the replacement of an SOE report by an environmental indicators report. In the latter case, the national statistical office may even be left with the main responsibility for SOE reporting, as has happened, for instance, in Canada and Norway.

G. UNREALISTIC LEGISLATIVE MANDATES

227. A SOE process is generally more effective when it is a legal requirement, with a legislative act prescribing who is responsible for preparing SOE reports and to whom they should be deliver (see http://www.unep.org/pearl/Browse/Menu.aspx for an Overview of National Mandates Governing Environmental Assessment and Reporting). Where SOE reporting is just a voluntary initiative, it is vulnerable to changes in leadership or political priorities and can have less policy impact and effectiveness.

228. On the other hand, the legislative mandate can be over-ambitious. In some of the countries surveyed (Albania, Benin, Bulgaria, Colombia, Czech Republic, Egypt, France, Kenya, Malawi, Niger, Pakistan, Portugal, Tanzania, Thailand, Trinidad & Tobago, Uganda, Vietnam), the initial legislation called for annual or biennial SOE reports, a frequency that in many cases was not respected, and that may, in hindsight, have been unnecessarily frequent and repetitive. Some countries responded by varying the size and scope of the reports from year to year, but the legislative requirement reduced flexibility to adapt the reporting process to proven needs.

H. DESIGN OF THE ASSESSMENT PROCESS

229. Since a state of the environment report must be scientifically credible, most reporting processes began by assembling groups of experts to draft the report, and depending on the scientific capacity of the country, there could be tens if not a hundred or more experts contributing. In some countries, each theme or chapter had a separate expert working group. Since scientists are not necessarily the best communicators, an editorial team, perhaps with science writers or specialists in SOE reporting, helped to turn the scientific material into a final SOE product.

230. Some countries restricted the process to government experts, either from the environment ministry or drawn from all the ministries concerned, perhaps with an inter-ministerial collaboration mechanism. Others reached out to scientists in the academic community and research institutes, or in a few cases contracted out the preparation of the report to a university or research centre. Whatever process is chosen should reflect the highest available level of scientific competence and objectivity.

231. With the growing recognition of the importance of public participation, as illustrated for example by the adoption of the Aarhus Convention, SOE processes expanded to include representatives of civil society, and in particular the involvement of environmental non-governmental organizations (NGOs). In some cases, such organizations produce their own SOE reports along side national reports by the government, or in a few cases to fill the gap left by the failure of governmental reporting. In Italy, an NGO has produced annual SOE reports for far longer and more reliably than the government.

I. USE OF INDICATORS

232. While some of the earliest SOE reports were massive (several hundred page) documents full of text and data tables, it quickly became apparent that this format did not communicate effectively to most users. Agenda 21 called for the development of indicators of sustainable development, and by 1996 the work programme on indicators under the UN Commission on Sustainable Development had produced a first set of 135 proposed indicators for trial at the national level. Indicators quickly became an important component of most SOE reports as they condensed important information into easily communicated form.

233. Countries have generally gone through a national indicators selection process to produce a set of indicators appropriate to their requirements and priorities. Some countries have reported regularly on a national set of 50 or more indicators. Others may focus on a selection of 10-15 headline indicators. The United Kingdom, for example started in 1999 with a core set of 147 quality of life indicators including 15 headline indicators on which they reported annually. In 2005 they revised the indicator set, using 127 indicator measures to make up 68 indicators related to the government's Sustainable Development Strategy. These indicators form the basis for national SOE reporting, which is otherwise decentralized to the regional level.

234. In Latin America and the Caribbean, countries through the ILAC process agreed on a common set of sustainable development indicators, and are now producing national reports using those indicators.

J. THEMATIC ASSESSMENTS

235. In addition to integrated reports covering the whole of the environment, governments often prepare reports on the state of the environment in a particular thematic area, such as land use or resources, air quality, climate change, biodiversity, freshwater, or the coastal and marine environment. Often these are the responsibility of specific government departments which need to report to their own constituencies, so this reporting may or may not be linked to the SOE reporting process itself.

236. There are three categories of thematic SOE assessments: (1) those produced as part of an integrated SOE process to provide some variety, focus on priority issues, or fill the gap between more comprehensive reports; (2) those produced on an *ad hoc* basis responding to internal requirements or sectoral institutional mandates; and (3) those produced to meet reporting requirements under multilateral environmental agreements such as the Convention on Biological Diversity and the UN Framework Convention on Climate Change.

237. Reports to the conventions are usually readily available through the convention web sites and tend to follow a standard format, often more focussed on procedural questions of the implementation of convention requirements rather than SOE information. Their production is often independent of the government's SOE reporting process. However, where assessment capacity is limited, it is possible that the burden of reporting to conventions detracts from the SOE reporting process. As external reporting obligations have grown, some smaller countries have cut back or stopped reporting for internal policy and decision-making. In the Pacific, there are efforts to rationalize reporting, initially to the biodiversity-related conventions, to make the burden more manageable.

238. *Ad hoc* reports have such disparate origins and locations that it would be very difficult to locate them systematically.

239. This review has paid most attention to the use of thematic reports as part of an integrated SOE assessment and reporting process. Namibia, for instance, started with a thematic SOE reporting process in seven sectors. It is apparent that a series of integrated SOE reports at frequent intervals can become repetitive, if not duplicative. The environment often evolves slowly and incrementally, and management actions can take time to show visible results. A number of national SOE reporting processes adopted or moved to comprehensive reporting on a 4, 5 or even 10 year basis. One alternative is to report in the intervening years on specific thematic areas, treating them in more detail than would be possible in an integrated report (Canada, New Zealand). In this way, thematic reporting is an integral part of the SOE reporting strategy.

K. NATIONAL AND SUB-NATIONAL REPORTING

240. Some countries have taken a different approach and moved SOE reporting down to the regional, provincial, district or local level, to be closer to where many decisions impacting on the environment are taken. There are many different variations on this theme.

241. In Uganda, the law requires a national SOE report every 2 years, and annual SOE reports from each district. While this was perhaps overambitious, the result is at least one SOE report for each of 27 districts, and a regular biennial report at the national level. South Africa's SOE reporting process includes provincial reports upon which the national report is based, as well as many municipal SOE reports, and a series of reports on the state of major river basins. In Madagascar 5 provinces and 10 regions produce SOE reports in addition to the national reports. India has moved SOE reporting down to the state level, and Malawi and Namibia also are preparing sub-national reports. The United Kingdom has decentralized SOE reporting to Scotland, 11 English and Welsh regions and the City of London, with each using its own methodology and formats. Turkey started SOE reporting in each of 81 districts, some of which had produced several SOE reports before the first national SOE report was published.

242. UNEP has also helped in a number of regions to produce SOE reports at the local municipal government level. Most recently, the GEO Cities activities are being implemented in more than 40 cities in Latin America and the Caribbean, and are now extending to Asia Pacific, Eastern Europe, Africa and West Asia.

L. APPROPRIATE FREQUENCY

243. Determining the appropriate frequency of SOE reporting has been particularly challenging, as the variety of national approaches illustrates. Not infrequently the first massive SOE report proudly announces itself as the first in an annual series, but it quickly becomes evident that the environment evolves more slowly. To avoid repetition, subsequent reports may be shorter, or less frequent, or adopt a thematic approach. Some countries have decided to prepare SOE reports every 2, 3, 4 (Estonia, Germany, Ireland, Netherlands) or 5 years (Australia, Luxembourg, Switzerland, Zimbabwe). A number of countries produce a short SOE indicators report every year, and a more comprehensive SOE assessment report at longer intervals. Examples are the United Kingdom's "*Sustainable Development Indicators in Your Pocket*", "*Environmental Indicators in Latvia*" and "*Swiss Environmental Statistics – A Brief Guide*". Statisticians are used to annual statistical reporting, and the indicators may show more rapid change than other aspects of an environmental assessment.

244. Some countries have successfully launched and maintained an annual SOE report series, and the results are quite impressive (China, Czech Republic, Finland, Indonesia, Netherlands, Portugal, Slovakia, Spain, Sweden, Thailand, Tunisia, Vietnam). Others only produce an environmental statistics or indicators report every year, while leaving analytical SOE reporting to other levels or at less frequent intervals (Canada, Latvia, Norway, Poland, Switzerland, UK).

	Country	Year
1	Albania	1994, 1998
2	Armenia	1998, 2000, 2002
3	Azerbaijan	1998, 2004
4	Bosnia & Herzegovina	1998, 2002
5	China	1997- 2001
6	Georgia	1996
7	Hungary	1999
8	Kazakhstan	1998, 1999, 2000
9	Kyrgyzstan	1998, 2000
10	Lithuania	1998
11	Moldova	1998
12	Norway	1992-1998
13	Poland (GRID-Warsaw)	1997, 1998
14	Romania	1998, 2000
15	Serbia	2002
16	South Africa	1999 & provincial reports till 2004
17	Tajikistan	1998, 2000, 2002
18	Turkmenistan	1998, 2000
19	Uzbekistan	1998, 2000,2001

245. There is a recent tendency to replace periodic SOE reports by an SOE web site that is updated continually (Germany, Norway). While this ensures that users always have access to the latest data and do not have to wait for the publication of another report, it does remove the possibility of comparing a series of periodic reports to plot change in both data and perceptions over time.

M. ROLE OF EXTERNAL SUPPORT AND CAPACITY BUILDING

246. Capacity building was an important component of Agenda 21 and has been a major effort of the international community since Rio. What role has it played in the development of SOE reporting? The analysis of experience in this review shows mixed results, at least in terms of starting a continuing SOE reporting process. Clearly having a single well-prepared SOE report where there was none before can have an important impact for years afterwards. Also the people trained in SOE reporting, and the networks set up among those who would otherwise not have worked together, can in themselves have long-term benefits for a country. Several different projects or processes were reviewed and are described below.

247. Over twenty of the countries reviewed received assistance from two early UNEP-sponsored capacity-building projects for traditional state-of-environment reporting from UNEP/GRID-Arendal and the UNEP Regional Resource Centre for Asia and the Pacific (RRC.AP). More recently, the UNEP environment outlook and capacity building programme has shared the experience and methodologies of the Global Environment Outlook (GEO) reports, producing regional environment outlooks and inspiring the conversion of national SOE reports to national environment outlooks. The UNEP Division of Early Warning and Assessment (DEWA) representation in Latin America and the Caribbean has been particularly successful in this. The *IEA Training Manual* (UNEP/IISD 2007) is the centrepiece of an extensive capacity-building programme on integrated environmental assessment and reporting that both supports UNEP's global reporting and assists countries with their national reports.

248. **UNEP/GRID-Arendal**, a specialized UNEP centre based in and supported by Norway, pioneered electronic SOE formats available over the World Wide Web, starting in 1992 with Norway's own SOE reporting and then extending the experience through regional projects of capacity-building in the countries of central and eastern Europe and Central Asia (http://enrin.grida.no/allsoe.cfm), as well as providing specific technical assistance to countries such as China and South Africa. The earliest reports were short and technically simple, designed to reach the general public, but they improved in quality over time following the rapid evolution of the web. At the height of the regional projects in 1998, 13 national SOE reports from central and eastern Europe were published on the web, and some countries produced up to three reports, with the last in 2004. However in only five countries (China, Lithuania, Norway, Serbia and South Africa) has SOE reporting become a regular self-sustaining activity after the end of support from the projects. GRID-Arendal also supported the development of provincial reports in South Africa, of local SOE reports at the municipal level, and of thematic reports on biodiversity.

UNEP/GRID-Arendal national SOE project reports:

249. The approach of UNEP/GRID-Arendal was to build a network of local experts to assemble existing SOE information from various sources and to provide the technical assistance necessary to present that information in a web-based format that would be accessible to a wide range of users. Its focus has been on communicating information, and it has reviewed its experience in various meetings and reports to determine the impact of its efforts. (GRID-Arendal 2001, 2005)

250. The **UNEP Regional Resource Centre for Asia and the Pacific (RRC.AP)**, the regional GRID centre based at the Asian Institute of Technology in Bangkok (http://www.rrcap.unep.org/index.cfm), also organized two reporting projects for certain countries of its region, first in 1997 using remote sensing to assess land cover in 10 countries, then in 2001-2003 helping 9 countries to produce quite substantial national SOE reports. Again, in only one of these countries (Bhutan) has SOE reporting become regular despite the considerable effort in capacity building through workshops and wide participation.

	Land Cover			SOE Reporting	
	Country	**Year**		**Country**	**Year**
1	Bangladesh	1997	1	Afghanistan	1997
2	Cambodia	1997	2	Bangladesh	2001 and city
3	Lao PDR	1997	3	Bhutan	2001, 2008
4	Malaysia	1997	4	Cambodia	On going
5	Mongolia	1997	5	DPR Korea	2003
6	Myanmar	1997	6	India	2001
7	Nepal	1997	7	Iran	2008
8	Pakistan	1997	8	Lao PDR	2001
9	Thailand	1997	9	Maldives	2002
10	Vietnam	1997	10	Mongolia	2002
			11	Nepal	2001 and city
			12	Sri Lanka	2001, 2008 (draft)
			13	Thailand	city 2001, 2004

251. The office of the **UNEP Division of Early Warning and Assessment (DEWA) for Latin America and the Caribbean** has provided technical and financial assistance to 15 governments to produce integrated environmental assessments on the GEO model. It also launched a successful GEO for Cities programme starting in 2001 with 7 cities, and now with more than 40 cities in the network.

DEWA LAC:

	Country	**Year**
1	Argentina	2004,youth 2003, 4 cities
2	Bahamas	2005
3	Barbados	2000
4	Belize	in prep
5	Bolivia	2 cities
6	Brazil	2002, youth 2008, 8 cities
7	Chile	2002, 2005, 2 cities
8	Colombia	youth 2008, 2 cities
9	Costa Rica	2002, 1 city
10	Cuba	2000-2008, 4 cities
11	Dominican Republic	in prep, 1 city
12	Ecuador	2008, youth 2009 (in prep), 2 cities
13	El Salvador	2002, 2004, 2006, 1 city
14	Guatemala	2003, in prep, 1 city
15	Guyana	1 city in prep
16	Haiti	2008 draft
17	Honduras	2005
18	Mexico	2004, youth 2004, 2 cities
19	Nicaragua	2001, 2003
20	Panama	2004, 1 city
21	Paraguay	1 city
22	Peru	2000, youth 2002, 3 cities
23	St. Lucia	2006
24	Uruguay	2008, youth 2003, 4 cities
25	Venezuela	2008

252. The DEWA offices in West Asia and Africa have had similar projects for capacity building and assistance to national reporting processes using the GEO approach, but on a smaller scale. Integrated environmental assessment reports are presently being prepared with UNEP assistance in countries such as Ethiopia, Gabon and Tanzania in Africa, and Iran, Jordan, Qatar and Syria in West Asia.

SPREP

253. One of the best examples of a coherent regional approach to national SOE reporting is the Secretariat of the Pacific Regional Environment Programme (SPREP) based in Apia, Samoa, which has supported SOE efforts of its 21 small island developing states and territories for almost 30 years. Its original action plan of 1982 was based on 20 national reports prepared in 1980-1981, and it has assisted and supported several series of national SOE, integrated environmental assessment and thematic reports and strategies since then. The SPREP Pacific Environment Information Network Country Profiles Directory includes over 900 country profiles and national reports for the 21 countries in the SPREP region, most with SOE information (http://www.sprep.org/publication/PEIN_Country_Profiles.asp). Most of these reports have been prepared to meet international reporting requirements or to respond to donor-driven processes. Given the very limited resources of small island governments, their success in meeting this burden is remarkable.

254. It is no wonder that the Pacific region is actively exploring ways to simplify international reporting and to make it more coherent. SPREP has developed a country profile reporting template for its own meetings, and is presently collaborating with the Australian government in a trial of a consolidated reporting template to five main biodiversity related MEAs (CBD, CITES, Ramsar, CMS and WHC). With UNEP it is modifying the UNEP GEO integrated environment assessment handbook for trial use in the region.

255. There are clear advantages for small countries with limited resources to share expertise and methodologies in this way, and the model of SPREP may well be appropriate for other regions as well.

Peer review

256. An alternative approach to SOE reporting is the **peer review**, exemplified by the *Environmental Performance Reviews* (EPR) pioneered by the **Organization for Economic Cooperation and Development** (**OECD**), starting with Norway in 1993 and now going through a second round of reviews. Following a standard format, experts from a number of other countries work with a national team to prepare an objective analysis of the state of the environment and to identify priority areas where environmental management needs to be improved. Countries are expected to report on their efforts to address the problems identified. In this way, countries help each other to meet the environmental objectives that they have collectively agreed within OECD. Such peer pressure is a strong motivating factor for government action. The OECD countries see the value of such peer review even where they have competent national environmental services and expertise and regular SOE assessment processes.

OECD Environmental Performance Reviews:

	Country	**Year**
1	Australia	1998
2	Austria	1995, 2003
3	Belarus	1997, 2005
4	Belgium	1998, 2007
5	Bulgaria	1996
6	Canada	2004
7	Chile	2005
8	China	2007
9	Czech Republic	2005
10	Denmark	1999, 2008
11	Finland	1997
12	France	1997, 2005
13	Germany	1993, 2001
14	Greece	2000
15	Hungary	2000
16	Iceland	1993, 2001
17	Ireland	2000
18	Italy	1994, 2003

	Country	Year
19	Japan	1994, 2002
20	Korea	1997, 2006
21	Luxembourg	2000
22	Mexico	1998, 2003, 2008
23	Netherlands	1995, 2003
24	New Zealand	1996, 2007
25	Norway	1993, 2001
26	Poland	1995, 2003
27	Portugal	1993, 2001
28	Russia	1999
29	Slovakia	2002
30	Spain	1997, 2004
31	Sweden	1996, 2004
32	Switzerland	1998, 2007
33	Turkey	1999
34	United Kingdom	1994, 2002
35	USA	1996, 2006

257. Following the OECD example, the **UN Economic Commission for Europe** (**ECE**) has extended the EPR process to the countries of central and eastern Europe. 21 countries have benefited from at least one *Environmental Performance* Review (EPR) report starting in 1996, and a second series of reviews is under way. One advantage of this approach is that it provides countries with a thorough review of the state of their environment and their national performance in addressing their environmental problems even in cases where the national environmental infrastructure is weak. It compensates for the lack of the necessary internal environmental assessment and reporting capacity and brings important environmental issues directly to the policy level so that decisions can be made based on reliable environmental information.

ECE Environmental Performance Reviews:

	Country	Year
1	Albania	2002
2	Armenia	2000
3	Azerbaijan	2003
4	Bosnia & Hergovina	2004
5	Bulgaria	2000
6	Croatia	1999
7	Estonia	1996, 2001
8	Georgia	2003
9	Kazakhstan	2000, 2008
10	Kyrgyzstan	20,002,008
11	Latvia	1998
12	Lithuania	1998
13	The former Yugoslav Republic of Macedonia	2002
14	Moldova	19,982,005
15	Montenegro	2002, 2007
16	Romania	2001
17	Serbia	2002, 2007
18	Slovenia	1997
19	Tajikistan	2004
20	Ukraine	1999, 2007
21	Uzbekistan	2001

258. The peer review model of environmental performance assessment has considerable potential for extension to other parts of the world where SOE reporting is inadequate. The peer review model is more politically acceptable in that

the judgement comes from experts in similar situations who understand the realities of a particular national context, and where the country's national experts will similarly participate in the reviews of their peers. It could be a cost-effective method to raise the standards of SOE reporting by pooling expertise from a number of countries in reciprocal fashion. Such EPR reporting is ideally, however, a complement to, rather than a replacement for national SOE reporting. Each country still needs to collect the basic data on the state of and trends in its environment and resources and to use this information for national and local decision-making.

259. **UNEP** has also undertaken a number of specialized SOE reports in countries where a conflict has just ended or a major natural disaster has taken place, such as the Indian Ocean tsunami, and it is important to know the extent of the damage to the environment in order to set priorities for remediation and reconstruction. For such *Post-Conflict* or *Post-Disaster Environmental Assessments*, the support of an external team of experts is essential given the circumstances.

UNEP Post-conflict/disaster Assessments:

	Country	Year
1	Afghanistan	2003
2	Albania	2000
3	Iraq	2003, 2005
4	The former Yugoslav Republic of Macedonia	2000
5	Maldives	2005
6	Occupied Palestinian Territories	2003, 2006
7	Seychelles	2006
8	Somalia	2005
9	Sudan	2007
10	Yemen	2005

260. In an interesting recent initiative, the **United Nations Statistics Division** (**UNSD**) prepared in 2007 for each country a single page *Environment Statistics Country Snapshot*, which for the first time provides a set of basic statistics on the state of the environment uniformly for almost all countries of the world (UNSD 2007).

261. Another external approach to uniform state of environment assessment has been the *Environmental Vulnerability Index* developed by the **South Pacific Applied Geosciences Commission** (SOPAC) in collaboration with UNEP and other partners and launched at the Mauritius International Meeting of Small Island Developing States in 2005. This has produced a country profile with 50 indicators relevant to environmental vulnerability and resilience for 235 countries, territories and islands (http://www.vulnerabilityindex.net/). It now needs to be incorporated into an appropriate international assessment and reporting process.

262. It has not been possible to obtain any information on the cost to national budgets of SOE reporting, on funding provided through external SOE projects or on the value of the technical assistance provided. There is thus no basis to say anything about SOE cost-effectiveness, even if the effects could somehow be quantified. There has clearly been an effort by many donors, both bilateral and among the major agencies (World Bank, Global Environment Facility (GEF), UNEP, UNDP, etc.), and many national SOE reports would not have been published without this support. Lack of domestic funding is probably one of the main reasons why it has been so difficult for many developing countries to maintain a continuing SOE reporting process. However there are exceptions, and it would be worth studying them in more detail within each country to derive lessons that may be useful to other countries in similar economic circumstances.

263. A special note should be made of the role of the **Multilateral Environmental Agreements**, in particular the Convention on Biological Diversity (CBD), the UN Framework Convention on Climate Change, and to a lesser extent the Convention to Combat Desertification (CCD) and other agreements. These conventions require national reports that generally include an SOE component. They establish standards and formats for these reports, and have mechanisms to assist countries in meeting their reporting requirements. This survey has not reviewed these reports in detail because they are well documented by the conventions themselves. However, apart from a few early cases with biodiversity, there does not seem to have been any spill-over from the convention reporting processes to general SOE reporting. If anything it may be that the limited reporting capacity in country has had to be redirected from SOE reporting for national decision-making to meeting international reporting requirements under the conventions. Further study of this issue would be warranted to ensure that international reporting reinforces national reporting and does not undermine it.

N. PROBLEMS WITH EXTERNAL SUPPORT

264. If the fundamental purpose of environmental assessment and reporting is to improve national environmental management and the achievement of sustainability, then in may be worth re-examining the role of external support to the assessment and reporting process. In many cases, the report itself may be less significant than the process that produced it. A participatory process that involves policy-makers in identifying the key issues, local scientists in environmental observations, government officials in defining the actions they will have to implement, and representatives of civil society in suggesting priorities and building public awareness, will already have accomplished much before the report is finally produced. At one extreme is Belize, where the government organized a series of national symposia on the state of the environment with wide participation (up to 400 in one case) without producing a written SOE report at all. In a small country, this may be an effective approach to reach the important actors. On the other hand, a report prepared by outside experts, published by an international organization and delivered to decision-makers' desks may have relatively little impact.

265. If it is too easy for a country to have SOE reports prepared for it by an outside agency, it may fail to develop its own capacity for such reports, or in some cases a previously developed capacity may atrophy and be lost as the country becomes dependent on outside assistance. This can happen where the product is seen as more important than the process.

266. There is also the risk that a donor-driven reporting process will reflect the priorities and interests of the donor rather than those of the country. National particularities and sensitivities may be lost as the country adapts to the format presented to it. It takes skill to design an assessment process that can adjust itself to national particularities and help to bring out the unique situation and experience of a country rather than levelling them out. While international agencies are usually sensitive to the diversity of their members, other donors, whether individual governments or non-governmental organizations, may have their own agendas that can introduce a bias into the reports. Scientific objectivity is important here.

267. Another problem is with the increasing number of reports are not intended primarily for internal use but for reporting to external processes or agencies, and these are often supported with outside funds. These may be useful in showing how a government is delivering on its international commitments, or to justify the need for external support, but they are usually not designed to have a major impact at the national level. A problem arises, particularly in smaller countries, when the limited capacity in government for assessment and reporting is preoccupied with external reporting to the exclusion of SOE reporting for national management. The problems are described again and again in reports for an outside audience, but this does not lead to action at the national level.

268. Another problem is with donor-driven reports that may even be duplicative, such as one country (*Mongolia 2002*) that received three environmental assessments the same year from three different agencies and processes, or another (*Papua New Guinea 2002-2006*) that received three in one year and three more in the following four years, all from different donor agencies, in addition to its own reports.

O. IMPACTS OF INFORMATION TECHNOLOGIES

From paper to electronic versions

269. In the 1990s, most SOE reports were issued as printed publications, often with limited distribution through official channels. While it is possible to find references to these publications, or listings in bibliographies, they are no longer readily available. Scanning them to make them available in digital form would be an appropriate solution. The OECD and a few governments only make their reports available as sales publications, even if produced in pdf form. While this allows some cost recovery, it does greatly restrict the availability of the information and reduces the impact of the reports beyond a small circle of users.

270. The move to on-line publications in html on web sites made SOE reports more widely accessible, but perhaps even more ephemeral. In this review, a surprising number of reports could not be located because a web site no longer existed, or had been restructured, the links did not work or a damaged file has been posted.

271. Where the publishing organization has disappeared, or government offices are reorganized, and the old servers are no longer maintained or the web addresses abandoned completely, the reports may have vanished and become completely irretrievable, with the loss of past SOE information critical to the assembly of long-tem time series. There is also a tendency to reorganize web sites using new software, so that archived web addresses (URLs) for SOE reports no longer function, and if there is not a specific page listing all the SOE documents, they can be very hard to find if they still exist. More recently reports have been published in pdf format for downloading from the Internet. This is easier to manage and archive than a set of html pages, but it still requires a permanent depositary server to keep them available. There were also a number of cases where the files available for download were damaged and could not be opened. Few countries provide a complete inventory of their SOE reports on a web site.

The only solution would be a permanent international archive of SOE reports that would guarantee their continued availability regardless of changes at the national level.

272. In a few countries, the periodic report updated every few years has been replaced by an SOE web site that is continually kept up to date with the latest information. While this ensures that the users have the latest information, it does mean that there are no earlier versions with which to make comparisons over time. Where this approach is used in SOE reporting, it should include incremental additions to time series data, so that this dynamic perspective is not lost.

Text to graphics

273. The earliest SOE reports were largely descriptive text and data tables, a format that would put off all but the most determined specialist. In wealthier countries, or where donor support was available, photographs and graphics, often in colour, with more succinct text, made the reports more accessible. The move to digital reports on the internet made such formats readily affordable, and some have a sophisticated graphic layout. The increasing use of maps and graphics derived from digital imagery or remote sensing is a further advance.

274. There is potential for SOE reports to evolve into interactive SOE systems with on-line geographic information systems (GIS), and user-selected data sets overlaid on satellite imagery. This would help to bridge the gap between SOE reporting and direct use of the data for planning, management, emergency response, and education.

PART 4 - FRAMEWORK AND OPTIONS FOR COMPREHENSIVE NATIONAL SOE REPORTING PROCESS

275. The strength of a systematic review and analysis of national SOE reporting at this scale is that it provides a basis to derive lessons learned and to identify best practices and opportunities for improvement. Many of these have been described in the sections above. However it is equally evident that there is no one perfect system and that each country needs to adapt the SOE process to its own particular needs and circumstances. The sections below highlight some of the factors to consider in designing or improving a national SOE reporting process, referring where appropriate to some of the examples described in the section on national experience.

A. REALISTIC LEGISLATIVE AUTHORITY

276. It is a responsibility of the national government to protect the safety and welfare of its citizens now and in the future, and this includes a healthy and sustainable environment. SOE reporting is an essential tool to implement this responsibility, and should therefore have an appropriate legislative basis and authority, including a clear assignment of responsibility within the government and allocation of the necessary resources. The legislation should leave some flexibility to the responsible department to adapt the formats and frequency to changing circumstances and new technologies.

B. STABLE POLITICAL SUPPORT

277. Governments must want SOE reports and accept the responsibility that goes with them to protect their citizens from environmental problems. Such support should go beyond partisan political issues and be seen as a fundamental dimension of good government regardless of the party in power. SOE reporting should be seen on the same level as the production of national economic and social statistics. This requires a certain maturity in political leadership to accept being shown in a bad light, as is unfortunately too often the case in reporting on the environment.

C. INTEGRATION INTO THE POLICY-MAKING PROCESS

278. An SOE reporting process must be seen to be useful, and the most important use is to guide government policy-making in the environmental field. Good management requires a system of indicators showing the status and trends in key parameters and processes so that weaknesses can be corrected and progress can be demonstrated. Where environmental reporting is seen only as the responsibility of an often marginalized Environment Ministry and ignored by the rest of the government, it cannot have its full impact. More effective SOE systems deliver their reports to the government as a whole and/or the legislature. The example in Denmark is interesting, where an SOE report is followed two years later by an Environmental Policy White Paper, on a four-year cycle.

D. COMPLEMENTARITY OF ENVIRONMENT AND STATISTICS

279. The collective national experience shows that there is everything to gain from a close collaboration between environment ministries and national statistical offices in SOE reporting, building on their complementarities and

comparative advantages. Generating a comprehensive set of sustainability indicators including economic, social and environmental components on a regular basis is beyond the means and competence of most environment ministries, but statisticians would not feel comfortable interpreting the data and making policy recommendations, which is the role of the environmental specialists. How these two roles are reflected in the final set of SOE outputs will depend on each country situation.

E. REPORTS ADAPTED TO TARGET AUDIENCES

280. Experience has shown that it is not possible to reach all potential users effectively with a single SOE report. The more evolved reporting systems generate information in a number of different formats for each major audience. These may include an executive summary for policy makers, a policy white paper on how the government plans to respond, a comprehensive SOE report as the basic reference for experts and researchers that backstops the scientific credibility of the other outputs, a statistical compilation, an indicators report with attractive graphics and short explanations, a popular version for the general public, a youth version (perhaps prepared by youth themselves), thematic reports for priority topics, and an interactive web site that is regularly updated between revisions of the main SOE report. No one country does all of these, but each country needs to define the set of outputs that best respond to its own situation.

F. NATIONAL AND SUB-NATIONAL REPORTING

281. It should not be assumed that SOE reporting is most effective at the national level. The variety of country experiences shows that national reporting can be supplemented by reports at the provincial, district or even municipal level where many decisions affecting the environment are taken. Each country should consider its needs and capacities, look at the examples of countries that have developed this approach successfully, and if appropriate explore the potential to extend SOE reporting to the sub-national level.

G. ADAPTING TO COUNTRY SIZE AND MEANS

282. It is obvious that SOE reporting cannot be the same in China and Samoa. Size, means, scientific capacity, the quality of governance, political stability, and many other factors will determine what kind of SOE reporting process is possible and necessary. This survey does demonstrate that countries of all sizes and means can develop an effective SOE process.

283. Perhaps the most significant lesson from this review is the wide variety of SOE reporting processes, each of which seems to respond to national needs and in many cases continues to evolve as those needs change. The short summaries of national experience in this report are based on much more detailed national profiles with an inventory of all identifiable SOE documents. A more detailed study of successful national SOE processes in the future could provide useful models for other countries.

H. EVALUATION AND REVIEW

284. This review demonstrates that much has been learned about alternative paths to effective SOE reporting, and that learning process is continuing. Some of the most effective national programmes include procedures for review and evaluation that have led to significant improvements. South Africa, for instance, includes an evaluation of the impact of each 5-year national SOE report as part of the reporting process. However more countries could publish the results of these evaluations to share the experience more widely.

285. Impact evaluation is perhaps the weakest present link in the SOE reporting chain. User surveys, analysis of web site visits and other tools can provide guidance to make SOE reporting more effective.

I. CONTINUITY AND ARCHIVING

286. The term "state of the environment" is perhaps a misnomer, because the real significance is not the state of the environment at one point in time, but how it is changing. Environmental trends are the best signals for policy action, both to reduce or reverse damaging trends and to identify positive trends that are the result of successful environmental management measures. SOE reporting increases in value as it is extended over time to generate graphs and time-lines, and even interactive digital graphics, which make environmental trends visible and understandable. This is one of the important roles of indicators.

287. The SOE assessment and reporting process needs to be designed with this type of output in mind. Data collection and indicator methodologies need to be standardized so that the results are comparable from year to year. There should be some stability and regularity in the reporting process, starting from an established baseline. A permanent data archive should store all the necessary records, remotely-sensed imagery, etc. and ensure that it remains

accessible despite changes in information technology (which may require migrating information from one format to another).

288. SOE reports themselves, and any necessary supporting documentation, should also be permanently archived in a way that ensures their availability for comparative purposes.

J. INTERNATIONAL EXAMPLE

289. One important function of international organizations that was apparent in this survey is their role in setting an example and providing methodological models and standards for SOE reporting. The early work of OECD in developing the pressure-state-response framework is reflected in most SOE reports of the time. The process under the UN Commission on Sustainable Development to develop indicators of sustainable development encouraged many countries to produce a national set of indicators, and many SOE processes today are built around such a set of indicators, perhaps with a reduced set of leading or headline indicators for the public. More recently the example of the UNEP Global Environment Outlook (GEO) reports has inspired national integrated environmental assessments or GEO reports that are similarly forward looking. UNEP and other international organizations should continue to be aware of their responsibility and influence to define the state-of-the-art in SOE reporting.

K. ROLE OF EXTERNAL CAPACITY BUILDING

290. This review also shows the potential of regional assistance projects to help countries that do not have the internal capacity to produce SOE reports. Specialized centres like UNEP/GRID-Arendal and UNEP RRC.AP in Bangkok are able to use their technical and networking skills to initiate an in-country process able to assemble existing data into a useful SOE report. However such assistance is rarely sufficient in itself to launch a continuing reporting process in the country after the assistance ends. Out of 24 countries receiving assistance under these projects, only Lithuania, Serbia and Bhutan continued SOE reporting on a regular basis after such assistance. More recently, UNEP has extended regional assistance projects to Latin America and Africa, but they have not been operating long enough to assess their continuing impact.

291. The World Bank support to the preparation and publication of *Environment Monitors* in various Asian countries is another example of a donor-driven process compensating for a lack of local capacity to ensure that critical environmental information is available for national policy making. It is too early to say whether this is building a national capacity able to continue the assessment and reporting process after the end of donor support.

292. More attention is needed to the process of building a continuing national capacity for SOE reporting, including political acceptance, an institutional home and funding, a data collection network, data processing and storage facilities, the scientific capacity for assessment, and information distribution mechanisms. The ability to network across many government departments and with the research community and civil society is also critically important. A single capacity-building project is usually not sufficient to achieve such a long-term goal. The examples of best practice described in this review suggest that adequate finance is not the only, or even the most important, criterion for sustainability. Political demand from leaders who appreciate the value of environmental information for effective decision-making is also significant, as illustrated by some very poor countries with effective SOE reporting. Many processes falter because of the lack of local scientific expertise and inadequate data collection; a critical mass of local competence is another requirement for sustainability. A combination of success factors is required. The lack of any one of them can block the process. Capacity building must be broad enough to address all the requirements, and long enough to ensure that local momentum will be able to carry on unaided.

293. Where states have limited capacity (such as for example Small Island Developing States), a regional intergovernmental organization could supplement national resources with regional expertise, and organize periodic SOE reporting across their region more cost-effectively than each country could do independently. The example of SPREP in the Pacific is exemplary, helping to produce a large number of national reports over almost three decades. The African Environment Information Network (AEIN) supported by UNEP could do well to follow this example.

294. A complement to national SOE reporting, or an alternative where conditions do not permit building permanent national capacity, would be wider use of the model of peer reviews of environmental performance pioneered by OECD. A joint team of experts pooled from several countries can produce a SOE report and policy recommendations that can assist and guide a government in a way similar to national SOE reporting. What is of course missing in such an approach is the participation and buy in of decision-makers, civil society and the public.

PART 5 – GLOBAL OUTLOOK ON SOE REPORTING

295. Based on the above analysis of past and present national SOE assessment and reporting, it is worthwhile considering the future and the outlook for SOE reporting in the years ahead. Significant changes in the world are creating a new set of challenges for national governments, and presenting new needs from, and new constraints on, the SOE process. Just as the focus of reporting now balances the present state of the environment with the outlook for the environment in the years ahead, so the SOE process needs to go beyond documenting the past and present environments to projecting probable or alternative future environments. There are three major driving forces now modifying the context for SOE reporting that are outlined in the sections below: global environmental change, evolving information technologies, and the changing landscape for capacity building. These perspectives are visionary but not unrealistic in the medium term, and they can help to provide direction to present efforts to improve SOE reporting.

A. GLOBAL ENVIRONMENTAL CHANGE

296. The general assumption in the past in SOE reporting was that the national environment was a stable set of resources (land and water, flora and fauna) and natural processes, now being impacted by human activities within the country. This assumption no longer holds. Global environmental change is accelerating, as is evident in climate change, growing threats to nature conservation and biodiversity, invasive species, increasing natural disasters, modifications in agricultural potential, and the consequent rising levels of human migration and population displacement both out of and into countries.

297. As a result, future national SOE reports will have to take into account the implications of climate change and other global environmental pressures at the national level. Governments also need new kinds of information to establish national environmental policies, such as renewable energy capacities, changes in agricultural, forest and fisheries potential, projections of water resources, natural disaster risks, and threats to coastal areas from sea level rise. Government planning will require environmental data necessary to develop a more integrated industrial ecology, new kinds of food and energy production systems, better waste recycling, and approaches to human ecology based on more autonomous yet interdependent nested levels of community organization and habitat design.

298. This will require new global science-based frameworks, models and knowledge-management systems providing information on environmental drivers, pressures and impacts that will affect the national environment, and within which national environmental outlooks can then be nested, national scenarios developed and options explored. These national outlooks will in turn provide the framework for local outlooks to guide policy and planning processes.

B. EVOLVING INFORMATION TECHNOLOGIES

299. Information technologies are evolving so quickly that there is a considerable time lag before the new potentials that they open up are appreciated and developed. For SOE reporting, it is clear that there are new and growing capacities for integrating many kinds of information, organizing knowledge to facilitate access to just what is needed, becoming more user driven, and facilitating communication and organization independent of physical location.

300. Environmental data collection and analysis will become more decentralized, with some information supplied by more or less automatic data collection stations and remote sensing, some from government networks and research institutes, and some from "wiki-like" voluntary contributions and self-assembling networks of interested individuals, with appropriate quality control. Data assimilation from such multiple sources will be a great challenge.

301. Using these new tools and data flows to develop a common core of scientific information, SOE processes can be designed to generate science-based environment outlooks, indicators, scenarios and policy options delivered in multiple formats, largely electronic, to many user groups. The outputs will be targeted to policy makers; planners at national, provincial, district and local community scales; businesses and other productive enterprises; users involved in agriculture, forestry, fisheries, energy production, recreation, and nature conservation; educational institutions; civil society organizations; the media; the general public, youth and children. These targeted and easily-understood outputs will be linked to online databases and tools for those who need to go deeper into particular areas. Outputs will be both designed and delivered by the assessment processes and institutions, and directly constructed by the users themselves with the available tools according to their particular needs.

C. CHANGING LANDSCAPE FOR CAPACITY BUILDING

302. The capacity-building process is also being transformed by recent changes. The need to reduce energy-inefficient travel and greenhouse gas emissions will mean that physical travel of experts to countries or trainees to courses will have to be carefully justified, for instance in the initial stages of network building when a physical meeting to build personal relationships is important, where direct interaction with or observation of the environment is

necessary, or to give young people a first-hand experience of different environments, cultures and situations as part of their education.

303. Most training for SOE assessment and reporting will use electronic media and the Internet, combining learning landscapes, self-help tools, on-line courses, case studies and simulations. It is now possible through e-learning platforms to combine live or pre-recorded lectures, videoconference discussions, forums, blogs, student presentations, and even "virtual reality" training situations where highly-motivated participants can take part through their "avatars" or on-line selves. There is growing potential for individual tutoring, self-forming courses that trainees organize and implement themselves, and local study groups that are guided and assisted at a distance.

304. With such rapid change in content, tools and technologies, continuing education in SOE reporting is becoming essential. Mid-career study programmes can be designed not to interrupt working responsibilities by combining distance learning with short intensive courses of one or two weeks.

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