Guide for Project Leaders: How to Develop a Research Paper or a Guidance Material in Environmental Auditing

March 2011

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Background

INTOSAI WGEA has initiated a number of projects for producing research papers and guidance materials in the environmental field in the working period 2011-2013. As the WGEA "Guide for project leaders: How to develop a guidance Material in Environmental auditing" (2009) has proved to be useful, the Steering Committee (Marrakech, 2011) decided to update the document in order to cover also the preparation of research papers. This paper is to be used in the development of research papers and guides in order to ensure that they are user-friendly and consistent.

Generally, the WGEA provides guidance on how to audit a particular environmental or sustainable development topic. Such materials provide a useful starting point for SAIs undertaking an audit on the same topic.

For many areas thorough research should be done before best practice and future trends can be recognised, as well as recommendations can be given to develop an audit guideline in this area. Research project would ideally be a relatively short study with a suggested length of 20-30 pages including:
- introducing the relevance of the topic and giving general aspects of the topic;
- giving hints to best practice governance, resources etc;
- sharing the audit related work done in the respective field.

The research project does not give guidance nor introduce necessarily how to audit the topic. This is generally elaborated in guidance documents.

1. Guiding principles

Several principles were emphasised at the SC meeting in May 2008. When developing the guides, the project leaders should be aware of the guiding principles given below. Also the project leaders who develop research papers might benefit from keeping these principles in mind.
- At the XV INCOSAI congress, it was agreed that SAIs should as far as possible take the INTOSAI auditing standards into account when planning, conducting and reporting on audits concerning environmental topics. The WGEA guidance materials should instead guide readers with respect to the possibilities of auditing each specific environmental issue.
- Environmental audits can be performed in all types of audits (performance audits, compliance audits and financial audits) and within the framework of all SAIs' audit mandates. If possible and relevant, the guides and research papers should endeavour to cover audit questions that are relevant to all types of audits.[1] In practice, there will often be an overlap between the different types of audits.
- The guides will be most useful during the *planning stage,* before the auditors have decided the scope (lines of enquiry and methodology) of the audit. The guides should serve as a way of thinking, helping SAIs to identify and understand environmental issues in order to be able to design audits.
- Based on the experience of AFROSAI and IDI in using the guides for auditing or as a part of capacity building programme, the message is clear: be as concrete as possible.
- To avoid any complications or miscommunication all information from other sources has to have a reference in the text. The authors should base their information on reliable, objective and acknowledged sources throughout in the documents. It is necessary to avoid direct retyping of the content, and refer to the source when used. The reference should be possible to catch for the reader later on, so, if possible, refer to a certain document. The final decision how the referencing is done (in footnotes or have a reference list in the back of the guide) is made by the document final editor(s) and the secretariat makes sure that a common approach is used in all developed documents. Every

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[1] See INTOSAI WGEA, *Trends and evolutions in environmental auditing* (2007), INTOSAI WGEA *Environmental Audit and Regularity Auditing* (2004) and INTOSAI WGEA *Guidance on Conducting Audits of Activities with an Environmental Perspective* (2001).

reference should follow internationally recognised Harvard System of Referencing. Some examples are shown in Appendix 1, but for further details, please use the reference: Anglia Ruskin University Library, 2008. *Harvard System of Referencing Guide.*[2]

- It is suggested to keep the number of acronyms/abbreviations used to a minimum and to use only internationally recognised acronyms and abbreviations. Topic specific acronyms/abbreviations can be used if they make the document easier to read and shorter.

2. Audit terminology

The documents should use terminology and interpretations of existing standards and relate them to the issues they cover. It is important that we use terminology in a consistent way (see also glossary in the end of the document). The use of following audit terminology was discussed in the SC meeting in May 2008:

Risk analysis

*SA*Is will need to carry out a risk analysis during the planning stage, taking the basic principles of audit practice into consideration. The auditor's risk analysis helps to determine where its actions will be most relevant and useful.

In performance auditing, risk analysis is a method used in the planning stage to identify and prioritize among audit topics and define the audit objective and lines of inquiry. The risk analysis considers whether there (1) is a probability of gaps between identified audit criteria, management (efficiency) and results (goal attainment / effectiveness), and (2) the consequences of those gaps. The consequences will determine the relevance of the gaps identified. Examples of risks include high-spending areas, areas prone to risk, new or urgent activities, complex management structures, and initiatives where information is poor.[3]

In financial auditing, risk analysis is a method used initially in the planning phase and then throughout the audit to consider the possibility that the financial statements may contain material misstatements or that the entity is not achieving its goals.[4] Both external and internal factors that can influence the extent to which the entity achieves its goals are considered. Risk analysis is a continual and iterative process. Conditions and events that indicate risks of material misstatement are described in ISSAI 1315.[5]

Good auditing practice

The INTOSAI WGEA materials can include sections on good auditing practice. They will describe experiences gained from conducted audits. Ideas and tips about how to ensure a successful audit (including planning, implementation, reporting and follow-up) can result in a list of success criteria.

Good governance/management

Some SAIs use general descriptions of good governance as audit criteria.[6] The COSO standard for internal control,[7] general examples of good governance from audits or the International Standard for Environmental Management Systems, ISO 14001, or INTOSAI GOV 9100: Internal Control can be used as benchmarks for good governance, etc. The ISO standard is specific to environmental management systems.[8]

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[2] Available at: http://libweb.anglia.ac.uk/referencing/files/Harvard_referencing.pdf [Accessed 4 September 2009].

[3] *Implementation guidelines for performance auditing, Standards and guidelines for performance auditing based on INTOSAI`s Auditing Standards and practical experiences*, 2004.

[4] *Identifying and Assessing the Risks of Material Misstatement Through Understanding the Entity and Its Environment (*ISSAI 1315)

[5] Identifying and Assessing the Risks of Material Misstatement Through Understanding the Entity and Its Environment (Appendix 1 of ISSAI 1315, as well as appendix 2 of ISA 315)

[6] Audit criteria are benchmarks or standards against which the subject matter of an audit can be assessed (*Compliance Audit guidelines ISSAI 100, Exposure draft).*

[7] Committee of Sponsoring Organizations of the Treadway Commission, *Internal Control – Integrated Framework* (1994).

[8] See INTOSAI WGEA *Guidance on Conducting Audits of Activities with an Environmental Perspective* (2001), paragraph 250

3. Structure of research papers and guidance materials

For the readers convenience it is recommended to follow similar structure in WGEA research papers and guides. However, project leaders of research papers are free to decide whether to cover some steps of audit design or omit them.

Research paper	Guidance
Acknowledgements and foreword	Acknowledgements and foreword
Table of contents	Table of contents
Summary of graphics and figures(optional)	Summary of graphics and figures(optional)
Acronyms and abbreviations (or as appendix)	Acronyms and abbreviations (or as appendix)
Executive summary	Executive summary
Introduction	Introduction
Background	Background
Content chapters	Content chapters
	Designing audits (4 step approach)
	Examples of audits
Appendixes	Appendixes
Glossary	Glossary
Bibliography	Bibliography

4. Introduction parts

It is strongly recommended that the first part of the research paper or guide follows given structure:

1. Acknowledgements and foreword
2. Table of contents
3. Summary of graphics and figures(optional)
4. Acronyms and abbreviations (or as appendix)
5. Executive summary
6. Introduction

Acknowledgements and foreword

Ideally this part should not exceed more than one page in length. This paragraph is signed by the author and the INTOSAI WGEA Chair.

It is recommended that the foreword would cover the following:
- Background/introduction to the subject;
- Reason(s) why the research paper or guide was developed, possible audience the document is meant for;
- Information the respective document includes;
- The leader(s) of the project, people/offices to be thanked;
- Signatories.

Table of contents

The table of contents should give a good overview of the topics covered in the document, but it is suggested to avoid going too detailed.

Summary of tables and figures

This part is optional and decided by the project leader if it is necessary to provide the reader with it or not.

Executive summary

The executive summary should set out the scope of the material and cover the content of the whole document. Summary should provide a reader with an understanding of the document, but it should not deal with the details discussed in the whole material. It is recommended that this part is developed once the main content of the rest of the document has been fully developed.

Introduction

The project leader needs to decide either to have this part as a standalone "Introduction" or as a first chapter where introduction and background information are combined. This paragraph gives a short introduction to the topic, e.g. background information, scope of the topic, why audits in this field are important. It is strongly recommended to avoid long duplications with the executive summary and/or the following chapters.

5. Background chapters

General information is needed to help SAIs to understand the environmental challenges and understand the nature and reasons of discussed problems. The background chapters are of great value even for readers who will not continue reading the following chapters. References for further reading should be pointed out by case boxes when relevant in the background chapters.

Based on discussions of the project plans at the SC7 meeting in Tallinn, it is recommended that the following content will be covered in the background chapters:
- What is the environmental problem? The description should be based on scientific, peer-reviewed information.
- Environmental, economic and social impacts of the environmental problem (threats).
- National response to the environmental problem (mapping involved parties and policy instruments).
- International and regional responses to the environmental problem: Are there obligations that will influence national policies? Can they be used as audit criteria?
- Can the good governance be used as audit criteria in the audits?

In case of guides this chapter should help to identify relevant audit criteria derived from International Environmental agreements (IEAs).[9] The background chapters should enable the reader to understand the next chapter: how to choose and design audits, and trying not to add too detailed information on topics if it has less value for the auditor.

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[9] 'International environmental agreements' or 'IEA' is the agreed term to describe global/multilateral/international conventions/accords/agreements in the general sense.

6. Structure of the chapter in guides on designing audits

The Guidance should be focused on finding the answers to "How do I audit this topic?". A step-by-step process is advisable in all projects plans for the guides as a way of structuring the chapter describing how to choose and design audits.[10]

In general, in Steps 1 and 2 the auditor should understand the environmental problem, and the governmental response aimed at adapting to and minimising the negative consequences in the country in question.[11] The main purpose of these two steps is to collect enough information for identifying relevant risks in Step 3 and designing audits in Step 4. In Step 3, the need to prioritise and scope the audit is described. Risk analysis is a consideration throughout this step. Together with the auditor's assessment of the extent to which the audit will contribute to good governance, institutional limitations and authority of each SAI, risk analysis is relevant when identifying and prioritising audit topics. Specific tips and ideas about how to design the audit will be provided in Step 4.

All four steps are often included in the planning stage of an audit, but they are not always carried out explicitly. In addition, the four-step process is not necessarily sequential and the steps may overlap.
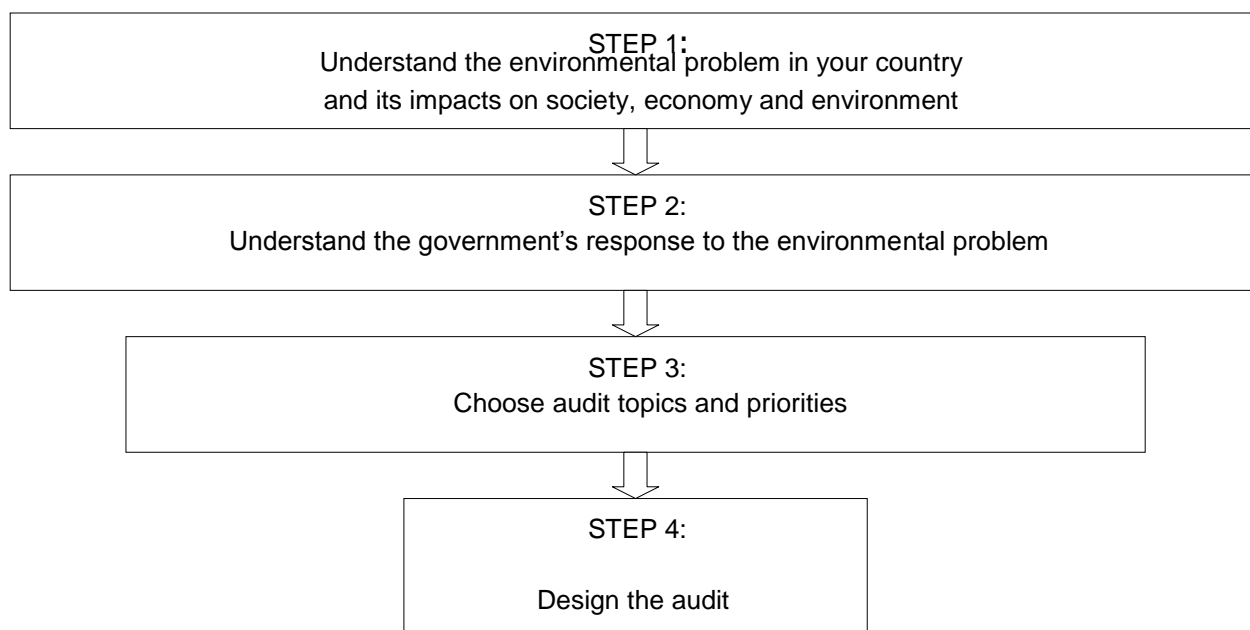
STEP 1:
Understand the environmental problem in your country
and its impacts on society, economy and environment

STEP 2:
Understand the government's response to the environmental problem

STEP 3:
Choose audit topics and priorities

STEP 4:

Design the audit

Figure 1. The four basic steps

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[10] This approach is based on the steps described in the waste management and biodiversity guide, comments from the SC and Norway's experience of applying the steps in the guide on climate change.

[11] The auditor could consider involving environmental experts during this stage.

Step 1: Understand the environmental problem in your country and its impacts on society, economy and environment[12]

Whereas the background chapters of the guides can focus on general environmental problems, in this step the auditors should be encouraged to understand the national and sub-national environmental problems, its impacts and thereby the relevance of auditing these issues in their country:

- What are the short and long-term effects on the environment, economy and society?
- Why has the environmental problem arisen? Understand the drivers of the environmental problem.
- Which sectors are most relevant?
- Are there any areas or sectors that are particularly vulnerable from an environmental point of view?
- Additional sources: where can we find out more about this?
- The experience from the guidelines on auditing waste management indicates that it can be effective to provide a figure that shows the premises of an environmental audit. The waste stream figure developed for that guide was regarded as very useful.

Step 2: Understand the government's response to the environmental problem in your country

The purpose of this step is to identify relevant audit criteria and provide an overview of how the government manages the environmental problem:

- Are there international targets and obligations within this area that commit your country?
- What are the regional and national targets and objectives in this field?
- Who are the main responsible public players? What are their roles and responsibilities?[13]
- What policies and instruments correspond to the environmental threats?
- What are the levels of public expenditure for different policy instruments and policy responses?

Step 3: Choose audit topics and priorities

Analyse the risks and materiality relating to the issues described in Steps 1 and 2 in order to define where audit action is most relevant and useful:

- Does the government's response (Step 2) reflect the environmental threats (step 1) identified? Does the government meet its environmental objectives? Is the government effective in producing environmental results and does it operate efficiently and economically?
- Do the government's financial statements reflect the environmental costs and liabilities?
- Will reporting requirements and the expected audience influence the choice of audit topic?
- How will the audit contribute to good governance?

Step 4: Design the audit

Based on the choices made in Step 3, it is time to identify audit objectives, audit criteria, audit questions and methodology for the audit. In this step, the guide will present possible ways of designing the audit. It is advisable to be concrete:

- The different audit approaches may cover financial, compliance and performance audits, possible topics for cooperative audits and different ways of describing weaknesses in environmental management.
- Issue analysis and design matrix can be used as planning tools in this step.

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[12] The need for a holistic impact on the environment could be considered by following the resource stream, as in the guide on auditing waste, but one should also consider the audit mandates in each SAI.

[13] See a list of players in INTOSAI WGEA *Guidance on Conducting Audits of Activities with an Environmental Perspective* (2001).

Audit design matrix

Developing an audit design matrix can be a valuable planning tool for the auditors. When developed, the design matrix can be an important source of information describing the design of the audit.

The design matrix should assist the auditor when defining the audit objectives, researchable questions, audit criteria, audit evidence, sources of audit evidence, expected audit findings, and possible risk areas. The relevance of the audit design matrix could shortly be described under the chapter on designing audits/step four. To illustrate the audit topics and possible approaches on how to design an audit in a certain environmental issue, it is encouraged to add one practical example of a relevant design matrix into the guide. Examples of an audit design matrix itself could be added as an appendix and a reference to it should be made in the text.

7. Audit case studies and examples

In order to be concrete in the research papers and guides, relevant audits conducted in this field can be used as case studies to illustrate possible audit approaches and audit methodology.[14] It is suggested to use as many different case studies and/or examples as possible and avoid regional specific concentration of case studies and examples. Also, it is encouraged to find distinct case studies that reflect auditing from a new perspective, e.g. use unique methodology.

The case studies might fit best in a separate chapter or appendix by using the structure below or they could be merged into audit design/content chapters. Due reference should be given to the cases throughout relevant chapters.

The maximum length of one case study should not exceed more than 1 page. The method of structuring the audits as case boxes should include the following:
SAI of (*Name of the SAI*): *Title of the Audit*
1) History
2) Audit objective
3) Scope (lines of enquiry *and* methodology)
4) Criteria
5) Audit findings (including audit evidence)
6) Recommendations (if any)
7) Follow-up or post-audit action by government or SAI (if available)
8) Reference

The author may decide to use case boxes describing relevant audits *eg* for providing concrete examples describing how the auditor might analyse the topic in each step. These cases and examples might benefit from using a less stringent structure, but still addressed as case boxes.

8. Appendices

List of references/Bibliography

It is a mandatory to have a List of References/Bibliography in the back of the document using the Harvard System of Referencing (please see the Guiding Principles and the appendix describing how to refer to different sources).

Glossary

Glossary is not a mandatory part of the document. If the project leader decides to present one, the list should include only topic specific glossary; it is suggested to avoid listing internationally very well known and univocal definitions. The glossary should be placed in the back of the document after Appendices (it is not a part of Appendices).

Acronyms and abbreviations

A separate list of the used acronyms and abbreviations should be added into the document as a part of appendices or in the introductory part of the document (to be decided by the editor).

9. Research papers and guides on related topics

To ensure that each document is adequate and comprehensive, the research papers and guides under development should provide a short summary of what other research papers and guides say about a specific and overlapping topic as well as reference to given document. The project leaders are responsible for including references to all other relevant research papers and guides where applicable, both existing ones and those in preparation.

The project leaders need to stay in contact during the working process to clarify how to cover overlapping topics and what to be referred to in each other's guides. It may be convenient to sign a memorandum of understanding in order to clarify such contacts.

When describing overlapping topics, it is recommended to use maximum one-page case box structured in a following way:

Title: Topic to be covered

1. Introduction on the topic and its relationship to the topic covered in your guide
2. International criteria, policy tools and management systems
3. Potential risks relevant to the topic in your guide
4. If useful, short extract of audits done in this field (Country, audit objective, audit findings and a reference for further reading)
5. A short description of the INTOSAI WGEA document covering the topic in general with a reference to it.

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10. Coordination of activities through the WGEA secretariat

External Experts and Organisations

The WGEA secretariat should be informed before project leaders contact external experts in international organisations and before the project leaders distribute questionnaires – either to SAIs or to external institutions. If necessary the WGEA secretariat may send a formal letter to inform the recipients. The secretariat will also coordinate the actions if different projects plan to contact the same international institution.

As a general principle, the WGEA secretariat should also be provided with a copy of important messages from project leaders, for example when they distribute draft documents or contact international organisations.

Collection of case studies

In order to avoid overburdening of SAIs with a number of information requests in short period, the practice for searching for case studies was agreed in SC 10 meeting in Marrakech, 2011. Initially the project leaders determine what information they need for cases and look for various information sources in following order:
1) Ask from subcommittee members
2) Search in WGEA database for audits
3) Approach with information requests to regional coordinators
4) Turn to secretariat if previous sources do not provide the necessary.

Commenting the draft projects

According to the approved timeline the project leaders will send the draft documents to the secretariat, then the secretariat will forward the draft documents to the steering committee members for comments and the secretariat will set deadline for feedback.
Generally the comments should consider the following:
1. Is the text logically coherent, comprehensible and readable; is provided information up to date and in accordance with general comprehension; is there anything that the document should cover additionally or does the document contain irrelevant information.
2. It is suggested to avoid giving general comments related to specific topic. On the contrary, SC members are encouraged to provide solutions and make suggestions, give references to sources etc to help the author in all possible ways.
3. Current document is a recommendation how to develop research papers and guidance materials. Major gaps between draft paper and current document "Guide for Project Leaders: How to Develop a Research Paper or a Guidance Materials in Environmental Auditing" could be pointed out, where the reader thinks it would be wise to follow the recommendation given here. The author should be provided with a reference to specific chapters and paragraphs of present guide.

Other issues

Secretariat looks for possibilities to edit the final drafts of the research papers and guidance documents. The overall layout and the final desktop publishing of the document (fonts, logos etc.) are provided by the secretariat.

The timeline and the approval process of the document are decided by the INTOSAI WGEA Steering Committee.

Based on the project leaders' proposal the Steering Committee decides if the document could be an INTOSAI document or will remain as a Working Group document.

The Secretariat of the INTOSAI WGEA would like to thank the SAI of Norway for their effort in compiling this document, as well as all other project leaders for their input.

Appendix 1: Examples how to use references

Books

Author, Initials/first name., Year. *Title of book.* Edition. (only include this if not the first edition) Place: Publisher.

Redman, P., 2006. *Good essay writing: a social sciences guide.* 3rd ed. London: Open University in assoc. with Sage.
Barker, R. Kirk, J. & Munday, R.J., 1988. *Narrative analysis.* 3rd ed. Bloomington: Indiana University Press.

Journal articles

Author, Initials., Year. Title of article. *Full Title of Journal*, Volume number (Issue/Part number), Page numbers.

Perry, C., 2001. What health care assistants know about clean hands. *Nursing Times*, 97(22), pp.63-64.

Acts of Parliament

Short title with Key words capitalized, which includes the year followed by the chapter number in brackets. Key words of titles are capitalized. Place of publication: Publisher.

Higher Education Act 2004. (c.8), London: HMSO.

Websites

Authorship or Source, Year. *Title of web document or web page.* [Medium] Available at: include web site address/URL(Uniform Resource Locator) and additional details such as access or routing from the home page of the source. [Accessed date].
National electronic Library for Health. 2003. *Can walking make you slimmer and healthier? (Hitting the headlines article).* [Online] (Updated 16 Jan 2005) Available at: http://www.nhs.uk.hth.walking [Accessed 10 April 2005].

N.B. the URL should be underlined
The title of a web page is normally the main heading on the page.

Publications available at websites

Author or corporate author, Year. *Title of document.* [Medium] Place : Producer/Publisher. Available at: include web site address/URL(Uniform Resource Locator) and additional details of access, such as the routing from the home page of the source. [Accessed date].

N.B. the URL should be underlined

Scottish Intercollegiate Guidelines. 2001. *Hypertension in the elderly.* (SIGN publication 20) [internet] Edinburgh : SIGN (Published 2001) Available at:
http://www.sign.ac.uk/pdf/sign49.pdf [Accessed 17 March 2005].

Boots Group Plc., 2003. *Corporate social responsibility.* [Online] Boots Group Plc. Available at:
http://www.Boots-Plc.Com/Information/Info.Asp?Level1id=447&Level 2id=0[Accessed 23 July 2005].

Defoe, D., 1999. *The fortunes and the misfortunes of the famous Moll Flanders.* [Online] Champaign, Illinois: Project Gutenberg. Available at:

http://Promo.Net/Cgi-Promo/Pg/T9.Cgi?Entry=370&Full=Yes&Ftpsite=Http://www.Ibiblio.Org/Gutenberg/
[Accessed 18 November 2005].

Pictures, Images and Photographs
Artist/Photographers name, Year of production. Title of image. [Meduum]
(Collection details).
Beaton,C., 1956. Marilyn Monroe. [Photograph]
(Marilyn Monroe's own private collection).

Beaton,C., 1944. China 1944: *A mother resting her head on her sick child's pillow in the Canadian Mission Hospital in Chengtu*. [Photograph]
(Imperial War Museum Collection).

Artist/Photographers name, Year of production. Title of image. [medium] Available at: include web site address/URL(Uniform Resource Locator) and additional details of access, such as the routing from the home page of the source. [Accessed date].

Dean, Roger, 2008 Tales from Topographic Oceans. [print] Available at:
http://rogerdean.com/store/product_info.php?cPath=48&products_id=88 From home
page/store/calendar/august
[Accessed 18 June 2008].

Glossary

Coordinated audit

Any form of co-operation between **joint** and **concurrent** audits. This can be either a joint audit with separate reports or a concurrent audit with a single, international audit report in addition to separate national reports.

Comprehensive audit

A combination of two or more of financial, compliance, or performance type audit is often described as a comprehensive audit.

Concurrent (or parallel) audit

An audit conducted more or less simultaneously by two or more SAIs, but with a separate audit team from each SAI reporting only to its own elected assembly or government, and reporting only the observations and/or conclusions pertaining to its own country.

Environmental audit

Financial, compliance and performance auditing that evaluates and gives opinions on environment-related matters.

Environmental Impact Assessment

The process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.

Environmental Management System

The part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining an environmental policy

Joint audit

Audit conducted by one audit team composed of auditors from two or more SAIs, who prepare a single audit report for publishing in all participating countries.

Strategic Environmental Assessment

A systematic, proactive process for evaluating the environmental consequences of policy, plan, or program proposals to ensure that they are fully considered and addressed at the earliest appropriate stage of decision making, and that they are addressed on a par with economic and social considerations.

Sustainable development

Sustainable development is most commonly defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development encompasses intertwined social, environmental, and economic development; and emphasizes the need to simultaneously reduce poverty, and, maintain or improve the quality of natural resources.