



AFRICA ENVIRONMENT OUTLOOK 3

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Authors' Guide



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ACRONYMS

AEIN	Africa Environmental Information Network
AEO	Africa Environment Outlook
AfDB	African Development Bank
AMCEN	African Ministerial Conference on the Environment
ANEJ	Africa Network of Environmental Journalists
AREIN	Arab Regional Environmental Information Network
AUC	African Union Commission (AUC)
AWF	African Wildlife Foundation
CCs	Collaborating Centres
CDC	Centres for Disease Control and Prevention
CGIAR	Consultative Group on International Agricultural Research
CIFOR	Centre for International Forestry Research
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DPSEEA	Drivers-Pressure-State-Exposure-Effect-Action
DPSIR	Driver-Pressure-State-Impact-Response
EAC	East African Community
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization
GEO	Global Environment Outlook
GRID	Global Resource Information Database
HEADLAMP	Health and Environment Analysis for Decision Making
IATC	Inter Agency Technical Committee of AMCEN
ICIPE	International Centre for Insect Physiology and Ecology
ICRAF	International Centre for Research in Agroforestry
IDRC	International Development Research Centre
IGAD	Intergovernmental Authority for Development
IIED	International Institute for Environment and Development
IISD	International Institute for Sustainable Development
ILRI	International Livestock Research Institute
IUCN	International Union for the Conservation of Nature
MEAs	Multilateral Environmental Agreements
NASA	National Aeronautics and Space Administration
NEPAD	New Partnership for Africa's Development
SADC	Southern African Development Community
UN	United Nations
UNCBD	UN Convention on Biodiversity
UNDESA	UN Department of Economic and Social Affairs
UNDP	UN Development Programme
UNECA	UN Economic Commission for Africa
UNEP	UN Environment Programme
UNESCO	UN Educational, Scientific and Cultural Organization
UN-Habitat	UN Human Settlements Programme
UNWTO	UN World Tourism Organization
WCMC	World Conservation Monitoring Centre
WHC	World Heritage Convention
WHO	World Health Organization
WRI	World Resources Institute
WWF	World Wildlife Fund for Nature

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OVERVIEW

THE AEO REPORT SERIES

The Africa Environment Outlook (AEO) is a publication of the African Ministerial Conference on the Environment. In 2008, a joint meeting of the African Ministers of Health and Environment was held in Libreville, Gabon. During this meeting, the role of the AEO as a decision support tool was reaffirmed. A follow-up joint meeting of the ministers further decided that the AEO-3, the third in the series, should focus on health and environment issues in Africa.

PURPOSE

The purpose of these guidelines is to serve as a reference point for all players involved in the AEO-3 production process. The main aim is to ensure consistency in the quality of contributions to the report; avoid problems in the use of illustrations; and guide the editorial and review processes. The guidelines are relevant to all partners and stakeholders contributing to the AEO-3 reporting process. They should be used through all stages of the process: from data acquisition, drafting, writing editing, peer review through to design and printing of the finished product.

When the second Africa Environment Outlook (AEO-2) was being written, guidelines were prepared to ensure consistency in the quality of contributions to the report. The AEO-2 Guidelines took into account the difficulties experienced in the production of the first AEO report. The current guidelines aim to further streamline the process and are based on the experiences and lessons learned from the previous AEO and GEO processes, as well as other UNEP-commissioned case studies.

The guidelines are also expected to ensure a strong science-policy interface, by elucidating the health and environment linkages within environmental assessments. To that end, it explains the institutional framework and roles of the different actors involved in the AEO-3 process; indicates possible sources of information; highlights the analytical framework to be used in the report; and provides the report outline.

TARGETED USERS

These guidelines target the following players in the AEO-3 process:

- The AEO team at UNEP, which is responsible for managing the AEO production process.
- Collaborating Centres (CCs), which are responsible for reviewing the completed Data/Indicator Matrix, coordinating inputs from stakeholders at the sub-regional levels, identifying required specialist support services and supervising the drafting of the AEO-3 manuscript, particularly Parts II and III.
- The AEO Data Working Group, which will design an updated AEO-3 Data and Indicator Matrix to reflect the AEO-3 thematic areas and to guide data collection. They will also respond to questions raised on data or indicators during the drafting of the chapters.
- Other AEO-3 working groups and organs that constitute integral elements of a participatory process for the preparation and quality assurance of the AEO-3.
- The Editorial Coordinators, who will use the AEO Data and Indicator Matrix and inputs from specialists involved in the drafting of the sub-regional inputs for Part I and III of the report.
- Experts, Authors and Editors who will provide specific inputs into the report.
- Reviewers who will cross-check and validate facts and figures as presented in draft manuscripts of AEO-3.
- Copy editors and Proofreaders who will make extensive reference to the guidelines during their work.

STRUCTURE OF THE GUIDELINES

The Guidelines are presented in five main sections.

Part 1 of the Guidelines identifies the institutional framework for the AEO-3. It also describes the specific responsibilities of the major players. This is intended to enable a clear allocation of duties and understanding of inter-linkages between the different stakeholders. It will also ensure that tasks are performed smoothly without any misunderstanding.

Part 2 lists the possible data needs and identifies potential sources of information for data acquisition purposes. The institutions listed may also provide the specialist support needed for data compilation and analysis.

Part 3 explains the analytical framework to be used in writing the report. It also highlights other aspects to be included in the analysis. The style guide to be used by the authors, CCs and reviewers is in Part 4. Lastly, Part 5 describes the main sections of the AEO-3 report.

PART 1

INSTITUTIONAL FRAMEWORK AND ROLES





PART 1

INSTITUTIONAL FRAMEWORK AND ROLES

The AEO report series and products are the result of a multidisciplinary collaborative process involving organizations, groups and individuals. The responsibilities of each set of players are explained below.

1. **African Ministerial Conference on the Environment (AMCEN)** is the body that commissions the AEO reports and related products. It is the primary audience of the report. The secretariat is responsible for the overall political coordination of the AEO process.
2. **The Bureau of AMCEN:** The Bureau reviews the implementation of AMCEN decisions and provides guidance during the inter-session period. It also gives guidance on emerging policy issues that relate to the Conference and sets the agenda of the special and regular sessions of AMCEN. It is responsible for providing guidance on the AEO theme and the focus for each report series.
3. **The Inter Agency Technical Committee of AMCEN (IATC):** This Committee is comprised of African experts, who provide technical support to the Conference. They review technical documents (including the AEO reports) before they are forwarded for consideration by the Bureau of AMCEN for adoption at Regular Sessions.
4. **The African Union Commission (AUC)** in partnership with UNEP and the United Nations Economic Commission for Africa (UNECA) is involved in the preparation and production of the AEO Reports.
5. **The United Nations Economic Commission for Africa** in partnership with UNEP and AUC takes part in the preparation and production of the AEO reports.
6. **World Health Organisation (WHO):** The WHO, through the African Ministers of Health sitting jointly with their partners in the Environment sector, acknowledged the role of the AEO publications series as a decision support tool. They further agreed to the decision that the AEO-3 should focus on health and environment. The WHO is expected to fully contribute towards the preparation of the report given the thematic focus on health and environment.
7. **UNEP/AEO Team:** This team is responsible for the conceptualization, direction, implementation and monitoring of the report preparation process. It is also in charge of sourcing, commissioning and coordinating all the players involved. The team is also the institutional repository for AEO-3 documents and websites.
8. **The Africa Environment Information Network (AEIN)** was initiated in response to AMCEN's needs. Its main objective is 'to build capacity for establishing the essential data and information management foundation needed to support country-level integrated environmental assessments and reporting' in support of the AEO process. In a practical sense, the AEIN provides the framework for collaboration between the different centres and networks that provide information on Africa for the AEO, and in this case, the AEO-3. It also helps harmonize datasets and methodologies for analysis thus making sub-regional comparisons possible.
9. **The Data Working Group** is a specialised technical group, with an elected chairperson who reports to the UNEP/DEWA Regional Coordinator for Africa. It has specific terms of reference and is mandated to assist in harmonizing statistical and spatial datasets and analytical methodologies, in user-friendly and practical ways. The AEO Data Working Group is responsible for defining the core datasets for the AEO-3. They also approve the final Data and Indicators Matrix. In addition, this group is the reference point for questions about data and analytical methodologies, and as such provides clarification, direction, and makes decisions.

10. Scenarios Working Group: This working group articulates a range of scenarios, with a view to examining their plausibility, desirability and sustainability. The AEO-3 scenarios provide structured accounts of the interplay between processes concerning socio-economic, environmental and health inter-linkages. The scenarios can operate at regional, sub-regional, national or local levels. The Scenarios Working Group considers the implications of various scenarios, and helps to define the future outlooks related to each scenario. The Scenarios Working Group meets to determine the structure of the scenarios part of the AEO-3 report. The group also provides the reference point for questions, clarification and direction for the AEO-3 scenarios chapter contributors. The Scenarios Working Group works closely with the Data Working Group to ensure that the presented data and trends are consistent with the outlook chapter. It also works with other relevant stakeholders to ensure the ownership and credibility of the scenario building process.

11. Policy Analysis Working Group: This group provides advice and input to the AEO-3 process on environmental and health policy inter-linkages and the implications for achievement of agreed-upon commitments such as the Millennium Development Goals (MDGs). The group provides guidance on: a) a set of environment and health policies that should be reviewed to illustrate the intricacies of environment-health policies; b) identification of alternative policies in light of the environment-health assessments for consideration by the AMCEN; and c) how the effectiveness of existing policies could be enhanced and defined through some innovative approaches to dealing with emerging environment and health concerns. The Policy Analysis Working Group develops a structure for a Chapter input to the AEO-3 report using the Policy Analysis Guidelines developed by UNEP and UNDP. It works closely with the other working groups and serves as a reference point for questions, clarification, and direction for the contributors with regards to policy analysis, and also reviews the Policy Chapter once it is written.

12. The Publications and Outreach Working Group provides advice and input on writing, editing and publishing, design of outreach products, and channels of dissemination. It is intimately concerned with the report, and other related products (case study volumes, scenarios booklets, videos and so forth) that come out of the process. The Publications and Outreach Working Group is a reference point for questions that arise on issues such as authorship and attribution, illustrations, legal matters, and handling of publishers and contracts. It provides

clarification and direction on issues relating to writing and publishing of the report and launch products as well as media relations. The Publications and Outreach Working Group works closely with the AEO-3 Secretariat, the Africa Network for Environmental Journalists (ANEJ) and the other working groups in determining how the key messages and the attained AEO-3 outcomes are communicated to the various audiences.

13. The Collaborating Centres (CCs) collect and compile data, case studies, and information on the relevant themes in their respective sub-regions. They do this through their national networks of focal points. In addition they supervise the filling in of the Data and Indicator Matrix, which ultimately provides guidance on the kind of information the CCs should collect. The CCs put forward the names of authors and experts to write up the themes at the sub-regional level, as well as nominate archivists, technical editors, illustrators, and translators for their sub-regions.

The CCs supervise and provide assistance to the thematic authors, who analyse the data and information collected for the sub-regions according to the AEO-3 analytical framework. They supervise and organise sub-regional consultations to review the draft inputs. The CCs also network with relevant institutions in their sub-regions to provide specialized services to the process, including database development, scenario modelling, collection and development of data and indicators, and policy analysis. Lastly, the CCs are expected to work closely with the Publications Outreach Working Group in developing the key messages of AEO-3.

14. Experts (scientists, scenario builders, policy analysts, etc.): Experts provide authorship input and advice to various chapters as needed. They attend some working group meetings as well as construct guidelines and outlines for specific chapters. They review chapters and other products such as case studies.

15. Authors (lead, theme and chapter authors): Thematic authors at the sub-regional level analyse the data collected by the CCs from the national focal points and prepare a sub-regional synthesis for a specific theme. The sub-regional theme authors then pass this information to the CCs, who review it and consolidate it into a sub-regional report that includes all the themes. The CCs make sure that all the countries in the sub-region have received adequate focus. Lead authors then take the written sub-regional sections and put them together to construct an integrated regional overview. The lead authors draw conclusions and recommendations from

the report that are then used in the production of the 'Policy Options' Chapter.

The other chapters that do not necessarily follow a thematic approach are written by chapter authors. The lead authors also review these chapters and standardize the writing where necessary. This is especially important as there may be two or more authors writing on different aspects of a chapter. The lead author integrates the chapters if written by several authors, ensuring quality control and flagging issues that may require clarity. Each author is responsible for the accuracy of the presented material.

- 16. Website Archivist:** The UNEP Secretariat engages an intern to visit and verify each website reference in the document, recording the web page in a repository and setting up a link so that all website references can be accessed on a permanent basis.
- 17. Technical Editors** review the technical and structural aspects of the documents, confirm that the presentation is correct, and that the component parts of the report are all present. They check tables and graphs, as well as references. The manuscript should be completed before it is given to the technical editors.
- 18. Illustrators** can be used where the authors may not be able to provide or source the necessary maps and photographs; or may not be able to transform the information into creative and user-friendly graphs or other

graphic representations. They assist in the various AEO products such as posters, fact sheets, thematic and extracts. The AEO team identifies individuals, who can locate some of the necessary photographs, or draw maps or graphs.

- 19. Reviewers:** The AEO team, as well as the CCs compile a database of potential reviewers. In some cases, these could be experts, who have written for UNEP or WHO before. They can also be drawn from the database of authors compiled during the production of previous AEO or WHO technical reports on the subject matter. Reviewers should be technically competent, and have the time to do a thorough review of the manuscript. They should be able to submit their inputs within a reasonably short timeframe, and be accessible by email. There may be consultative reviews of some parts of the report. In this case, reviewers are expected to attend meetings and provide inputs as required. If any parts of the report are to be written in French, then a good understanding of the language will be necessary for those who may have to review it before it is translated.
- 20. Translators** should have a good understanding of the subject matter. Someone who is familiar with the text in the original language should check the translation both from linguistic and technical aspects.
- 21. Copy editors** will review the grammar and textual presentation of the manuscript, including punctuation, referencing style, and formatting, according to the AEO-3 style sheet

PART 2

DATA AND INFORMATION NEEDS AND SOURCES FOR THE AEO-3





PART 2

DATA AND INFORMATION NEEDS FOR THE AEO-3

THEMATIC FOCUS OF THE AEO-3

The thematic focus of the AEO-3 is health and environment. The report will discuss the linkages between the two themes and the impacts on peoples' livelihoods in the region. The required information will therefore not be limited to environmental parameters only, but also necessitate the consideration of social, political and economic information, especially as these issues impact on, or are affected by, the environment. The data needs will thus include biophysical features, demography, socio-economic issues, epidemiology, and related health sciences.

DATA ISSUES

Data will come from many sources and exist in different types and formats. This information will be needed at aggregated national, sub-regional, and regional levels. In addition, data from the sub-national or local levels may also be necessary because of their peculiarity or significance. This may be true for disease prevalence and other socio-economic information on livelihoods.

Gaps in the data should be identified as soon as possible. To this end, a data inconsistency and gap analysis should be conducted. When writing, the information and data collected can be analysed using the analytical frameworks described in Part 3 of these guidelines.

INFORMATION NEEDS

There will be a variety of thematic areas covered in the AEO-3 report and these will need information from a range of experts or specialists. In the interest of ensuring that the report is based on credible science, specialist support from epidemiologists and public health experts is required, especially on reported environment-health linkages, the

types of exposure, vulnerabilities, and impacts that are analysed. They can also provide guidance on the science-policy interface of the discerned environment-health issues and the proposed policy options.

Editorial Coordinators and CCs will collect most of the information. Biophysical data will be needed to examine the quantity, quality and distribution of environmental resources, industrial wastewater and emissions, energy generation and consumption, infrastructure and how they impact on health integrity. In addition, the CCs may wish to collect data on the cost of disease burden. This can come in the form of monetary or non-monetary indicators. Monetary values may simply be the average household income spent on family medical bills or productivity lost as a result of ailments. Examples may be drawn from national level statistics.

Information will also be required on health dynamics: social (cultural), political and economic issues. Examples of such data include demography, infrastructure, policies and legislation, livelihoods, land tenure and right of access to and use of resources, among others.

The report also requires information on the various multilateral agreements to which the countries in the region are party and their state of compliance.

POSSIBLE DATA SOURCES

Listed below are examples of the types of establishments that are likely to be able to supply data and information to the AEO-3 process. This is not exhaustive and only serves as an indicative list.

1. Governments: Data can often be found in government ministries, national statistical offices and departments or in universities and academic institutions. In addition, some governments have set up National Environment

Management Authorities that produce reports and are in charge of National State of Environment reporting and conducting Environmental Impact Assessments. Some governments have also set up public health institutes and health-related research centres that are producers and users of health-environment indicators and data.

2. Regional bodies: These include regional bodies such as the United Nations Economic Commission for Africa (UNECA), the United Nations Department of Economic and Social Affairs (UNDESA), New Partnership for Africa's Development (NEPAD), African Development Bank (AfDB) and sub-regional economic entities such as the Economic Community Of West African States (ECOWAS), East African Community (EAC), Intergovernmental Authority for Development (IGAD), Southern African Development Community (SADC) and the Arab Maghreb Union. Particular attention needs to be given to policy and programmatic environment-health issues dealt with by these regional bodies. Lessons learned and good practices as well as emerging issues from them would be useful to the authors of the various AEO-3 chapters.
3. International Research Centres: Some universities and research centres in other countries conduct research in the region, and are able to provide data and expertise. For example, NASA and the University of California have a climate model that looks at the relationship of the drought in North Africa and changes in vegetation. The Centres for Disease Control and Prevention (CDC) in the United States has information on some of the emerging diseases, while other countries have communicable diseases centres (CDCs) as well.
4. International Organisations: The WHO and UNEP GEO data portal and the Africa data portal hosted at GRID-Nairobi are the major sources of information for the AEO-3 report. Other divisions in UNEP are able to provide information on data for specific themes (eg climate change and health). Other notable international organisations that could provide data to the AEO-3 include:
 - World Conservation Monitoring Centre (WCMC)
 - World Health Organization (WHO)
 - The WHO, Office of Global and Integrated Environmental Health (Health and Environment Analysis for Decision Making (HEADLAMP))
 - World Resources Institute (WRI)
- United Nations Development Programme (UNDP)
- International Development Research Centre (IDRC)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)
- Food and Agriculture Organization (FAO)
- United Nations Human Settlements Programme (UN-HABITAT)
- Consultative Group on International Agricultural Research (CGIAR) (including the International Livestock Research Institute (ILRI) and the International Centre for Research in Agroforestry (ICRAF))
- Centre for International Forestry Research (CIFOR)
- Convention Secretariats (United Nations Convention on Biological Diversity (UNCBD); Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention); World Heritage Conventions (WHC); and the Convention on Trade in Endangered Species of Wild Fauna and Flora (CITES), among others)
- UN World Tourism Organization (UNWTO)
- International Institute for Environment and Development (IIED)
- International Institute for Sustainable Development (IISD)
- World Bank
- International Centre for Insect Physiology and Ecology (ICIPE), Nairobi
5. Other Institutions, NGOs and Initiatives that could provide data include:
 - Smithsonian Institution
 - Stockholm Environment Institute
 - Conservation International
 - International Union for the Conservation of Nature (IUCN)
 - World Wildlife Fund for Nature (WWF)
 - African Wildlife Foundation (AWF)
 - Birdlife International
 - Royal Botanic Gardens at Kew
 - Charity organizations working on health in Africa
 - Medical Library Association
 - Millennium Ecosystem Assessment
 - Southern African Sub Global Assessment
6. International, regional and sub-regional networks:
 - Africa Environmental Information Network (AEIN)
 - Africa Network of Environmental Journalists (ANEJ)
 - Arab Regional Environmental Information Network (AREIN)
 - Network of African Environmental Lawyers

PART 3

ANALYTICAL FRAMEWORK





PART 3

ANALYTICAL FRAMEWORK

BACKGROUND TO THE ANALYTICAL FRAMEWORK

The analytical framework to guide part II authors for the AEO-3 is a hybrid of the Opportunities framework as used in the AEO-2 report and the Drivers-Pressures-State-Exposure-Effects-Actions (DPSEEA) framework commonly used in health and environment assessments.

THE OPPORTUNITIES FRAMEWORK

The Opportunities framework is an improvement of the Drivers-Pressures-State-Impact-Response (DPSIR) approach that is widely used in many reporting processes in Africa. The major difference between the two is that the Opportunities framework includes a slant towards the opportunities that the environment provides for development. This approach focuses on looking at the potential opportunities for reducing poverty and promoting sustainable livelihoods. It starts by

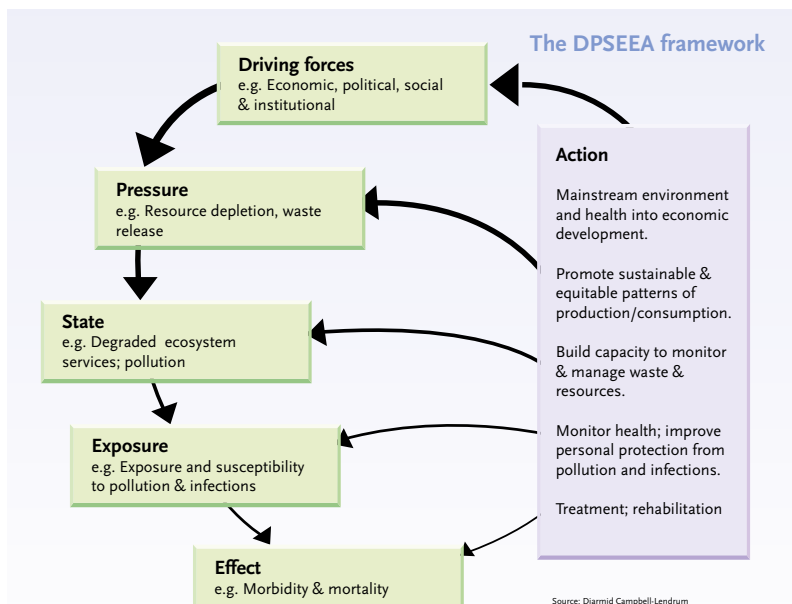
taking an inventory of existing resources and looking at trends in the recent past at the scale of interest (local, national, sub-regional or regional); and explaining why the observed trends have occurred.

THE DPSEEA FRAMEWORK

The DPSEEA framework allows for the mapping of a spectrum of environmental health issues. The framework adopts a linear or 'chain' approach to mapping environment and health issues from high-level cultural, political **Drivers** of environmental change to **Pressures** which modify the physical environment to produce an environment with defined characteristics (**State**). A particular environmental state will impact humans through varying amounts of **Exposure** resulting in certain health **Effects**. Societal responses are, in fact, **Actions**, applied at the Drivers, Pressures, State, Exposure and Effect levels as part of management efforts. The **Actions** are aimed at reducing the magnitude of the driving forces, the impact of the pressures, alterations to the state of environmental risks, exposure and effects. The DPSEEA framework is shown in Figure 1.

Figure 1: Key elements of the DPSEEA Framework

Source: Corvalán C, Briggs D, Zielhuis G., (Eds). (2000). *Decision-Making in Environmental Health: From Evidence to Action*. Geneva, World Health Organization.



Source: Diarmid Campbell-Lendrum

From a policy perspective, the Actions or responses can be mapped at any point along the DPSEEA framework chain. The Actions may seek to protect or repair a degraded environment, enhance environmental conservation measures or replicate good practices through lesson-learning. The DPSEEA framework recognizes that whether a particular aspect of the environment (a State) results in an Exposure for the individual and whether that exposure results in a health Effect (positive or negative), is influenced by the context. That context may be demographic, social, behavioural, cultural or genetic; and aspects of the context may also be targets for policy and action to improve the health outcome. The context to a large extent determines a society's vulnerability and/or risk to environmental change. The CCs and sub-regional authors will ensure context issues and opportunities are adequately reflected in the reporting through contextualized analysis and case studies.

KEY ELEMENTS OF THE DPSEEA FRAMEWORK

The key elements of the DPSEEA framework are described below. Indicators should be used to represent and measure the different elements of the DPSEEA framework in each issue. Some issues can be represented by a single indicator, but the AEO Data Working Group recognizes that a combination of indicators is preferable. Examples of indicators that can be used to describe them are listed under each element.

Drivers are sometimes referred to as indirect or underlying forces that constrain or compel activities thus having a direct impact on the environment. The environment is always in a state of flux, changing and adapting due to various forces. These include both natural phenomena, for example, earthquakes and volcanoes, as well as human-induced activities. The most significant driving forces, which have been identified under the AEO reporting process, are demographics, economics, social, culture, technology, environment, and governance. They have influenced the alteration of the state of the environment - for better or worse - over the past and will continue well beyond the outlook period of AEO-3.

In another example, some key factors at the macro scale may broadly impact environmental processes ultimately affecting human health. For example, macroeconomic policies may have major effects on the environment and on people's health. Trade and fiscal policies may indirectly impact human health by affecting income levels and distribution. Agricultural or energy policies may affect health by impacting on land, air or water resources. Some examples of Driving Forces Indicators are:

- Total fertility rate
- Population growth rate
- Urban growth rate
- Annual energy consumption levels
- GDP per capita and growth rate
- Income levels, distribution/trends
- Adult literacy rate
- Primary and secondary school enrolment rates
- Employment rate
- Population below poverty line
- Social equity index

Pressures: Driving forces result in pressures on the environment. They can arise from a wide range of social, economic, political and cultural activities. These can include demographics, production and consumption, population, poverty, urbanization, industrialization, technological developments, governance, regional conflicts, globalization of trade, finance, and information.

For instance, all sectors of economic activity, such as transport, energy, housing, agriculture, industry or tourism generate pressures. They can occur from specific activities such as resource extraction, processing of materials, and the

associated management of wastes. An important pressure from the point of view of human health is the release of pollutants into the environment. Many different sources and media such as water, air, and soil may be involved.

Pressures are often thought of as 'root causes' of environmental problems and trends. It is not necessary to address all societal developments, but only those which are of most relevance to the particular issue. Gender-related pressures should also be taken into account. Some examples of indicators of Pressure are:

- Number and type of polluting industries
- Levels of domestic consumption of gas, coal, and biomass
- Production and consumption of ozone-depleting substances such as chlorofluorocarbons (CFCs)
- Consumption levels of leaded gasoline
- Average road traffic volume and density
- Annual emissions of sulphur and nitrogen oxides, particulates, toxics and heavy metals, carbon monoxide, and volatile organic compounds (VOCs)
- Annual national and global emissions of greenhouse gases (for example carbon dioxide) by source
- Annual emissions from major industrial facilities by source
- Policies (environmental and others) may also cause pressure on the environment. For example subsidies, for fertilizers, which encourage their excessive use may in turn result in their accumulation in, and subsequent eutrophication and degradation of, aquatic ecosystems.

State: The state (quality) of the environment is affected by the various pressures exerted. Some changes may be complex and widespread, affecting almost all aspects of the environment and resulting in effects such as desertification, marine pollution or climate change, while others may be more localized (for example, contamination of a local water supply). The frequency or magnitude of natural hazards (eg floods or soil erosion) may be increased, natural resources (such as biodiversity or soil fertility) may be negatively impacted or the quality of air and water may be affected by pollution. Some examples of State Indicators include:

- Pollutant concentrations (for example sulphur dioxide, nitrogen oxides, ozone, particulates, lead) in urban air;
- Concentrations of carbon monoxide and volatile organic compounds in urban air;
- Number of hours/days per year during which pollutants exceed standards;
- Concentrations of ozone-depleting substances in air;
- Global atmospheric concentration levels of greenhouse gases;
- Indoor air pollution levels; and,
- Annual number of severe pollution incidents.

Exposure: Even where the state of the environment is impacted, people's health and well-being may be affected

only when they are actually exposed to an environmental hazard. Many factors determine whether an individual will be exposed, for example, to pollution in the environment. Pollution levels vary from place to place and over time, and people's activities and behavioural patterns may influence the extent to which they come into contact with the environment. An environmental factor may play a major or a minor role in influencing a disease outcome. With low levels of exposure, the factors concerned may often play a contributory rather than a primary role in causing disease or a reduction in human wellbeing.

Exposure in the occupational setting may be easier to characterize than exposure in the environmental setting. However, in both contexts it is often necessary to rely on proxies of exposures. These may include state of environment indicators such as the concentration of pollution; or pressure indicators even further removed from the exposure in question, like emission rates, distance from a source such as a road or industry, estimates of traffic volume or living in a home with smokers. Some Exposure indicators include:

- Proportion of population living in poor housing conditions
- Proportion of population that is homeless
- Proportion of population living in substandard housing
- Proportion of dwellings disconnected from water, electricity, gas supplies
- Average number of persons per room in occupied housing units
- Proportion of population without access to adequate sanitation
- Proportion of population with raised blood lead levels

Effects: Once a person has been exposed to an environmental hazard, health effects may manifest themselves. These may vary in type, intensity, and magnitude depending on the type of hazard, the level of exposure and other factors. The ill-health effects of environmental exposures may be acute, occurring relatively soon after exposure (from a single large dose due to an accident or a spill for example), or they may be chronic, occurring as a result of cumulative exposures over time. A long time may elapse between the initial exposure and the appearance of the adverse health effect, for example exposure to asbestos or exposure to radiation and leukaemia. Dispersal of the population at risk over time and the long incubation period make reconstruction of exposures problematic, such that acute health effects are often easier to detect than chronic ones, which may be difficult to relate to specific hazards or sources. Effects indicators may include:

- Number of outbreaks of food-borne disease (for example Salmonella, E. coli) and waterborne disease (for example cholera, typhoid, giardia, shigella)

- Work-related mortality and morbidity (for example in respect of asbestosis, heavy metal poisonings, fatal and non-fatal injuries)
- Mortality and morbidity associated with motor vehicle accidents
- Number of deaths from drowning
- Mortality and morbidity associated with non-work-related injuries and poisonings (for example pesticides)
- Environment-related cancer morbidity and mortality (for example lung cancer in non-smokers)
- Morbidity and mortality associated with typhoid, malaria, polio, cholera, hepatitis A and other infectious/parasitic diseases
- Morbidity and mortality associated with diarrhoea in young children
- Morbidity and mortality associated with acute respiratory infections/pneumonia in young children
- Morbidity and mortality associated with asthma
- Mortality and morbidity associated with chronic respiratory disease.

The spatial scale (local, national, sub-regional, regional, global) of the Effects should also be taken into consideration. Indicators that best measure the impacts directly should be used. In discussing Effects it is desirable to:

- Analyze the impact that environmental state and trends have had on human health and well being, ecosystem services and functioning, and economies using suitable indicators and case studies;
- Where possible, use graphs to help illustrate the trends in impacts;
- Supply all underlying data along with the graphs.
- Indicate if there are any linkages with other sectors or issues;
- Describe the spatial dimension of the impacts (sub-regional, regional, and global), including factors responsible for the spatial differences;
- Where possible, draw on existing studies to present an economic analysis for each type of impact; and,
- Discuss the anticipated effects of any emerging issues.

Action: These include actions against all or any of the stages in the DPSEEA framework chain as illustrated in Figure 1 and may target actions to repair, protect, enhance or replicate an environmental issue or opportunity. Actions include a range of responses which can be undertaken to reduce human exposure or health effects.

Actions seek to control and prevent health hazards, and these are useful in that they address potentially remediable problems. Actions must be adopted with due regard for the uncertainty that exists about the extent of the direct and indirect risks to human health associated with specific

agents in the environment or with the broader development process. While in some instances the hazards in question are known and identified, the contrary is often the case. For many substances, it is not known whether there is a threshold for an adverse effect and, if so, what that threshold is. Many environment-related diseases and conditions go unrecognized. Certain cancers and 'subtle' diseases and disorders such as intelligence impairment caused by exposure to lead during childhood may not be recognized as being due to environmental factors.

While sound public policy is based on analyses of the best available information, it does not require absolute scientific certainty. Different actions can be taken, targeted at various points in the framework. It would be impossible to reduce all environmental exposures to a level at which the risk to human health is zero. Measures to improve public health must be implemented over time. Such measures may be short term and remedial or longer-term and preventive (for example changing personal behaviour and life styles). Measures could take the form of a policy or a comprehensive plan of action, which outlines the goals to be achieved in improving health and the environment and mechanisms for attaining those goals, such as standards. A prudent policy on acceptable exposure levels is important and such policies should be revised and updated in accordance with new scientific knowledge. This may lead, in some cases, to the introduction of more stringent standards, while in other cases the standards may be shown to have been unnecessarily restrictive.

The management of health hazards might be improved in other ways, apart from setting standards or guidelines and using improved technology and control measures to attain them. Education and raising the awareness of individuals about the risks to which they are exposed and the personal opportunities that exist for avoiding and reducing these risks, are particularly relevant. The public's perception of risks often differs from that of scientists and regulators. Risks that are familiar may be less threatening than those which are unfamiliar, and people may be more willing to accept a risk that they believe they can control, especially when they may derive a direct benefit from doing so.

Various actions should thus be taken, based on consideration of the nature of the risks, their amenability to control, and the public's perceptions of the risks. Indicators of such actions do not illustrate an effect on the environment but reflect efforts to improve the environment and human health. Examples of Action indicators include:

- Health and environmental policies and action plans in place at different levels
- Existence of a national sustainable development strategy

- Emergency preparedness plans for health and the environment
- Policies in place on the import, use, emission, and disposal of toxic chemicals
- Measures taken to incorporate health issues in national environmental plans, and in sustainable development plans
- Measures taken to incorporate health and environmental issues in plans for such sectors as energy, transport and agriculture
- Existence of a national institution in charge of the environment
- Formal mechanism or structure in place for involving major groups and partners in policy development at different levels

INDICATORS

As seen from the fore-going discussion, the use of indicators will form a central part of the DPSEEA analytical framework. It is therefore critical that all involved stakeholders understand what an indicator is and how they are used. The AEO Data Working Group defines an indicator as follows:

'A quantitative or qualitative value that measures the variable (i.e. data type) of interest.'

However, there is a lot more to the generation and use of indicators than the definition implies.

The following comments and definitions (some quoted directly) are taken from two sources: Capacity Building for Integrated Environmental Assessment and Reporting -- Training Manual (UNEP, IISD, Ecologistics International) and the European Environment Agency (EEA) Indicator Fact Sheet Model:

Indicators can be defined more broadly as 'system variables that express and communicate important information (to an audience) that is seen as critical to the development of environmental problems'. This implies that they should, therefore, be screened for their relevance for those who will use them for decision making. Indicators will vary depending on the audience, the geographical, political or social context. Selecting indicators that are appropriate for a given context is important: one cannot simply adopt indicator sets developed elsewhere.

Indicators simplify a complex reality. They distil information derived from analyzing data obtained by monitoring and data collection. Raw data or statistics do not make an indicator without the results of analysis and synthesis. They must include an explanation of the possible causes of change (or lack thereof) shown by the indicator.

Criteria for indicators (Meadows, 1998; The World Bank, 1997) include the following:

- They should be developed within an accepted analytical framework
- Be clearly defined and easy to understand
- Be subject to aggregation (from household to community, and community to nation)
- Be objective (independent of the data collector)
- Have reasonable data requirements (either data that are available or data that can be collected at low cost and within the ability of the country's statistical agencies)
- Be relevant to the users
- Be limited in number
- Reflect causes, process or results (or pressure, state and responses)
- Take gender differences into account, if appropriate

The AEO Data Working Group notes that in some cases, several indicators will have to be used in analyzing processes, or changes, especially in trying to establish relationships,

or causality. It is necessary for CCs, and authors who are developing or using indicators in the AEO-3 report, to specify how and why the indicator was chosen, make sure that it is clearly defined, and specify its relationship to the issue being analysed, and how it can show something about that particular issue, environmental or social condition. This could be included in the text, or in a box near the relevant tables or graphics.

THE HYBRID OPPORTUNITIES-DPSEEA ANALYTICAL FRAMEWORK

Combining both the Opportunities and the DPSEEA frameworks will provide a structure for analysing interrelated factors that impact on human health and well-being and how the opportunities provided by the environmental assets determine or are affected by environmental health outcomes. It will be relevant in Africa where the majority of people depend directly on the environment; and where there is a direct link between the health of both the people and the environmental assets on which they depend.

Figure 2: The Hybrid Opportunities – DPSEEA Framework

The framework is divided into two but still shows the inter-connectedness: the society (people) and the environment (and its opportunities).

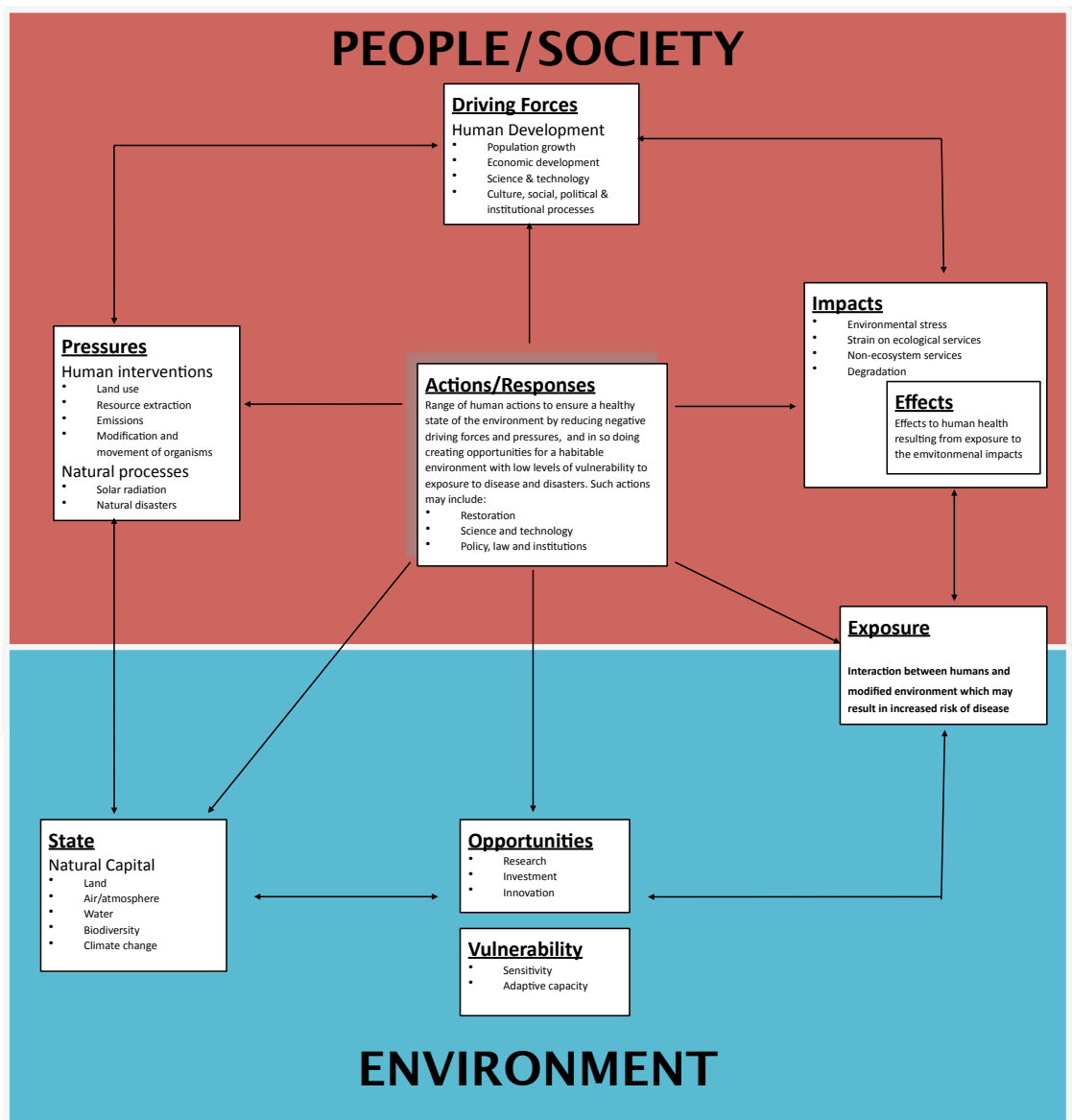
The added value to the DPSIR, Opportunities, Vulnerability and DPSEEA frameworks is that this hybrid framework clearly shows that the state of the environment creates conditions that can make a society vulnerable to exposure to the effects of a degraded environment while at the same time it can also create opportunities for a habitable environment.

While providing for an assessment of the Impact, the framework also puts emphasis on discussion of the Effects on society's health.

Central to the framework are Actions/Responses, which should be targeted at all the elements of the framework with the aim to:

- Reduce the pressure on the environment;
- Improve the state of the environment;
- Create opportunities for a habitable environment;
- Reduce society's exposure to a degraded environment; and,
- Manage the effects on society of a degraded environment.

Source: Adapted from UNEP (2009). IEA Training Manual Volume Two: Vulnerability and Impact Assessment for Adaptation to Climate Change. UNEP, Nairobi.



The DPSEEA framework focuses on environment-pressures (in other words we must reduce the pressures on the environment through decreased socioeconomic activity, changes in consumption patterns, improvement in technology) and on Exposures and Effects. The Opportunities framework focuses on the available assets and how they can be sustainably used for human and economic development. These opportunities will be relevant at all the different elements of the DPSEEA framework. For example, there are opportunities to address pressures caused by anthropogenic or natural changes to the state of the environment; there will be opportunities to reduce exposure to different environmental hazards that may result in health effects on humans or the ecosystems; there will also be opportunities to address or understand how and why different communities or social groups are more vulnerable to these exposures. Figure 2 illustrates the hybrid Opportunities-DPSEEA framework; and the CCs and sub-regional authors will be expected to underscore these interlinkages.

USING THE HYBRID OPPORTUNITIES-DPSEEA ANALYTICAL FRAMEWORK IN THE AEO-3

Part II of the AEO-3 will contain an integrated analysis of the state and trends in the selected themes. The analysis must be based on reliable data and information on each issue, including:

- The environmental state and trends using AEO-1 as the baseline;
- Pressures on the issue, including environmental and other sectoral policies that were adopted in the 10-year period before 2002, as explained in AEO-1, and the occurrences of natural events and processes that might have affected the environment;
- Impacts on the sustainability of ecosystem services, human health and well-being and the economy; and,
- Information on policy responses and their performance.

The analysis in this part will require a comprehensive search for data and information relevant to the issues, from reliable published sources. Unpublished material, for instance internal reports, if from reliable sources and based on valid methodologies and approaches, can also be used to supplement data from published sources. Although quantitative data are preferred, qualitative information and descriptive observations can be useful where the former are lacking, for example with gender-related issues.

The data and information should be analysed within the hybrid Opportunities-DPSEEA framework to give a comprehensive linkage between health and environment, and to illustrate how socio-economic driving forces can generate environmental pressures, leading to altered ecosystem states, personal exposure to risks, and eventual health impacts.

Where these driving forces, pressures, states, and impacts operate differently in relationship to gender, this should be provided for in data collection, and brought out in the analysis. Examples of opportunities for better environmental management should be provided.

Where necessary, it should be used in conjunction with a sustainable livelihoods framework in order to include socio-economic issues where appropriate. The Africa Data Working Group notes that the incorporation of the 'opportunities approach' to the DPSEEA framework will further explore responses to environmental issues. The Sustainable livelihoods framework is further discussed in the section on 'Environment-health inter-linkages and sustainable livelihoods' p...

OTHER ASPECTS TO BE INCLUDED IN THE ANALYSIS

Analyzing the impacts of Multi-lateral Environmental Agreements (MEAs) on the environment: There will be need for a brief assessment of the impacts of MEAs on the issues being addressed. This assessment should also be extended to include MEAs developed by Africa at regional and sub-regional level. The assessment will mainly focus on sub-regional, regional and global conventions, but may also cover soft laws, environmental funding mechanisms, and other international environmental mechanisms and bodies as appropriate. The impact of development issues and socio-economic factors (eg trade patterns, technology transfer) associated with the implementation of international agreements, as well as linkages with other international agreements that have an impact on the environment (eg trade agreements) should also be considered in this assessment.

Environment-health inter-linkages and sustainable livelihoods: The sustainable livelihoods framework examines the interaction between contexts, livelihood means, institutional processes and structures, livelihood strategies, and sustainable livelihood outcomes (Scoones, I. 1998). It is an analytical framework that puts people at the centre of development, thus improving understanding of the connections between people and the overall enabling environment that influences the outcomes of the different livelihood strategies.

In creating a livelihood for themselves, people use various resources and livelihood assets. These include natural resources, technologies, skills, knowledge and capacity, health, access to education, sources of credit, or community networks. Various external factors may limit or enhance access to these resources or livelihood assets. It should be noted that whereas livelihood strategies can often exert pressure on the environment, changes in the state of the environment can also place restrictions on livelihood strategies; and the outcomes of this can have

socioeconomic, health and well-being impacts on people. Institutions, structures and processes can also transform access to resources and the way people pursue livelihoods. Responses include changes in strategies for exploiting the environment (some of which can be considered opportunities), or perhaps policy responses at a higher level. A livelihood can be considered sustainable when it can cope with and recover from these factors, both now and in the future.

This framework may be useful, for example, in examining the way that policies, laws or culture can impact on livelihood strategies, outcomes and ultimately the wellbeing of the people. As the AEO-3 is focusing on the relationship between environment and health, it is recommended that sustainable livelihood concepts be included in the analysis.

Gender and environment-health issues: Gender refers to social (not biological) differences between men and women that are learned, changeable, and vary between and within cultures. Gender affects the way people experience environmental change, their vulnerability to health impacts their capabilities in seizing opportunities for improved livelihoods via sustainable use of natural resources and enforcement of both environmental and public health policies and laws. It is important to understand the different

roles imposed by gender on the management of environment and public health. This will help policy makers to understand how existing and intended policies in the environment, health or related sectors such as agriculture and energy will impact on the livelihoods of both men and women. Gender analysis should, therefore, be integrated into indicator preparation and analysis wherever possible. Policy recommendations and conclusions should also be drawn with respect to possible impacts on different gender groups in society.

Scenarios: These provide structured accounts (coherent stories told in words and numbers) of a range of possible pathways that can be taken, but they are not predictions. They incorporate socio-economic as well as biophysical dimensions, qualitative as well as quantitative approaches, and may use conventional or non-orthodox views of the way the world functions. Descriptive written narratives (known as qualitative scenarios, can describe trends or relationships in cases where there are few or no numerical data. They are also useful for incorporating shocks or discontinuities.

There are a number of models and tools used to come up with quantitative scenarios, which provide greater rigour, precision and consistency. However, reliable numerical data are needed.

PART 4

STYLE GUIDE





PART 4

STYLE GUIDE

The following general guidelines were prepared to assist in the preparation of GEO-4 and the AEO-2, and have been adopted for AEO-3. The idea behind them is to ensure that there is consistency throughout the whole report.

Please follow these rules from writing of the first draft, it will save you time.

GENERAL GUIDELINES

Presentation of Messages: Key messages are expected to emerge from Parts I and II of the AEO-3 report. The messages should follow from the assessments, analyses and discussions of initiatives, emerging issues and policies, and the conclusions and recommendations for future actions. The message for each section should be stated immediately after the introduction. This will prepare the reader for the final outcome of the argument about the issues presented in the section. For example, the importance of monitoring environmental performance at the local as well as the national or sub-regional level could be summarized in a message saying that: 'At the local level, communities may be able to reduce their impacts on the environment, improve their health and sustain their livelihoods, even where nationally aggregated data indicate a decline in environmental conditions. These local experiences can be used to provide lessons for up-scaling techniques of good environmental management'.

Referencing: Data, information, quotes, extracts, and substantive statements must all be referenced. If anything is taken verbatim from another text, publication or even an unpublished manuscript, it must appear in quotation marks (with the source). The citation for any statement made must appear in the text with the information, and the reference in the reference section. See the 'Format for referencing' section p. 21 for details. Illustrations must be credited, and if they come from a published source, referenced as well. You might find material, or part of a chapter that has a statement without a reference, or where the references cannot be traced. If you cannot find a similar statement

or material to use as a reference, you could locate something similar on the Web, by changing the wording a bit, and looking it up. It is possible to get sources for material in this way. Both printed publications and the websites where they are found can be added as sources. Websites, although increasingly used, are not ideal, because they are not permanent, and so cannot be traced after a few years unless they are archived. The material may not have undergone a thorough review. Try to back up web references with published material. The websites that are referenced in the AEO-3 are, however, placed in a repository. All websites that are listed in the document will be visited and verified. The page is downloaded, tagged and then archived. The reference for the web page is then the repository, which can be accessed through a hyperlink on the CD version of the report. Web pages must be cited under their authorship, and then listed in the References section. The style for citation and reference of websites is covered in the 'Format for Referencing' section p. 21.

Twitters and newspaper sources are not recognized as authentic for this report and should therefore not be cited or used.

Research, compilation of material and definitions: CCs are to compile datasets, collected from national and sub-regional partner institutions and the national focal points. This will follow the structure set up in the Analytical Framework. Experts may have their own original data or data from published sources. The CCs are to collect, analyse, and compile the data and information into a sub-regional draft report. Experts/authors will add additional reference material.

The AEO Data Working Group will meet on a regular basis to formulate and recommend actions for the AEO-3 process that are concerned with data and indicators. If there are problems with certain aspects of the data or information aspect of the assessment, CCs and authors (through their CCs or editorial coordinators), can request the Data Working Group to make recommendations on these issues.

The Data Working Group defines some key components of the analysis as follows:

- Issues: Identified challenges/constraints to achieving the stated African Union/NEPAD and GEO objectives.
- Opportunities/resource potential: 'opportunity' for countries and communities to make choices for the sound use of available resources for development. In the context of AEO-3, this will include opportunities for countries/communities to achieve a good standard of human health and wellbeing.
- Data types: higher order grouping of indicators and information that characterize the parameter of interest (opportunities or issues).
- Indicator: a quantitative or qualitative value that measures the variable (i.e. data type) of interest (further elaborated on in the section on indicators).
- Opportunity cost: Loss to society of values associated with the endowment/assets that come from their misuse

Writing style: The usual editorial rules for readability apply: use active sentences, not passive; and Saxon words, as opposed to Latin/Romance. For example, write 'help' instead of 'facilitate'. AVOID the use of jargon. Clear, tight statements are preferable. Words that denote female or male gender only should be avoided when both sexes are being referred to. Other issues to note include:

- Use English spelling not American. Use Oxford style not Collins (The Concise Oxford Dictionary is the best reference book). This means using '-ize' endings as in 'organize' not 'organise' in nearly all cases (but never after 'y', as in 'analyse').
- Avoid using 'in the sub-region' and 'in the Northern African region' except where really necessary.
- Use initial capitals (as in Prime Minister) very sparingly and only when absolutely necessary.
- Use only metric units, with their correct SI abbreviations. Change tons to tonnes.
- In the text spell out numbers one to ten (unless followed by units), and put numbers higher than ten in numerals; sentences that contain both numbers less than ten and greater than ten should use numerals ('5 lions and 12 tigers'). If the sentence must begin with a number, it must be spelled out.
- Compound adjectives should be hyphenated: richly-dressed. Otherwise, you often have to reread a sentence to get the sense of it.
- Do not use a full point after contractions (Dr, Mr, Ms, and so on). Use a full stop only after abbreviations (for example, ed. for editor).
- No full stops after eg or ie.
- Avoid inverted commas as much as possible; their use makes things sound unchecked or tentative. Use them for reported speech or direct quotes.

- Avoid Latin words wherever possible; some AEO-3 readers may not have English as their mother tongue and cannot be expected to know Latin as well; use the English equivalent ('among others' for *inter alia*, 'for example' for *i.e.*, and so on). This does not apply to taxonomic terms.
- Biological/scientific names: If you are referring to a biological organism, please give the Latin name the first time it is mentioned (as well as English or local name), after that, the English or local (if no English term) name only can be used. Use italics, capitalise the genus but not the species: Olive baboon, *Papio anubis*. Once the full Latin name has been given, it can also be referred to as *P. anubis*, if the term is to be repeated. If the non-Latin term is from a local language (not English), please also put in italics. eg: *Juniperus procera* – mutarakwa (Kikuyu), pencil cedar (English).
- If a word is to be used that is not English, put it in italics: eg the Kiswahili word for a farm: *shamba*. If translation is appropriate, use that, but if it is difficult to translate, give a definition, and then use the word in italics.
- Latin and foreign phrases - *per capita*, *per annum*, *joie de vivre* should also be in italics.
- Padding and flowery language puts people off and is unprofessional. Follow the basic rule: TUTT – Tighten up the text. You can find and delete almost every 'also, however, thus, both, etc.' Tighten up sentences and avoid repetition

GENERAL RULES

Photographs, reproduced maps or illustrations: If the author, or CC or Editorial Coordinator would like to provide illustrations and photographs, this should be done early on so that the quality can be ascertained and their usefulness in the publication established. If the photographs or illustrations are from a source other than the author (or the CC), it is essential that a written permission from the source is obtained. Photographs must be in high resolution and have a minimum of 500 dots per inch (DPI) if they are digital. If not, original prints should be provided. If UNEP is to get the illustrations, either off the web, or from its library, and has permission for use, this should be clarified early on in the process, so that UNEP can source and provide the material.

The AEO team and UNEP should conduct discussions early on about what is required to get the appropriate illustrations. Any illustrations to be used in case studies or chapters should be cleared by the author, editorial coordinator, or technical editor, to make sure that they reflect information in the document.

Authors should be very specific about what kind of illustrations they need UNEP to provide, which will

facilitate the process. For instance, what maps should show, which people should be in the photographs, doing which activities, and the area of the country they should come from. For example, a photo of ladies treating mosquito nets is perfect for a discussion of malaria control, but not when the case study is in Mauritius, and the ladies are from West or South Africa.

Another issue that has come up before is whether or not the faces of subjects should be blurred, if the photo shows them as ill or in some other state, where they would not want to be recognized. It is recommended that such photos not be used.

Photographing cattle or grave markers can be sensitive in some regions, so taking of such photographs, and perhaps their use, should be done with due diligence.

Graphics and representation of statistics: Good graphical representation of numerical information is important, but opinions vary as to the best ways to do this. There are many guidelines available on the internet, but some general points are given here, from Guidelines put out by the Statistical Services Centre, University of Reading, as well as EIA Guidelines for Statistical Graphs (US Govt.):

- Text should not be used when there are too many numbers (more than four). If there are sets of numerical results, they can be put in tables, or in graphics. They should be well presented, otherwise they might be incomprehensible.
 - Generally, tables are better than graphs for presenting 'structured numeric information'. Graphs are more useful when indicating trends, showing relationships, or making broad comparisons.
 - The graphics should be self-explanatory and easily understood without the text. The rows, columns, axes and other features should be clearly labelled. Make the caption of the graphs or tables informative.
 - The text should highlight the key points in the table or graphics. Keep it simple, but informative. Be clear as to what was measured (definition and units), where the data were collected, when (time period) and the source (if the data comes from somewhere other than the author). If collected by the author, then the author should be the source.
 - Try not to use three-dimensional charts.
 - Use line graphs when there is a lot of detail, and when the horizontal axis will represent a continuous quantity, or time spent in an activity. When the horizontal axis is a qualitative factor (like different age categories), bar charts are more appropriate.
 - Line graphs are useful when displaying more than one relationship in the same picture. They can show more detail than bar graphs. Do not place more than five lines as this gets confusing. Use different kinds of lines (solid, dashed), different colours and different plotting symbols (asterisks, squares) to distinguish. Use these consistently, and try to keep the scale the same if the graphs are going to be compared.
 - Bar charts are not considered useful if there are large amounts of structured information, but are good for presenting simple results. Because the categories on the horizontal axis are discrete, the chart is easier to read if the bars are sorted in order of height (first bar is greatest, in descending order, or the reverse).
 - If there is more than one bar chart to be compared, and they have the same categories, then keep them in the same order, regardless of the height of the bars. If there is a series, and the bars are to be coloured or shaded differently, keep these consistent.
 - Bar charts are either horizontal or vertical. Vertical bar charts are often used to display time series.
 - Sometimes the bars are clustered in groups according to their categories (eg different years in the same category) to highlight comparisons.
 - Pie charts can be used to display simple messages, but are not good for complicated information. They have 'perceptual weaknesses'. It is argued that it is more difficult to get an accurate idea of relative values in pie charts than in bar charts, and that it is hard to distinguish the relative size of the segments unless they differ by more than 5 percent.
 - 'Reference Tables' contain a lot of information, and can be set out in an annex. They should also be captioned with proper information on the source of the data, when they were collected, as well as any statistic information and spatial data, among others.
 - 'Demonstration Tables' occur within the text, and should be simpler, and easy to assimilate. In all cases, if percentages are calculated, the size of the sample should be made explicit.
 - The orientation of the table and the order of the rows are very important to making the table comprehensible. Give units of measure for the variables. Use a consistent number of decimal places.
- Boxes:** Boxes will be used in the text to present information that is important, relevant to the discussions, but that really stands apart from the text of the chapter or section. This is a good way of drawing attention to key issues or information. It is also a way of introducing material from another author or source into the main chapter. Examples are a short case study, excerpts from publications, or short articles, results of an analysis or of research that are conveyed in a narrative.
- Boxes need not be cited but their content must be fully consistent with the main text and kept close to the relevant text as much as possible. The source of the information must

be given. Authors are encouraged to include three or four per chapter. They may be made up of all text or graphics or a combination and may also contain photographs.

FORMATTING OF DOCUMENTS

- **Text:** Times New Roman, 11 points size
- **Paragraphs:** should all be numbered for easy reference of comments. Align left and single-space.
- **Headings:** should be in sentence case: 'The cat sat on the mat'. Do not put headings in title case: 'The Cat Sat on the Mat'. Try to make your headings and cross headings interesting.
- **Heading levels:** distinguish differing levels of side headings carefully: bold caps for level 1, bold sentence case for level 2 and bold italics for level 3. Try to avoid using more than three levels of side heading or readers will get lost in the structure. Keep formatting to a minimum as it can become very difficult to change later on.
- **Margins:** 1.5' all around to provide writing space for written comments.
- **Boxes:** include in text and number them. Use as many boxes as possible, though not more than one per page of ordinary text. This will save space and improve the appearance of the printed pages.
- **Tables:** include simple ones in text and lengthy ones as attachments.
- **Graphics:** include as attachments, particularly if not Word compatible. Include ideas for illustrations of the material: flow charts, graphs, etc. and if possible, suggest an orientation map for specific projects.
- **Data/References:** These will be obtained from CCs, experts, and published sources. Websites as references can be a problem if they are not permanent, or if the material has not undergone any review. If possible back up with published material to make the reference more robust. See the 'Format for Referencing' section p. 21 for an explanation of the way in which website references will be archived and accessible.
- **Citations:** Examples of references are given in the next section. Figures and Tables must be cited in the text. Source notes should be positioned beneath the figure or table.
- **Headers:** eg: 'AEO-3: Chapter 4 – Biodiversity and Diseases (or relevant theme) - O Draft'
- **Footers:** eg: 'West Africa ... March 2004 - Not for quoting'
- **Comments:** comments in text should be square bracketed and in bold.
- **Endnotes:** If you have notes that should be out of the text, include them as numbered endnotes.
- **Captions** for photographs should be interesting -- not just 'the waterfall at x', but 'thundering water at X falls at the rate of x million gallons a minute. But it may not flow

like this forever....'. No commas between source and its date. Try to make the sense of the heading or caption end with the line.

- **Country names:** Use informal names Libya (not the Jamal.....of Libya), but correctly (Democratic Republic of Congo). Do not abbreviate (United States and United Kingdom). You can, however use UK and US as adjectives (but without periods). Check the names: Cote D'Ivoire, not Ivory Coast.
- **Quotation marks:** Use single quotes, not double. If using double quotes and you have to put a quote inside, use single quotes inside the double quotes.
- **Spacing:** Replace all double spaces with single space
- **Bullet point** lists can clarify and lighten up a paragraph that is congested with facts, but over-use can look too clipped.
- **Acronyms:** spell out sets of initials unless well known (therefore, spell out GEF, but not UNEP).
- **Dashes:** use '--' ; not '-',

FORMAT FOR REFERENCING

- Use the Harvard system for references (Smith 1996) in text.
- Where you wish to refer to several publications by the same author in the same year, distinguish them in temporal order (Smith 1996a, Smith 1996b).
- Where two authors have the same name, distinguish them by including their initial(s).
- Multiple authors: In the text, use: (Smith and Jones 1996) when there are two authors. (Smith and others, 1996) when there more than two authors. In the reference section, all the authors' names must be listed. Therefore: (Smith and others, 1996) would appear in the text, but in the reference section would be: Smith, D., Jones, P., Kelley, F. and Roberts, R. (1996).
- **Never** number your references (this gives rise to hideous renumbering problems every time you add or suppress a reference, unless you have an automatic system).
- Typical styles for a book and a journal reference (respectively) are as follows:
 - Ainsworth, M. D. (1996). *Journey across Africa*. Heinemann, London.
 - Tinbergen, N. (1972). Functional ethology and the human sciences. *Proc. R. Soc. B*182, 385–7.
- Where the reference is to a chapter in a book with a separate editor, use this style:
 - Ainsworth, A. (1969). Fighting malaria. In *Common Diseases of the 19th Century* (ed. B. Foss) vol. 4, pp. 114–5. Methuen, London.
- Note that only the published title (title of a book or journal) takes italics.
- Unpublished papers or personal communications are not published and therefore do not take italics.

- Names of books should be given in full, using initial caps for the major words in the title; names of journals should be abbreviated only where there is an official abbreviation and this is known to you.
- Citation of web pages and referencing: For web pages, provide authorship (either the name of the author or the institution) and date in the text, using the Harvard system, for example (UNEP 2004). In the reference section, the web page will be listed under the name of authorship, the title of the publication, and then the web page address: UNEP (2004). GEO Year Book 2003. United Nations Environment Programme. <http://www.unep.org/geo/yearbook>

WEIGHTS AND MEASURES

- The metric system is used for all statistical and scientific purposes. Units are abbreviated only when they follow a number; otherwise write out fully (except pH). If necessary, give explanation at first occurrence.

Numbers

- No punctuation is used to separate thousands**, a space being left: 1 000; 2 312; 1 550 734 (except in years: 1989; page numbers: p. 1139; genotype names with numbers: 'Across 8047', 1566/1 x L-12).
- The decimal** is a full point in English (while it is a comma in French and Spanish); numbers of less than one take a zero before the decimal point: 0.05.
- Spell out 'per cent'** in text but use '%' in tables and figures. Note the spelling of 'per cent' and 'percentage'.
- The word billion** should never be used (because of the difference of meaning between the US usage and the British usage): instead, thousand million or million million are used, written thus: 7 000 million; 7 million million (or 7¹² depending on context).
- In text, numbers from one to ten** are written in words, not numerals except before units (6 kg, 2 ha, 3 t), before the word million (7 million) although where the number is an approximation, two million, and so on, can be used
- Sentences containing figures** in a fairly close and logical sequence or in a series take numerals: the number of graduates in the three courses were 3, 7 and 9; 25 villages, 10 districts, 3 regions; 4 automatic stage recorders and 9 stop gauges; 3 labourers, 6 foremen, and 4 consultants; the life of the system would be 25 years if built in China and 10 years if built elsewhere; in only 4 of 39 trials.
- When a phrase such as three-week course is preceded by another number, adjust accordingly: two 3-week courses; 27 three-week courses.
- Fractions** are always hyphenated, whether adjective or noun: one-half, two-thirds.
- Map scales** use the colon: a map at 1:50 000 scale.

Weights and measures

man-months	m/m (tables only)
parts per million	ppm
hectare	ha
millimetre	mm
centimetre	cm (cm ³ , not cu cm or cc -- but a 125-cc motorcycle)
metre	m
kilometre	km (km ² , not sq km)
microgram	µg
milligram	mg
gramme (not gram)	g
kilogramme (not kilogram)	kg
kilocalorie	kcal
decilitre	dl
litre	l (write out in text)
metric tonne (tonne, 1000 kg)	t
second	s
minute	min
hour	h
day	d
year	a (not yr)
volt	V
millivolt	mV
kilovolt	kV
megavolt	MV
ohm	ohm
ampere	A
kilovolt ampere	kVA
watt	W
kilowatt-hour	kWh
hertz	Hz
megahertz	Mz

- If a sentence begins with a number**, it must be written out; to avoid awkwardness, it is sometimes better to rephrase the sentence. Numbers written out are hyphenated as follows: one hundred and sixty-seven; twenty-six; one hundred and nineteen.
- Units** are not repeated: 3 x 5 cm; 0.7 to 1.5 ha; 15 and 21 t. Note: between 8 and 9 t; 8-9 t (not between 8-9 t); yield per hectare (not yield per ha); 7 kg/ha, 7 kg per hectare (but not 7 kg per ha).
- Currencies** should as far as possible be expressed in US\$. Note the lack of space after \$: US\$ 450 000

To modify units of the metric system

pico (p)	10^{-12}
nano (n)	10^{-9}
micro (μ)	10^{-6}
milli (m)	10^{-3}
centi (c)	10^{-2}
deci (d)	10^{-1}
kilo (k)	10^3
mega (M)	10^6
giga (G)	10^9
tera (T)	10^{12}
peta (P)	10^{15}
exa (E)	10^{18}
Examples: nanometre (nm); megawatt(MW)	

and others perhaps not so useful. In some cases, there are reasons why an author cannot comply with the request of the reviewer, or reviewers may hold opposing opinions. Authors should comply with comments by correcting the text. Any other comments that the author feels unable to deal with should be answered on a separate document, explaining why the author feels the comment is not valid, or unable to be complied with. A third reviewer can be consulted, or the lead authors or editors will make the final decision. However, it is important that authors address any and all comments made by the reviewers.

Dates and Time

09.00 hours; 15.30 h (not 09:00 hours, 9 a.m.)
 From 6 to 10 September, or 6–10 September
 On 8 May 1990 in Rome ;or 8 May 1990, in Rome
 1 January 1990-12 June 1990
 1974-75 (period of two years);
 All dates to be in the form: 28 October 1997
 From 1960 to 1961 (not 1960 to 61)
 Decades: the 1980s
 Centuries: the 20th century

REVIEWING THE CHAPTERS

There will be a process for reviewing, both by individual experts and members of the AEO group. For the individual reviews, the reviewers should consult the chapter guidelines to ensure that the chapters have been written according to the style and format set out in the guidelines. Reviewers are requested to submit their reviews in good time. It is usual to allocate a month for review, although this might vary depending on the amount of material needed for review.

Reviewers will be contacted by the AEO team. The comments should be sent back to the AEO team, for distribution to the reviewers. The lead author will ensure that the comments have been responded to. The technical editor should have copies of the comments from reviewers, as well as responses from the authors to check this during the technical editing process. An online tool for tracking review comments will be designed by the secretariat.

Authors who receive comments should address all of them. Authors will find that some of the comments are very useful,

PART 5

THE REPORT OUTLINE





PART 5

THE REPORT OUTLINE

AEO-3 will be divided into three parts as indicated below. An indication of the areas of focus is given.

PART I

- a. Picks up on the backward linkage to AEO-1 and 2, focusing on issues, state and trends of the environment in the region; conducts a review of persistent environmental problems; undertakes indicator-based analysis towards meeting environmental goals and targets; identifies emerging health and environmental issues and potential tipping points; conducts key informants survey with the AMCEN Bureau on the effectiveness of the AEO process and the usefulness of the policy options provided by the previous AEO reports to AMCEN. Draws attention to some of the environment-health issues that may have been alluded to or implied in the policy options.

PART II

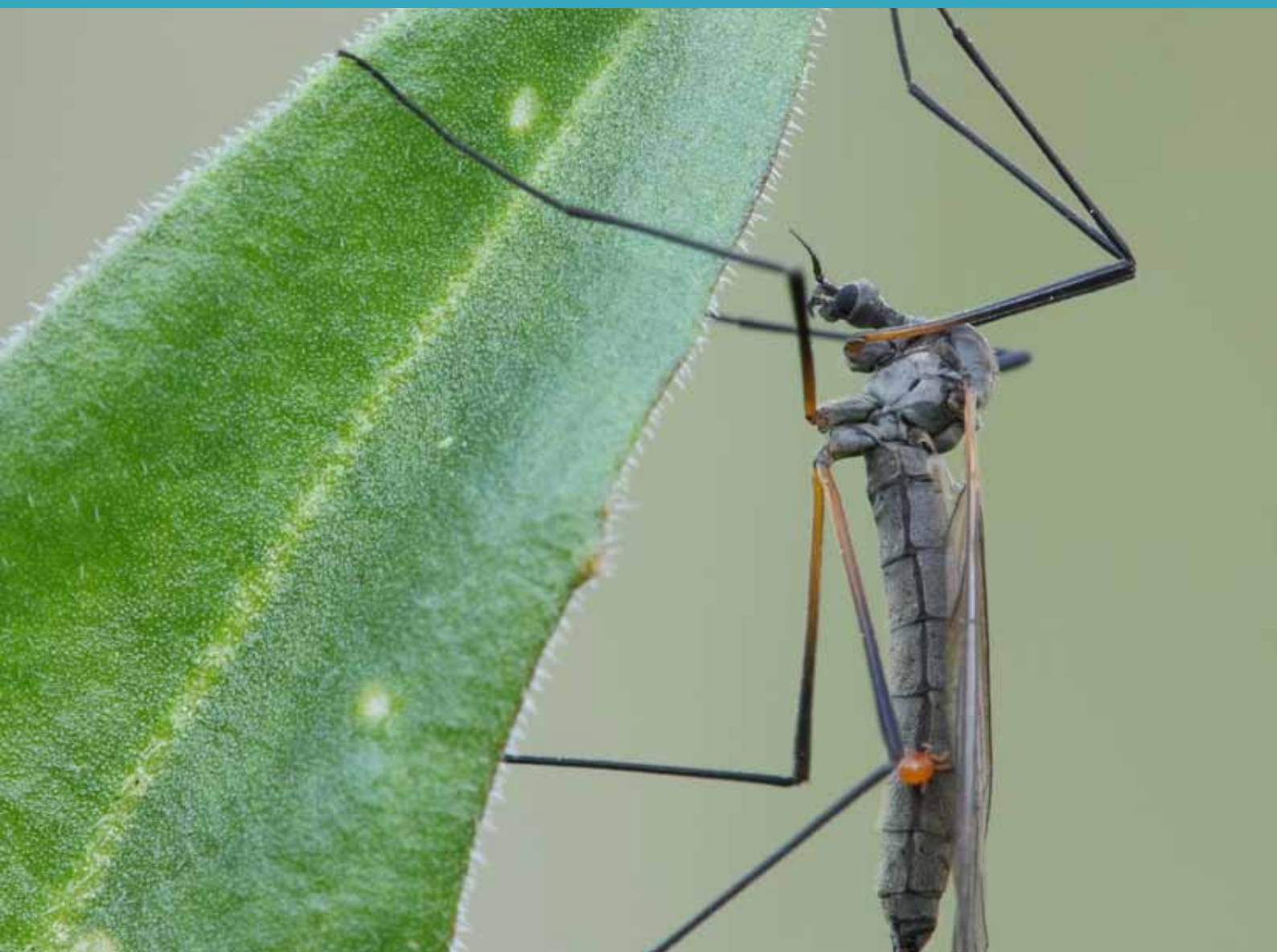
- b. Identifies and assesses priority health and environment inter-linkages in Africa, with special focus on risks.
- c. Highlights emerging issues and assesses trends related to health and environment in the region.
- d. Assesses opportunities for technology and policy interventions for both mitigating and adapting to the impacts of environmental change in Africa, especially in addressing the health and environment inter-linkages. Highlights opportunities and benefits of sound environmental management to human well-being to foster, amongst others, more investment in preventive health care that addresses environmental issues systematically.

PART III

- e. Assesses challenges and opportunities of key cross-cutting issues, particularly as they relate to how environment can contribute to the sustainable development goals and targets, and how environmental degradation can impede progress towards those targets, focusing on vulnerable groups, species, ecosystems and areas. Issues highlighted in the Bali Strategic Plan for Technology Support and Capacity-building will be of particular significance.
- f. Defines appropriate policy actions (or response options) for dealing with the environment-health challenges within the framework of the Johannesburg Plan of Implementation.

PART 6

CONCLUSIONS AND RECOMMENDATIONS





PART 6

CONCLUSIONS AND RECOMMENDATIONS

The AEO is a comprehensive integrated report on the African Environment. The AEO-3, in particular, will focus on the inter-linkages between health and environment. The report is designed to function as a tool for policy makers and other stakeholders to monitor and assess environment-health challenges in Africa and take appropriate actions for improving environmental sustainability and public health. As such it will be based on solid and scientifically credible evidence.

The process to produce the report is an iterative one that relies heavily on feedback. It is designed to adapt to

changes in the current situation, the players involved and even resources available. The advantage with this is that the AEO team can benefit from better opportunities, or issues as well as ideas that emerge during the process.

These guidelines have been developed to serve as a reference point for all players involved in the production process. They are not cast in stone and will be subject to periodic review, and improvement over time, depending on inputs from the AEO-3 team and other players. These Guidelines are meant to make the AEO tool more robust by setting tasks for the players, and clarifying their roles and responsibilities.

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