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Assessment, monitoring and early warning: state of the environment

Strengthening the scientific base of the United Nations Environment Programme: environmental statistics: status and challenges: an assessment of joint United Nations Statistics Division/United Nations Environment Programme data collection

Note by the Executive Director

The Executive Director has the honour to provide the annex to the present note which provides additional information on collaboration in the area of environmental statistics between the United Nations Environment Programme and the United Nations Statistics Division. The note therefore supplements several important issues highlighted in documents UNEP/GC.23/3 and UNEP/GC.23/INF/18, particularly on the proposed new assessment framework tentatively called Environment Watch. It provides more detailed information on proposed actions by UNEP with respect to environmental statistics as a key element of the new framework.

The annex is being circulated without formal editing.

* UNEP/GC.23/1.

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Annex

Environment statistics: Status and Challenges

An assessment of the joint UNSD/UNEP data collection

I. Introduction

1. The demands from the multilateral system for country-level environmental data, information and indicators have been growing over the last few decades. It is however, often difficult for countries to develop and maintain the necessary capacity to meet these increasing demands. Data collection is a long-term process, requiring careful planning and adequate resources. The data collection process needs to be repeated at regular intervals on the same basis, so that consistent data can be obtained for a number of years and can be used to examine trends, derive indicators and support assessment and reporting. Poorly coordinated and designed requests for data of low legitimacy serve to confuse authorities at country level and are likely to result in less, not more, data being made available at international level.

2. In an attempt to stabilise, structure and harmonise data demands, the work programme of the United Nations Statistics Division (UNSD) has included the development of concepts and methods in environment statistics since the mid-1980s and data collection since the late 1990s. For the first time, the 2004 data collection on environment statistics was carried out jointly with UNEP. In addition to making the questionnaire more responsive to the needs for global environment reporting, a close collaboration with UNEP on the core database for the Global Environmental Outlook (GEO), the GEO Data Portal, as well as related data compendia was agreed. This document summarizes the current state of the 2004 data collection and draws conclusions on further improvement of regular reporting in the area of environment statistics.

II. Background

3. At its twenty-eighth session in 1995, the United Nations Statistical Commission (UNSD) approved a list of environmental indicators, developed in collaboration with the Intergovernmental Working Group on the Advancement of Environment Statistics, for international compilation by UNSD. The Working Group on International Statistical Programmes and Coordination, at its nineteenth session (10 -12 February 1998), endorsed the proposed first international compilation of environmental indicators and encouraged national statistical services and international organizations to fully participate in this exercise.

4. The first data collection was carried out in 1999. As OECD/Eurostat had been collecting environmental statistics for a number of years, compatibility was sought with their joint questionnaire on the State of the Environment, although the UNSD questionnaire is considerably smaller in size and less demanding in terms of detail[1].

5. The questionnaire was revised on the basis of the lessons learned from that first attempt at collecting environment statistics at the global level, and further data collection took place in 2001 and 2004. As it had become clear that in many cases the quantity and quality of responses were hindered by the lack of satisfactory cooperation between the statistical offices and the ministries/authorities responsible for environmental affairs in the countries, the questionnaires were sent in parallel to both these bodies, who were then requested to nominate a coordinator for the replies to UNSD and UNEP.

[1] This co-ordination with OECD and Eurostat was officialised in 2003 by the setting up of an Intersecretariat Working Group (IWG) on Environment Statistics. The current members of the IWG are UNSD, UN-ECE, UNEP, OECD and Eurostat, with other bodies being invited to participate for specific subjects.

6. One of the key criteria for data collection was that there should be a reasonable chance of getting the data requested, and that no other international body is already collecting the data. The OECD experience showed that reasonable data is most likely to be available for the topics of water, waste, land, and air. These are also the areas that are closest to standard statistics, whereas data for other important environmental topics, such as biodiversity, is often qualitative, and thus less suitable for statistics, which are by nature quantitative. It was therefore decided that the UNSD questionnaire should be limited initially to water, waste, land, and air.

7. A small amount of overlap is unavoidable. Questionnaires need to be logical and coherent, and this may mean requesting data already asked for by other organisations. For example, FAO and UNFCCC collect part of the data requested in the water, land and air questionnaires. In those cases, coherence of definitions was assured. Existing data was inserted into the questionnaire before sending out, so that countries would not need to resubmit the same data, but could update or correct it, if necessary.

8. The data collection is intended to make available a set of harmonised environmental data for multiple uses such as:

- The UNSD statistical data base and web site;
- UNEP's Global Environmental Outlook (GEO) series and its underlying GEO Data Portal;
- Environmental reports, studies and indicator sets of UN SD, UNEP and other global or regional UN bodies;
- Integrated environmental and economic accounts;
- Other global, regional and national uses by organisations interested in environmental problems;
- Interested countries.

9. Data for a selected number of key variables has been made available on the UNSD web site (http://unstats.un.org/unsd/environment/default.htm). In the long run, it is expected that the central availability of a set of environment statistics will reduce direct data requests to countries and reduce the reporting burden.

III. Results of the 2004 data collection

10. The UNSD/UNEP questionnaire 2004 was sent in March 2004 to 153 countries and areas. Not covered by this data collection are the OECD, the EU countries and the EU candidate countries, which receive a similar but more detailed questionnaire from OECD and Eurostat. In order to reduce the response burden, the questionnaire was not sent to small countries or areas with less than 100,000 inhabitants, except to those that responded to the 2001 data collection.

11. The deadline for reply was 20 June 2004. At the time of writing of this document, several replies are still expected and the validation process is ongoing. The following evaluation is therefore provisional, and more detailed figures will be made available at a later stage. However, the analysis gives already a good picture about the main problems.

12. The status of responses as of the 30 November 2004 was as follows:

- 54 countries/areas filled in some or all sections of the questionnaire.

- 31 further countries/areas indicated that they will send a reply in the near future and/or nominated a national coordinator for the questionnaire.

- 68 countries/areas did not respond.

13. Response rates vary strongly by region. The best response rates were found in Latin America and the Caribbean, and (Eastern) Europe, where ECLAC, UNEP/ROLAC, UNSD and UN-ECE launched initiatives on environmental data, statistics and indicators. Africa, West Asia and Asia and the Pacific show low response rates. The response rates by region are as follows:

Region	Number of Countries	Responses Received	Responses Expected	No Response	Expected Response Rate
Africa	53	13	12	28	47.17%
Asia and the Pacific	36	11[a]	3	22	38.88%
Europe	15	11	2	2	86.66%
Latin America and the Caribbean	37	17	11	9	75.67%
West Asia	12	2	3	7	41.66%
UNSD/UNEP	**153**	**54**	**31**	**68**	**58.01%**

a: Two respondents had no data to report
Countries were allocated according to UNEP's GEO -3 Regional classifications

14. For the full global picture, the complementary OECD/Eurostat data collection needs to be added. This gives the following result:

Region	Number of Countries	Responses Received	Responses Expected	No Response	Expected Response Rate
UNSD/UNEP	153	54	31	68	58.01%
OECD/Eurostat	39		39		
World	**192**	**54**	**70**	**68**	**64.58%**

15. These figures give an optimistic picture of the situation, since they only indicate whether or not a country has replied to the questionnaire. However, many countries have only scattered data and are able to reply on only a few variables. The following paragraphs will look in more detail at the quality and quantity of the replies received, and will make proposals for future action. The analysis is made by topic.

Water:

16. Water data is collected by various international organizations. WHO and UNICEF collect data on access to safe water and sanitation through their Joint Monitoring Programme, while UNEP/GEMS and EEA collect water quality data. Data on the long-term average of the use of water resources is

available from FAO, based on available national and international information and expert judgments, but this does not yet include time series. Before the launch of the environment statistics water questionnaire, no data collection existed that tried to obtain annual data on the whole water cycle in a consistent and harmonised manner. Also, no international organisation collected data on waste water, including emissions to water bodies and waste water treatment.

17. The UNSD/UNEP questionnaire on water statistics attempts to collect global data that deal with basic information concerning the management of water resources in a country. The questionnaire covers renewable freshwater resources, freshwater abstraction and use, waste water generation and treatment, as well as water quality in rivers, lakes and coastal areas.

18. Response rates to the water questionnaire suggest that most countries either lack the necessary information for water management, or lack the institutional infrastructure to collect the data from various sources and respond to the questionnaire. There is also reason to believe that some countries have data available but have strategic interests not to communicate the information.

19. Based on the present replies, the best response rates are for: Internal flow (Annual fresh water created through precipitation), Available renewable water resources (Internal flow + inflow from other countries), Water supplied by public water supply, Water losses during transport, Waste water generation and Population connected to waste water collection systems. However, even for Water supplied by public water supply, which has the best response rate, only 16 non-OECD/Eurostat countries replied.

20. Current UNSD actions to improve response rates are:

- the development and testing of a data collection manual,
- improving contacts with countries, including a continued communication with respondents about their replies to the questionnaire,
- building coherence with environment accounts,
- organizing regional seminars and training workshops, and
- close collaboration with other international and regional organizations.

21. A work session on water statistics in June 2005 will bring major relevant organizations and several countries together in order to discuss and coordinate future actions.

22. This should be followed-up by extensive training in countries in order to make further progress.

Solid waste:

23. While data collection on various aspects of hazardous waste is covered by the Basel Convention, the more general issue of waste generation and management is not covered by any other global data collection.

24. The topics covered by the UNSD/UNEP questionnaire on waste are the generation of waste by main waste producers, management and composition of municipal waste, hazardous waste management, waste treatment facilities and waste treatment in selected cities.

25. In general, the availability and quality of data on solid waste are very poor. Although by now 162 countries have ratified the Basel convention, data on hazardous waste is also unsatisfactory. Besides the lack of data in many countries, existing data show major incoherence due to different definitions of hazardous waste. Waste statistics are the weakest area of the UNSD/UNEP questionnaire, with very patchy data from only a few countries. For most developing countries, the development of a comprehensive waste statistics system poses a considerable challenge. In the replies to the UNSD/UNEP questionnaire, the best response rates are for Municipal waste generation/collection, Hazardous waste generation, and Treatment and disposal of municipal waste, including by type of treatment (landfill, incineration, recycling). 15 to 18 non-OECD/Eurostat countries replied to these variables.

26. UNSD actions to improve response rates include

- The development and testing of a data collection manual, which will take into account the needs and situations of developing countries. Particular attention will be given to the problems in large cities.
- For hazardous waste, close collaboration with the Basel Convention.
- As in the case of water statistics, extensive training in countries and close collaboration with regional organizations, which are essential if further progress is to be made.

Land:

27. This section of the questionnaire deals with the long-term trends in the distribution of land resources according to land use/land cover categories, as well as the extent of land degradation in terms of soil erosion, salinization and desertification. Statistics on land use reflect the availability, use and change of spatial resources in a country.

28. Data on total land area, agricultural land and forest land are available for most countries since these are variables derived from established fields of statistical data collection supported by various international organizations, especially FAO. However, data for the various other land use/land cover categories, for example, built-up land, or natural areas such as the different types of open land, which are essential for integrated land and water management, are relatively scarce.

29. For land degradation, the questionnaire yielded very little data on soil erosion, salinization and desertification. Data are mainly available from older surveys such as GLASOD in the early nineties. While these issues are not relevant for all countries, there are methodological difficulties such as the lack of established or internationally accepted definitions and classifications, as well as the measurement method themselves. Increased use of satellite images could help improve the data situation by adding cost-effective information about visible land changes.

30. Depending on the availability of resources, UNSD actions to improve response rates will include:

- Work, together with other organizations, on the harmonization of terms, definitions, and classifications used for land use, land cover and land degradation statistics;
- Harmonization of data collection exercises and data exchange between relevant bodies, and thus establishing a reference set of land use data;
- Collaboration in the possible use of results from remote sensing.

31. This will involve working in closer collaboration with FAO, the United Nations Convention to Combat Desertification (UNCCD) and other relevant international organizations.

Air:

32. The data available for emissions to air is of relatively good quality, compared to the other environmental topics. Climate change continues to be a major global concern and many non-Annex 1 countries from the United Nations Framework Convention on Climate Change (UNFCCC) have submitted some data on emissions of greenhouse gases to the UNFCCC, although often only for a single year, generally 1994. The UNSD/UNEP air questionnaire asks countries to estimate their emissions of the three main greenhouse gases, CO_2, CH_4 and N_2O, as well as the other air pollutants SO_2, NO_x and NMVOCs. The responses received illustrate that in non-Annex 1 countries there is still some confusion about the sources of these emissions, how to calculate them and how to report them. Notably, some countries received help to produce their inventories for 1994, but have not been able to reproduce this for later years.

33. Air pollution continues to be of concern in many parts of the world, because of associated health problems, and the damage caused to sensitive ecosystems through acidification. Many countries have functioning air pollution monitoring stations, and have been able to report data on annual mean

concentrations of SO_2, NO_x and (to a lesser extent) suspended particulates (PM_{10}) in ambient air for a number of major cities throughout the world.

34. The best response rates are for Total CO_2 emissions, Total CH_4 emissions, Total N_2O emissions, Total SO_2 emissions, Total NO_x emissions, and Total NMVOC emissions.

35. Breakdowns of emission data by major sector, such as energy, industry, transport, etc., are also possible for many countries.

36. Although detailed methodological handbooks exist to help countries produce emissions inventories, they are often very complex, and many developing countries lack the detailed activity data needed to make the calculations. In many cases, relatively good estimations of emissions can be made based on less complicated methodologies, and the existing handbooks often include these simpler methodologies.

37. Depending on the availability of resources, UNSD action to improve the response rate and data quality will be:

- to compile these simple methodologies into a handbook, intended for use by developing countries with limited resources for establishing their emission estimates;
- training countries in the use of these methodologies;
- if necessary, capacity building to ensure the regular collection of the basic energy, agricultural and industry statistics that are needed as the basis for these inventories, should be considered.

IV. Coherence with the work programme of Commission on Sustainable Development (CSD)

38. Sustainable development covers a wide range of topics that integrate environmental, economic, social and institutional domains. In order to focus work and resources, in 2003 the Commission on Sustainable Development adopted a multi-year programme of work based on two-year cycles. Each cycle focuses on a selected thematic cluster of issues. These are

2004-2005: Water, sanitation and human settlements

2006-2007: Climate change, air pollution, energy and industrial development

2008-2009: Agriculture, rural development, land, drought, desertification, and Africa

2010-2011: Transport, chemicals, waste management, mining, sustainable consumption and production patterns

2012-2013: Forests, biodiversity, biotechnology, mountains and tourism

2014-2015: Oceans and seas, marine resources, Small Island Developing States, disaster management and vulnerability.

39. In addition, in each session, a number of cross-cutting issues will be addressed, including, inter alia, poverty eradication, changing unsustainable patterns of production and consumption, protecting and managing the natural resource base of economic and social development, regional initiatives, means of implementation, the institutional framework for sustainable development, gender equality, and education.

40. For all of these issues, better and more available data are essential to the work of the Commission on Sustainable Development at the earliest possible stage in the assessment process.

41. Improving water data is currently a priority of UNSD, with a work session and a manual for water statistics planned for 2005.

42. Improving data for climate change and air pollution issues, as well as for energy and industry sectors, should become a priority for 2006-2007. For subsequent years, the CSD priorities will also be taken into account when planning data collection and actions to improve data quality and response rates.

43. Close cooperation with the UN Division for Sustainable Development, which functions as the secretariat of the Commission, is foreseen for all of these activities as well as for those that will be undertaken by the Statistics Division to strengthen capacity-building for data collection in developing countries.

V. Link to Integrated Environmental and Economic Accounting

44. The System of Integrated Environmental and Economic Accounting (SEEA) has been developed by UNSD, together with other international organisations. While environment statistics collects environmental data, SEEA puts environmental and economic data into a coherent accounting framework. A continuous effort has been made to assure compatibility of environment statistics with environmental accounting. In the area of water, coherent manuals are currently being established by UNSD for both statistics and accounting.

45. Environmental accounts are ideally based on data collected for environment statistics. If environment statistics are not compiled in a country, an environment accounts programme can mobilize collaboration inside the country and make available data, which did not exist or was not accessible previously. Environmental accounting can, therefore, also be a driving force for environment statistics, and vice versa.

VI. Link to UNEP assessment and reporting

46. It is the mandate of UNEP to keep under review the state of, and trends, in the global environment. Sound assessments must be based only on reliable data and, for most environmental issues, data quality, quantity and accessibility needs to be improved. The Global Environment Outlook is UNEP's main assessment process for this purpose. UNEP relies heavily on partners in the United Nations and elsewhere for access to statistics and other data. A key challenge, particularly in developing countries, is to improve the collection, management, analysis, and sharing of reliable environmental data through innovative, cost-effective approaches. The data issue can only be resolved through re-examining UNEP's working arrangements with key national institutions that are involved in the collection, management and dissemination of environmental data and information. Further considerations on strengthening the scientific base of UNEP within a possible coherent framework for keeping the environment under review, tentatively called Environment Watch, is outlined in UNEP/GC.23/3 and UNEP/GC.23/INF/18. The UNSD/UNEP questionnaire is recognized as a key area for interagency co-operation in order to improve data collection in support of indicator development, assessment and reporting. UNEP requirements for GEO and other assessments will be taken into account to the extent possible, and joint efforts will be undertaken to increase response rates.

VII. Conclusions and Recommendations

47. The conclusions from the intergovernmental consultation on strengthening the scientific base of UNEP highlighted a number of important needs in the broad areas of environmental monitoring, data collection and analysis, integrated assessment, information exchange and partnerships for such activities. Indicators help translate complex data into comprehensible information and are frequently aggregated to show progress towards a target. The number of environmental indicators proposed however exceeds the number of data variables being measured. Although improvements in data availability and data quality can be seen in many countries, the global environmental data situation remains unsatisfactory. The main problems are summarized as follows:

(a) Many countries lack the institutional infrastructure for collecting and compiling environment statistics. Insufficient resources and lack of collaboration make it difficult to obtain and make available environmental data; very often, there is also insufficient know-how on what the most appropriate data is, and how to collect it;

(b) Several environment statistics are indirectly estimated on the basis of data on other activities. For example, emissions of greenhouse gases and other air pollutants are calculated based on figures for energy use, livestock numbers, waste, etc. Often, this basic data is inadequate, or countries find the calculation methods too complicated or inappropriate for their circumstances;

(c) Data harmonization, data collection guidelines and training material are insufficient in most environmental areas, or are not adapted to the needs of developing countries;

(d) For a variety of reasons, existing environmental data is often not shared with other interested parties, both within countries and also at the international level;

(e) Countries are frequently overloaded with uncoordinated international, regional and national data requests which they are then unable to fulfill; the current proliferation of indicator sets, and requests at both international and regional level asking for additional data collection in countries, contributes significantly to this problem.

48. Different natural, economic and social conditions in countries require varying national environmental strategies and therefore different types of information. International and regional organizations need harmonized information on regional and global environmental problems. However, the most relevant environmental problems (such as those mentioned in the previous sections) are common to many and sometimes all countries, and therefore common approaches to harmonised data collection should be prepared, promoted and supported. By that means, limited human and financial resources in developing countries can be most efficiently used.

49. Millennium Development Goals indicators, and indicators of sustainable development, are the most widely politically accepted indicator sets that contain environmental indicators. Regional environmental indicator sets have been set up by regional bodies such as UN-ECE, EEA, UNEP-RONA, or ECLAC. Indicator sets on specific topics are developed for specific needs, such as for the UN World Water Assessment Program or the European Sustainable Development Strategy. While the above initiatives have important goals and targets, good data coverage will not be achieved without a maximum of coordination and synergy, and with substantial efforts from both countries and the international community.

50. It is important to ensure that multilateral co-operation on environmental data collection and statistics are based on an agreed set of long-term priorities within a coherent conceptual framework as suggested in the proposed Environment Watch framework, which is outlined in UNEP/GC.23/3 and UNEP/GC.23/INF/18. The continued close cooperation between UNEP and UNSD with respect to environmental statistics is seen as a key element of the new framework.

51. In promoting further co-operation in the area of environmental statistics it is recommended that all countries consider:

(a) To develop and maintain an appropriate institutional framework for the collection and processing of environmental data. The framework could define clearly which bodies have responsibility for the collection of various types of environmental data, whether monitoring and statistics. A coordinating body that could also act as a focal point may be established. In some countries, Statistical Offices might be best placed to play this coordinating role while in other countries it might be environment ministries or agencies;

(b) To make available and seek the necessary resources to collect the information for monitoring the key environmental issues;

(c) To make use of international guidelines, definitions and classifications when establishing indicators and related environmental data collections; the UNSD/UNEP questionnaire is a source for agreed definitions and concepts in selected environmental areas;

(d) To integrate the response to the biennial UNSD/UNEP questionnaire on environment statistics and to other international data requests into their work program;

(e) To share environmental data between all national organisations concerned and make relevant data publicly available, preferably on readily accessible web sites.

52. Further co-operation at the international level on environmental statistics should:

(a) Promote close collaboration between all global and regional bodies concerned in order to avoid incoherent and redundant data requests to countries. Close collaboration is particularly needed between users and producers of environmental statistics and indicators;

(b) Promote the establishment of coherent methodologies and improved data collection guidelines that take into account existing work in the main environment areas. Data collection guidelines should cover the data needs for the most common relevant environmental indicators, but should also set up the link to socio-economic information by following the environmental accounts framework;

(c) Intensify capacity building in developing countries, with both the regional offices of UNEP and the UN Regional Commission playing a major role. Capacity building includes the drafting of training material, conducting training courses, and the support to regional network of experts.

(d) Mobilise the necessary financial resources to improve environmental information.

Annex 1: Main variables in the UNSD/UNEP questionnaire on environment statistics

WATER

Renewable Fresh Water Resources

- Precipitation
- Actual evapotranspiration
- Internal flow
- Actual external Inflow of surface and ground waters
- Total renewable fresh water resources
- Outflow of surface and ground waters
- Renewable groundwater available for annual abstraction
- Regular fresh water resources 95% of the time

Water Abstraction and Water Use

- Total fresh surface/ground water abstracted, *by*:
  - Public Supply (ISIC 41)
  - Agriculture, fishing and forestry (ISIC 01-05)
  - Manufacturing Industries (ISIC 15-37)
  - Production of electricity (ISIC 40)
  - Households
- Imports of water
- Exports of water
- Desalinated water
- Total reuse of fresh water
- Total water available for use

- Total public water supply (ISIC 41), *of which used by*:
  - Agriculture, forestry and fishing
  - *Of which* for irrigation
  - Manufacturing industries (ISIC 15-37)
  - Production and distribution of electricity (ISIC 40)
  - Households
- Water losses during transport
- Population connected to public water supply

Waste Water and Waste Water Treatment

- Total waste water generated, *by*:
  - Agriculture, forestry and fishing (ISIC 01-05)
  - Mining and quarrying (ISIC 10-14)
  - Manufacturing industries (ISIC 15-37)
  - Production and distribution of electricity (ISIC 40)
  - Construction (ISIC 45)
  - Households
- Waste water treated in public treatment plants, by treatment type

*(*Mechanical treatment, Biological treatment, Advanced treatment)

- Waste water treated in other/ independent treatment plants
- Non-treated waste water
- Total sewage sludge production

Water Quality

In selected rivers, lakes and coastal areas

- Biochemical oxygen demand (BOD5)
- Dissolved oxygen (DO)
- Chemical oxygen demand (COD)
- Total dissolved solids (TDS)
- Total phosphorus
- Total nitrogen
- Faecal coliform
- Chlorophyll-a (Chl-a)

WASTE

Waste Generation

Waste generation, by:

- Agriculture and forestry (ISIC 01-02)
- Mining and quarrying (ISIC 10-14)
- Manufacturing industries (ISIC 15-37)
- Energy production (ISIC 40)
- Construction (ISIC 45)
- Municipal waste

- Total waste generation
- Total hazardous waste generation

Treatment and Disposal of Municipal Waste

- Municipal waste collected / imported / exported
- Municipal waste managed in the country
  Of which: Recycled, Incinerated, Landfilled, Other
- Share of total population served by municipal waste collection
- Share of urban population served by municipal waste collection
- Share of rural population served by municipal waste collection

Composition of Municipal Waste

Paper, paperboard, Textiles, Plastics, Glass, Metals, Organic materials, Food and garden waste, other inorganic materials

Hazardous Waste Treatment, Disposal and Disposal Facilities

- Hazardous waste generated / imported / exported
- Hazardous waste managed in the country
  Of which: Recycled, Incinerated, Landfilled, Other

Waste Treatment, Disposal and Disposal Facilities

- Treatment plants (Number, Capacity)
- Incineration plants (Number, Capacity)
- Landfill sites (Number, Capacity)

LAND

Land Use

- Agricultural land
  - Arable land, Land under permanent crops, Land under permanent meadows and pastures, Fallow and other agricultural land
- Forest and other wooded land
  - Land under forest, Other wooded land
- Built-up and related land
- Wet open land
- Dry open land with special vegetation coverage
- Open land without, or with insignificant, vegetation cover
- Total land area
- Waters
- Total area of the country

Area Affected by Soil Erosion

- Light, Moderate, Strong erosion, Extreme erosion,
  Of which:
  - Agricultural land
  - Forest and other wooded land
  - Dry open land with special vegetation cover
  - Open land without, or with insignificant, vegetation cover

Land Area Affected by Salinization

- Area affected by Salinization, *of which*
  - Agricultural land
  - Forest and other wooded land
  - Dry open land with special vegetation cover
  - Open land without, or with insignificant, vegetation cover

Area Affected by Desertification

- Area affected by Desertification, *of which*
  - Dry sub-humid areas
  - Semi-arid areas
  - Arid areas

AIR

Emissions of SO_2, NO_x, NM-VOCs, CO_2, CH_4, N_2O

- Total emissions, *of which from*:
  - Energy activities [production and use]
    - Total fuel combustion
      - Energy industries
      - Manufacturing industries and construction
      - Transport
      - Other fuel combustion
    - Total fugitive emission from fuels
  - Industrial processes
  - Solvent use
  - Agriculture
  - Other sources of emissions

Annual Mean Concentrations of SO_2 / NO_x in Ambient Air

in:

- Urban city
- Industrial city
- Background site

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