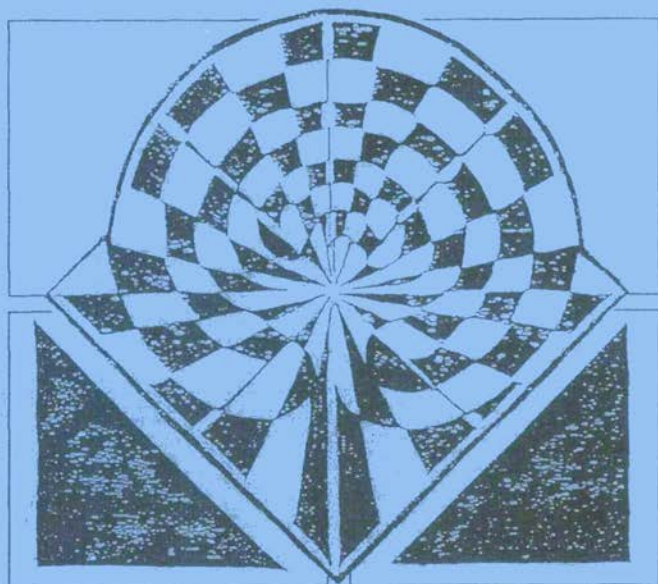


A SURVEY OF
ENVIRONMENTAL MONITORING
AND INFORMATION
MANAGEMENT PROGRAMMES
OF INTERNATIONAL ORGANIZATIONS



UNITED NATIONS ENVIRONMENT PROGRAMME
ENVIRONMENT ASSESSMENT PROGRAMME

HARMONIZATION OF ENVIRONMENTAL MEASUREMENT
UNEP-HEM



UNEP

A SURVEY OF
**ENVIRONMENTAL MONITORING AND
INFORMATION MANAGEMENT
PROGRAMMES**
OF INTERNATIONAL ORGANIZATIONS

Third edition
August 1994

Researched, compiled and written
by
Li-Hsin Tsai-Koester

This survey was compiled as part of the
development of the HEM information system
(HEMIS)

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FOREWORD

It is our conviction that many international environment monitoring and information management programmes, dealing often with threatening environmental problems, could be more effective if related local, regional, and global activities functioned in a harmonized interdisciplinary fashion and data of established quality were used.

The demand for environmental data has increased drastically as a result of the increasing concern about global environmental changes caused by anthropogenic activities such as climate change, transboundary air pollution, pollution of oceans and coastal areas, desertification and the destruction of forest ecosystems. This has led to the implementation of many new programmes to research and forecast changes in the global environment. The work of these programmes in developing methodologies and procedures for researching the environment is incalculable, especially when practically applied. This, in addition to the use of new technologies like remote sensing, automated measuring equipment, and computers, is providing an enormous bulk of data, which although potentially useful, are often overlooked.

Currently, we are facing a situation where there is an increasing flood of environmental data but we still have very limited knowledge of ecosystems. The data are often one sided and not properly representative of the whole range of ecosystems. Equally, much existing data cannot be meaningfully combined to develop integrated information because they are neither comparable nor compatible, and/or those who need them are not aware of their existence or are unable to access them. Furthermore, their quality is not assured and the formats for exchanging them are not standardized. There is a pressing need to harmonize environmental measurement, thus **promoting the improved collection and management of data and enhancing the quality and compatibility of information on the state of the environment world-wide.**

This is the mission of the UNEP-HEM office in Munich, Germany. The office is part of the United Nations Environment Programme (UNEP), specifically the Global Environment Monitoring System - Programme Activity Centre of the Environment Assessment Programme. The UNEP-HEM office concentrates its activities on the

following three key areas:

- supplying a basis for harmonization of ongoing and planned environmental monitoring programmes and projects through provision of information;
- harmonization by means of agreements on terminology, classification systems, thesauri, etc.; and
- harmonization of collection and archiving of environmental data with emphasis on quality assurance and control.

These areas require knowledge of issues including: what is being done, where, how and by whom in environmental monitoring and research; methods and procedures; kinds of data being collected; quality control; data systems; datasets and their applications in the development of models; as well as the different types of classification systems and their harmonization.

To manage such information, an automated system is needed which can provide the relevant facts and figures. Currently, the UNEP-HEM office is in the process of developing a comprehensive meta-database containing information on significant global activities related to environmental data and information. HEMIS, the proposed information system, will contain generalized data for planning and programme management. This Survey is one step in compiling information on existing global programmes and will be a source of input to the HEMIS meta-database. As such, it aims to be a preliminary source of information and to be used as a basic reference manual.

This third edition of the Survey was updated by Li-Hsin Tsai-Köster of the UNEP-HEM office assisted by Sean Fredericks, with funds generously provided by UNEP and the Federal Government of Germany. I would also very much like to acknowledge the work done by Jan-Stefan Fritz who compiled and updated the first and second editions of this Survey.

Dr. Hartmut Keune
Director, UNEP-HEM Office, Munich
December, 1994

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2. Monitoring and Research Programmes

<u>Acronym</u>	<u>Ref. No.</u>	<u>Name of Organization</u>	<u>Page</u>
ACSAD	1 38800	Arab Centre for the Studies of Arid Zones and Dry Lands	13
AMAP	1 48800	Arctic Monitoring and Assessment Programme	15
AMCEN	1 38810	African Ministerial Conference on the Environment	17
CGER	1 28581	Center for Global Environmental Research (NIES)	21
CONPACSE	1 38820	Coordinated Programme on Marine Pollution Monitoring and Control in the South-East Pacific	23
-/-	1 31691	Coral Reef Monitoring Network	25
DIVERSITAS	1 50860	Diversitas (IGBP)	27
-/-	1 20360	Earth Observation Programmes (ESA)	29
EARTHWATCH	1 29631	Earthwatch	31
EC-JRC	1 14870	Environment Research Programme	33
EEA	1 1300	European Environment Agency	35
EMAP	1 24320	Environmental Monitoring and Assessment Programme (US EPA)	37
EMEP	1 38830	Cooperative Programme for the Monitoring and Evaluation of Long-Range Air Pollutants in Europe (UN ECE)	39
-/-	1 47230	Environmental Programme for the Danube River Basin	41
EOP	1 51020	Earth Observation Programmes (EC, ESA)	43

EUREKA	1 1270	EUREKA Environmental Projects (EC)	47
EUROTRAC	1 8390	European Experiment on Transport and Transformation of Environmentally relevant Trace Constituents in the Troposphere over Europe	49
GAW	1 38840	Global Atmosphere Watch (WMO)	51
GAW BAPMoN	1 38850	Global Atmosphere Watch Background Air Pollution Monitoring Network	53
GAW GO ₃ OS	1 38850	Global Atmosphere Watch Global Ozone Observing System	55
GCOS	1 35590	Global Climate Observing System (WMO, IOC, UNEP, ICSU)	57
GEENET	1 50880	Global Environmental Epidemiology Network (WHO)	59
GEMS	1 15760	Global Environment Monitoring System (UNEP)	61
GEMS/AIR	1 19360	Global Environment Monitoring System Urban Air Quality Monitoring Project	63
GEMS/Food	1 38860	Global Environment Monitoring System Food Contamination Monitoring Project	65
GEMS/HEAL	1 38870	Global Environment Monitoring System Human Exposure Assessment Location Project	67
GEMS/Water	1 50050	Global Environment Monitoring System Assessment of Freshwater Quality	69
GERMON	1 50890	Global Environmental Radiation Monitoring Network (UNEP/GEMS, WHO)	71
GIPME	1 50060	Global Investigation of Pollution in the Marine Environment	73
GLOSS	1 50070	Global Sea Level Observing System (UNESCO/IOC)	75
GNIP	1 50110	Global Network Isotopes in Precipitation (IAEA)	77
GOOS	1 50900	Global Ocean Observing System (UNESCO/IOC)	79

GTOS	1 50910	Global Terrestrial Observing System	81
HDP	1 38910	Human Dimensions of Global Change (IGBP)	85
ICIMOD	1 41510	International Centre for Integrated Mountain Development	87
ICPs	1 38920	International Cooperative Programmes (UN ECE)	89
IGBP	1 18980	International Geosphere-Biosphere Programme (ICSU)	93
IGOSS	1 50080	Integrated Global Ocean Services System	97
IHP	1 38940	International Hydrological Programme	99
IIASA	1 280	Environmental Programme of the International Institute for Applied Analysis	101
IJC	1 38950	International Joint Commission	105
IM	1 38960	Integrated Monitoring	109
IPCC	1 19520	Intergovernmental Panel on Climate Change(WMO,UNEP)	111
IPCS	1 50920	International Programme on Chemical Safety (UNEP, ILO, WHO)	113
IPGRI	1 51820	International Plant Genetic Resources Institute	115
ISLSCP	1 38970	International Satellite Land Surface Climatology Project	117
ISY	1 6840	International Space Year	119
ITSU	1 38980	Tsunami Warning System in the Pacific	123
IWRB	1 20820	International Waterfowl and Wetlands Research Bureau	125
MAB	1 6900	Man and the Biosphere Programme (UNESCO)	127
MEKONG COMMITTEE	1 41850	Interim Committee for Coordination of Investigations of the Lower Mekong Basin	131
-/-	1 50930	Mussel Watch (NOAA)	135
-/-	1 7720	OECD Environment Committee	137
-/-	1 50120	Regional Seas Programme (OCA/PAC)	139
SCOPE	1 38990	Scientific Committee on Problems of the Environment	141

SPREP POL	1 39000	South Pacific Regional Environment Programme Marine Pollution Programme	143
SSO	1 50940	Sahara and Sahel Observatory	145
START	1 35151	System for Analysis, Research and Training (ICSU)	147
UNIDO	1 49990	United Nations Industrial Development Organization Environment Programme	151
WCP	1 39020	World Climate Programme	155
WCP Water	1 51690	World Climate Programme Water	157
WCRP	1 50510	World Climate Research Programme	159
WGCCD	1 50950	Working Group on Climate Change Detection (WMO)	163
WGMS	1 50130	World Glacier Monitoring Service	165
WWW	1 39030	World Weather Watch Programme	167

3. Data and Information System Programmes

<u>Acronym</u>	<u>Ref. No.</u>	<u>Name of Organization</u>	<u>Page</u>
ACSAD	2 38800	Arab Centre for the Studies of Arid Zones and Dry Lands	171
ASFIS	2 50140	Aquatic Sciences and Fisheries Information System	173
BALTIC	2 50150	Baltic Marine Environment Bibliography	175
CC:INFO	2 51580	Information Exchange System on Country Activities on Climate Change (UNFCCC)	177
CDIAC	2 51860	Carbon Dioxide Information Analysis Center	179
CEDAR	2 38770	Central European Environmental Data Request Facility	181
CEOS	2 51450	Committee on Earth Observation Satellites	183

CERCO	2 1120	Comité Européen Des Responsables de la Cartographie Officielle	185
CIESIN	2 47930	Consortium for International Earth Science Information Network	189
CODATA	2 6800	Committee on Data for Science and Technology	191
CORINE	2 1280	Coordination of Information on the Environment (EEA)	193
DESIS	2 50160	Desertification Information System	195
ECCN	2 51730	European Climate Computer Network	197
EDC	2 6160	Environmental Data Centre	199
EIS	2 50960	Environmental Information System Network for Sub- Saharan (World Bank)	201
ELIS	2 13610	Environmental Law Information System	203
ENVIS	2 25010	Environmental Information System	205
EOSDIS	2 50970	Earth Observing System Data and Information System (NASA)	207
EROS	2 50980	Earth Resources Observation System (USGS)	211
FRIEND	2 50990	Flow Regimes from International Experimental and Network Data	213
GDPP	2 4450	Global Database Planning Project	215
GED	2 51550	Global Ecosystems Database (US EPA)	217
GER	2 46640	Global Environmental Research (UK)	219
GLASOD SOTER	2 51010	Global Assessment of Soil Degradation World Soils and Terrain Digital Database	221
GNIP	2 50110	Global Network Isotopes in Precipitation	223
GPCC	2 34800	Global Precipitation Climatology Centre (WMO, German Weather Service)	225
GRDC	2 10900	Global Runoff Data Centre	227

GRID	2 15780	Global Resource Information Database (UNEP)	229
ICPIC	2 6990	International Cleaner Production Information Clearinghouse (UNEP IE/PAC)	231
IGBP-DIS	2 50001	Data and Information System for the International Geosphere-Biosphere Programme	233
INFOHYDRO	2 50180	Hydrological Information Referral Service	235
INFOTERRA	2 15680	International Environmental Information System (UNEP)	237
INTERAISE	2 50190	International Environmental and Natural Resource Assessment Information Service	239
IODE	2 50200	International Oceanographic Data Exchange System	241
IRPTC	2 19620	International Register of Potentially Toxic Chemicals	245
IRS	2 51540	Information Retrieval Service (ESA)	249
ISCC	2 34811	Information Systems Coordination Committee	251
IUCC	2 19080	Information Unit of Climate Change (UNEP)	253
MARC	2 23160	Monitoring and Assessment Research Centre (UNEP)	255
MEDIAS	2 51030	Regional Research Network for the Mediterranean Basin and Subtropical Africa	257
NETT	2 51040	Network for Environmental Technology Transfer (EC)	259
OZONACTION	2 51470	OZONACTION (UNEP IE/PAC)	261
REED	2 51050	Refferal Database on Energy and Environment (UNIDO)	265
SDN	2 51060	Sustainable Development Network (UNDP)	267
TEM SITES	2 51000	Terrestrial Ecosystem Monitoring Sites Database	269
WCMC	2 22530	World Conservation Monitoring Centre (UNEP)	271

WCP/WCDMP	2 50210	World Climate Programme/World Climate Data and Monitoring Programme (WMO)	275
WDC	2 50220	World Data Centres	277
WISE	2 51070	World Inventory of Soils Emission Potentials (ISRIC)	279

4. Harmonization and Standardization Activities

Acronym	Ref. No.	Name of Organization	Page
AFNOR	3 36021	Association Française de Normalisation	283
ASTM	3 24490	American Society for Testing and Materials	285
BSI	3 21440	British Standards Institution	287
CEN	3 50230	European Committee for Standardization	289
DIN	3 10820	Deutsches Institut für Normung e. V.	291
-/-	3 38150	Environment Agency Government of Japan	293
ERLAP	3 14990	European Reference Laboratory of Air Pollution (JRC)	295
HEM	3 10350	Harmonization of Environmental Measurement (UNEP)	297
IRMM	3 25971	Institute for Reference Materials and Measurements	299
ISO	3 19340	International Organization for Standardization	301
ISO TC 207	3 51080	International Standardization Organization - Technical Committee 207	303
MTP	3 30701	Measurements and Testing Programme	305
REMCO	3 32581	Committee on Reference Materials	307
SABS	3 17990	South African Bureau of Standards	311
UNICHIM	3 47620	Assoc. Per L'Unificazione Nel Settore Dell' Industria Chimica Federata All'Uni	313
VDI/DIN/KdRL	3 9370	Commission on Air Pollution Prevention	315

5. Annexes

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INTRODUCTION

In 1986, the Secretariat of the Environment Experts of the Economic Summit published a Survey of Environment Related Monitoring Programmes of International Organizations which provided the basis for the UNEP-HEM Survey of Environmental Monitoring and Information Management Programmes of International Organizations.

The first UNEP-HEM Survey was prepared by Jan-Stefan Fritz in 1990, and covered 76 environmental monitoring and assessment and information management programmes run by international organizations. This survey was the initial step taken by HEM in addressing the issue of harmonizing environmental information at the international level. The information provided in the survey gives a brief but thorough overview of what is currently being done, where and by whom in terms of international global activities related to the environment. In light of the vast amount of work being carried out world-wide, the survey should be seen as a cross-sectoral sample of existing programmes without the claim of being exhaustive. Most of the entries are key references which provide the information needed to contact those with more detailed knowledge of regional and national activities, specialized programmes and sub-programmes. The survey was updated and extended to 90 programmes in 1991, at which time it became known as the 'Blue Book'. In early 1993, the Survey was further updated for inclusion in the HEMDisk.

Three years after the last printed edition and two years after UNCED, much has changed. New programmes have been established and others completed or incorporated into major programmes. Thus a third revised edition has become necessary. Entries included in the last edition have been revised and updated by the organizations concerned and 48 new entries have been added to give a total of 130 entries.

The Survey is divided into three parts:

1. Environmental Monitoring and Research Programmes;
2. Data and Information System Programmes; and
3. Harmonization and Standardization Activities.

Each part contains a list of programmes and activities, which are expanded upon individually. Entries in each section have been formatted according to standard criteria to ensure uniformity and compatibility of the information. Each entry is intended to provide the reader with information on the type of programme, basic background information on areas of interest and programme objectives, more specific related information, and cooperation with other organizations or institutions. Although the programmes have been divided according to their main subject, cross-references are given where appropriate reflecting the interconnection of programmes world-wide.

The information collated for this Survey and other publications of HEM, such as the **Directory of Organizations Active in Environmental Monitoring**; the **Survey of Organizations and Laboratories Manufacturing, Supplying or Using Reference Materials for Environmental Measurement**; and the **Survey of Organizations**

Working in the Field of Environment Statistics and Data will be incorporated into HEM's Information System, HEMIS.

HEMIS will coordinate and disseminate information on who is doing what, where, how and why in relation to the collection, analysis and assessment of environmental information, thus making it a *meta-database*, or informational database of organizations, programmes, databases and monitoring activities including methodologies towards improved harmonization. As a meta-database, HEMIS will not contain detailed primary data, but rather, generalized information *about* data. In other words, some data will be high level references to global programmes, which themselves can guide users to more specific searches on a desired subject. HEMIS will be a tool for planning and programme management, and for identifying areas in need of harmonization and gaps in global environmental data collection while offering its users current details of data sources. This can assist policy makers to acquire the information they need for decision-making purposes.

HEMIS is designed to serve three main user groups:

1. Decision-makers - especially those in developing countries who need access to harmonized information to make national decisions in a global context.
2. Research organizations - especially those concerned with cross-sectoral interrelationships and modeling.
3. HEM's (and other) harmonization processes.

Concerning the organisational framework, HEMIS will aim to serve UNEP itself, especially in its commitments to environmental reporting and national capacity building, the rest of the UN system (particularly WHO, WMO, FAO, UNESCO, UNDP), International Scientific Organisations and NGOs (like ICSU, IUCN, WRI), the international "Global Observing Systems" of GOOS, GCOS and especially the new Global Terrestrial Observing System (GTOS). HEMIS will offer its services as a harmonization tool. It will serve as a meta-database to support harmonization of environmental measurement by providing information about ongoing environmental observation and assessment activities.

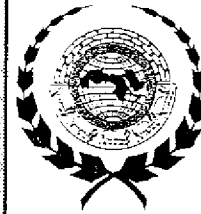
Environmental Monitoring and Research Programmes

**ARAB CENTRE FOR THE STUDIES OF
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Telefax: +963 11 755 712
E-Mail/Telex: N/A / 412697 SY

Ref. No. 1 38800
ACSAD



1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Arab League nations

3. Programme Profile

Established in 1971, by the Arab League, ACSAD focuses its activities on studies related to arid zones, such as water resources, soils, plants and animal production. Within this frame, ACSAD has initiated a number of programmes, including:

1. Programmes for Water Resource Studies;
2. Programmes for Soil Studies;
3. Plant Studies Programme;
4. Programme for Livestock Studies;
5. Programme for Agro-Climatic Studies; and
6. Statistics Programmes.

Currently, these programmes are initiating and researching such things as an **Arab Soil Map**, an **Encyclopaedia of Arab Livestock** as well as projects aimed at preventing further desertification in the Region.

ACSAD's past achievements include:

1. The development of a computerized methods for determining the hydrodynamic characteristics of groundwater. In particular, two models water resources mathematical models have been developed.

2. The establishment of its own technical approaches and feasibility studies of using isotopic (both stable and radioactive) methodology and remote sensing techniques in arid regions.

4. Data and Information Management

See ACSAD Database entry.

5. Cooperation

ACSAD cooperates extensively with international organizations including, among others, the FAO, UNEP, UNESCO, and WMO. Much cooperation also occurs at a bilateral level between the Centre and Arab Governments.

6. Contact person

Mr. Mohamed El-Khash, Director General, address see above

**ARCTIC MONITORING AND ASSESSMENT
PROGRAMME**

Ref. No. 1 48800
AMAP

**STROMSVEIEN 96
P. O. BOX 8100, DEP
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NORWAY**

AMAP
Arctic Monitoring and
Assessment Programme

Telephone: +47 22 573544, 573400
Telefax: +47 22 676706
E-Mail/Telex: N/A

1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Circumpolar terrestrial and marine areas north of the Arctic circle; permafrost areas

3. Programme Profile

The decision to implement AMAP was taken at a Ministerial Meeting of the eight Arctic countries, held in Rovaniemi, Finland in 1991.

AMAP's objective is to monitor the levels of pollutants and assess the effects of pollution in all compartments of the Arctic environment including the atmosphere, the terrestrial environment, the freshwater environment, the marine environment and human health. Further aims are to document trends of pollution; to examine the impact of pollution on Arctic flora and fauna, especially those used by indigenous people; to report on the state of the Arctic environment; and to give advice to ministers on priority actions needed to improve the Arctic condition. AMAP will provide information for 1. integrated assessment reports on the status and trends of the condition of the Arctic Ecosystem; 2. identifying possible causes for changing conditions; 3. detecting emerging problems, their possible causes, and the potential risk to Arctic ecosystems including indigenous people and other Arctic residents; and 4. recommending actions required to reduce risks to Arctic ecosystems.

The contaminants of highest priority in the first period are persistent organics, heavy metals, and radionuclides. Acidification has been included among the priority pollutants. Other issues of concern include oil, eutrophication, climate

change, increased UV radiation, and biological effects on flora, fauna and humans. The first status report will be presented to the ministers in 1996.

The AMAP programme is based primarily on existing national and international programmes. AMAP will try to harmonize these programmes and initiate new programmes to fill gaps if necessary. The same methodologies and quality assurance procedures recommended for existing international programmes, e.g. EMEP, North Sea Task Force, The UN ECE Integrated Monitoring Programme (see IM entry), BAPMoN, etc., should be followed by AMAP members.

4. Data and Information Management

Information and results from various projects, together with international data on emission and discharges of pollutants, will as far as possible be collected at existing international data centres, e.g. atmospheric data at NILU (Norwegian Institute for Air Research) in Oslo; marine data at ICES (International Council for the Exploration of the Seas) in Copenhagen; freshwater and terrestrial data at EDC (Environmental Data Centre) in Helsinki. Regarding radioactivity a new database will be set up at the Norwegian Radiation Protection Authority in Oslo. These databases will serve as a basis for the assessment of pollution effects on the Arctic ecosystem.

AMAP's secretariat has developed a project directory (AMAP-PD) regarding Arctic research and monitoring projects which is distributed in a PC-format. It covers 368 projects in the Arctic or adjacent areas. The PD will be updated on a continuous basis. Data reported from different sources will be subjected to quality assurance (QA).

Contact has been sought with the International Arctic Science Committee (IASC) to discover whether the AMAP-PD can fulfil the requirements of both AMAP and IASC. Cooperation is underway with the US Geological Survey (USGS) to develop a joint database with the USGS Arctic Environmental Data Directory (AEDD).

5. Cooperation

ICES, NILU and EDC will respectively perform quality assurance control for monitoring data from marine, atmospheric, terrestrial and freshwater environment.

6. Name of the contact person

Mr. Lars-Otto Reiersen, Executive Secretary, State Pollution Control Authority, address see above

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Ref. No. 1 38810
AMCEN



1. Type of Programme

International governmental; Coordination

2. Geographic Area of Implementation

Regional: Africa

3. Programme Profile

The first African Ministerial Conference on the Environment was held in Cairo, Egypt from 16 to 18 December, 1985. It was sponsored by UNEP, the Organization of African Unity (OAU), and the Economic Commission for Africa (ECA). At this first Session, AMCEN introduced the **Cairo Programme for African Cooperation**. This Programme is important as it provides the basis for the planned course of action for promoting environmental protection and management. Also, it serves as a major driving force for providing guidance and coordination on environmental policy issues as well as for building and strengthening environmental awareness and institutional capacities in the region.

In order to address these issues, AMCEN initiated a number of committees and networks. At the first AMCEN session in 1985, four committees were founded to deal with the four major African ecosystem types: 1. Deserts and Arid Lands; 2. Rivers and Lake Basins; 3. Forests and Woodlands; and 4. Seas.

The third Session of AMCEN, held in Nairobi from 10 to 12 May, 1989, endorsed the creation of a fifth Committee on African Island Ecosystems.

At the same time, eight specialized regional Networks were proposed to develop and strengthen technical and scientific cooperation between the African countries. For every network the **Regional Coordination Unit (RCU)** has been selected as follows:

1. Environmental Monitoring @ GEMS, Nairobi;
2. Climatology @ African Centre for Meteorological Application for Development (ACMAD), Niamey, Niger;
3. Soils and Fertilizer @ Soil Research Institute, Council for Scientific and Industrial Research, Kumasi, Ghana;
4. Water Resources @ Water Research Centre, Cairo, Egypt;
5. Energy @ Renewable Energy Research Centre, Dakar, Senegal;
6. Environmental Education and Training @ Institute of Ecology, Obafemi Awolowo University, Ile-Ife, Nigeria;
7. Biological Diversity @ Plant Genetic Centre, Addis Ababa, Ethiopia; and
8. Science and Technology @ Regional Office for Science and Technology in Africa, UNESCO, Nairobi, Kenya.

The fifth Session of AMCEN, held in Addis Ababa, Ethiopia, from 22 to 27 November 1993, adopted and ranked in order to priority 12 programme areas for implementation in the African region, namely:

- Subprogramme 1: Capacity-building (within the context of Agenda 21) at national level with special focus on environmental economics, accounting and management tools, environmental law, institutions and policies, environmental education and training;
- Subprogramme 2: Environmentally sound management of terrestrial ecosystems and their resources with special focus on preventing and reversing desertification, mitigating the impacts of drought, environmentally sound management and sustainable use of forests and savannah woodlands, promotion of the environmentally sound utilization of microbial resources and related biotechnologies, environmentally sound management of soils and agricultural lands;
- Subprogramme 3: Environmentally sound management of freshwater resources;
- Subprogramme 4: Environmentally sound management of hazardous and all types of wastes and toxic chemicals;
- Subprogramme 5: Environmentally sound management of marine and coastal areas, including island ecosystems;
- Subprogramme 6: Promoting human welfare, environment and development with special focus on managing demographic change and population pressures development of human settlements, planning and management;

Subprogramme 7: Managing the environmental impacts of climate change and climate variability;
Subprogramme 8: Securing greater energy efficiency and sufficiency;
Subprogramme 9: Monitoring and assessing the state of the African environment;
Subprogramme 10: Promotion of sub-regional and regional cooperation;
Subprogramme 11: Promoting the role of major groups in Africa's environmental management;
Subprogramme 12: Mobilization of support for the implementation of Africa's environment programme at the national sub-regional and regional levels.

In order to create practical examples of sustainable development AMCEN includes a Pilot Project Programme which covers 150 villages and 30 pastoral areas in Africa. The aim of this programme is to achieve self-sufficiency in food and energy through the use of traditional skills and experience of the villagers and pastoral people themselves in economically feasible, environmentally sound and socially acceptable development.

4. Data and Information Management

UNEP/GEMS has been given the responsibility for establishing a resource monitoring and assessment programme for Africa by AMCEN. UNEP/GRID is to establish networks in Africa to manage the resulting data.

5. Cooperation

As an intergovernmental programme, AMCEN closely works not only with international organizations, but also with a great number of national offices and projects. AMCEN is attempting to take an integrative approach to environmental and sustainable development in the African region and as such its work is closely harmonized with what is generally being done on the environment within Africa.

6. Contact person

Ms. Maria de Amorim, Regional Representative and Director, UNEP Regional Office for Africa (ROA), address see above

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Ref. No. 1 28581
CGER



1. Type of Programme

Governmental; Monitoring and Assessment, Research, Data and Information Management

2. Geographic Area of Implementation

Global

3. Programme Profile

The Center for Global Environmental Research (CGER) was established in 1990 within the National Institute for Environmental Studies (NIES) as a trans-ministerial and transdisciplinary coordinating organization to promote global environmental research domestically and internationally. The aim is to contribute broadly to the elucidation of, and development of solution for, pressing global environmental problems. The mission of CGER covers every stage of the decision-making procedure; recognizing global change, analyzing its mechanisms and processes, and proposing and evaluating countermeasures to solve global environmental problems by scientific approaches.

4. Data and Information Management

CGER supports global environmental research by providing facilities such as database and supercomputer, and offering its own long-term monitoring data to the global environment.

5. Cooperation

CGER is a UNEP/GRID center (GRID-Tsukuba) and a special sectoral focal point for UNEP/INFOTERRA. It is developing guidelines on impact assessment of climate change for the Intergovernmental Panel on Climate Change (IPCC).

6. Contact person

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**COORDINATED PROGRAMME ON MARINE
POLLUTION MONITORING AND CONTROL
IN THE SOUTH-EAST PACIFIC**

Ref. No. 1 38820
CONPACSE

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: S. E. Pacific including Chile, Colombia, Ecuador, Panama, Peru

3. Programme Profile

CONPACSE was established by merger of the programmes on 'The Characterization, Surveillance and Monitoring of Marine Pollution from Domestic, Agricultural, Industrial and Mining sources in Ecologically Sensitive Areas of the South East Pacific' and 'Research and Surveillance of Marine Pollution of the South East Pacific due to Oil Hydrocarbons'.

The programme was reviewed at the 2nd International Seminar on the Surveillance and Investigation of Marine Contamination in the S. E. Pacific: '10 years of the Convention for the Protection of the Marine Environment and the South-East Pacific Coastal Areas 1981-91' held in Chile 1992. It now covers 22 geographic areas, with a network of 44 institutions including laboratories, universities, specialized centres, marine authorities and others.

The IV Intergovernmental Meeting of the Action Plan (IMAP) approved a series of plans and proposals related to actions, technical support, and the integration of a network for surveillance of organochloride pesticides. Phase I will be concluded and the new programme, CONPACSE II, implemented.

The specific objectives of the present phase are: to prepare assessments of the state of contamination by petroleum hydrocarbons and heavy metals using available information and including assessment of risks and recommendations for action; to implement a support programme for data quality assurance in

pilot study areas; to implement the surveillance programme for contamination by organochloride pesticides in 5 pilot zones, providing direct support to national focal points for improvement of analytical capacity; to study contamination with pathological bacteria and evaluate the implications of results; to establish the new programme, CONPACSE II, for surveillance and control of marine contamination based on present results and the recommendations of the IV IMAP, and taking into account the technical capacity of the regional laboratories.

The main elements of the CONPACSE programme are basic studies, monitoring, investigation, and formulation of the proposals for measurement of contamination. CONPACSE will use analytical methodologies for marine pollution studies developed by UNEP with the support of IAEA and IOC. Present activities concentrate on the organization of training courses and development of the surveillance activities programme. The network for surveillance of organochloride pesticides focusses on obtaining data from representative samples of fish and bivalve molluscs as an indication of contamination in sediments. For this, 5 laboratories in 5 countries have been equipped with gas chromatographs and other necessary equipment and reagents.

4. Data and Information Management

Several aspects of improving information accuracy and quality have been identified including: the need for skilled and experienced staff, using proven, analytical methods and working in adequate laboratory facilities; the need for active participation in intra- and intercalibration exercises and the acquisition of certified reference samples to control accuracy and reproducibility; the need for control of statistical quality through the use of control sheets and appropriate computer statistical programmes; the need to acquire high quality analytical standards for equipment calibration; and the adoption of agreed reporting format and procedures and use of reference materials.

5. Cooperation

CONPACSE was implemented within the guidelines of UNEP OCA/PAC's Action Plan for the Protection of the Marine Environment and Coastal Areas of the South East Pacific (see SPREP POL entry). Support has also been given by IAEA, IOC and the Oficina Panamericana de la Salud (OPS).

6. Contact person

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CORAL REEF MONITORING NETWORK

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Coral Reef sites

3. Programme Profile

The Coral Reef Monitoring Network was established in 1992 as part of the UNEP-IOC-WMO *Long-Term Global Monitoring System for Coastal and Near-Shore Phenomena Related to Climate Change* with participation of the World Conservation Union (IUCN). At present it comprises a three-to-five-year pilot programme to monitor 50 representative coral sites for threats and changes. The sites are in tropical seas and ocean areas where coral reefs constitute an important element of the ecosystem, e.g. the Caribbean, Southeast Asian Seas, the South Pacific, and the Indian Ocean and adjacent water bodies.

The sponsoring agencies will provide the mechanism to stimulate support at a national level in order to facilitate the establishment of the network.

The four main objectives of the network are:

1. to determine whether the growth rates of coral reefs can keep up with the rise in sea-levels,
2. to find out if coral reefs can recover from an increase in tropical storm damage that could result from climate change,
3. to correlate changes in sea-water temperatures and chemistry to changes in reef composition, and

4. to assemble, link and study previously isolated reports and observations on widespread bleaching of coral reefs in various areas world-wide, with a view to determining its cause and whether this is related to climate change.

4. Data and Information Management

N/A

5. Cooperation

SPREP POL, CARICOM and the ASEAN-Australia Living Resources Project are supporting the establishment of the network and participating in the pilot activities of the coral reef monitoring.

6. Contact person

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DIVERSITAS

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Ref. No. 1 50860
DIVERSITAS

1. Type of Programme

International non-governmental; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

In 1992 the International Union of Biological Sciences (IUBS) and the Scientific Committee on Problems of the Environment (SCOPE) of the International Council of Scientific Unions (ICSU) set up the programme DIVERSITAS together with UNESCO, to focus on studying the biodiversity on earth.

DIVERSITAS' main objective is to identify scientific issues and promote research requiring international coordination on the ecosystem function of biodiversity, the origins, maintenance and the practical consequences of current changes on the natural and managed ecosystems that support mankind, and inventorying and monitoring of biodiversity. It develops prioritized agendas for research, organizes research projects to fill major gaps in knowledge, and synthesises results. The key scientific questions to be addressed are:

- What is the role of biodiversity in the function and sustainability of ecosystems?
- What are the origins of biodiversity, and how is biodiversity lost?
- Where and how quickly are we losing biodiversity?

The key component within the framework of Diversitas is the establishment of a pilot 'Global Biodiversity Network', based upon biosphere reserves and other

similar sites. This Network represents a basic tool for the conservation of genetic material and ecosystems as well as for the promotion of development in association with the environment. Furthermore, it should provide the logistics needed for the implementation of the programme's research, training, education and demonstration activities.

4. Data and Information Management

Designed as a network, Diversitas aims to create a synergism amongst institutions and research teams by fostering an agreed methodology for data handling and ensuring information and data exchange.

5. Cooperation

Researches and studies carried out by DIVERSITAS are closely linked to the ecosystem studies within IGBP.

6. Contact person

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1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Europe

3. Programme Profile

ESA is involved in environmental monitoring through its **Earth Observation Programmes**. These programmes include:

- the ERS-1 and ERS-2 (remote sensing satellites) programmes;
- the Earth Observation Preparatory Programme;
- the EARTHNET programme;
- the METEOSAT procurement, launch and operations for EUMETSAT;
- The Preparatory Programme for the first Polar Orbit Earth Observation Mission (POEM-1 PP); and
- The future Polar Orbit Earth Observation Missions (POEM's).

4. Data and Information Management

Data for the Earth Observation Programmes are being stored at the EARTHNET facilities at ESA/ESRIN in Frascati, Italy. EARTHNET datasets consist of raw and pre-processed data as well as data from other related ESA activities. Environmental data is currently being collected about sea level change (by ERS-1), changes in the earth's magnetic field, as well as measurement of tectonic movement and the earth's rotation.

Discussions are under way to develop environmental datasets in cooperation with the Commission of the European Communities' Joint Research Centre (JRC) at Ispra, Italy.

5. Cooperation

ESA cooperates not only with the European Commission Joint Research Centre (EC-JRC) but also as part of the International Space Year (ISY). ESA's contributions to ISY will be from the ERS-1 (launched on 17 July 1991), EARTHNET and METEOSAT (in collaboration with EUMETSAT) programmes. The projects will contribute to the ISY 'Land Cover Change', 'Ocean Variability and Climate', 'Productivity of the Global Ocean' and the 'Rate of Deforestation' projects. (see ISY entry).

6. Contact person

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EARTHWATCH

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Ref. No. 1 29631
EARTHWATCH



UNEP

1. Type of Programme

United Nations; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

Earthwatch has existed since the 1972 United Nations Conference on the Human Environment in Stockholm as a general term for the environmental assessment activities of the United Nations system. The mission of the UN system-wide Earthwatch is to coordinate, harmonize and integrate observing, assessment and reporting activities across the UN system in order to provide environmental and appropriate socio-economic information for national and international decision-making on sustainable development and for early warning of emerging problems requiring international action. This should include timely information on the pressures on, status of and trends in key global resources, variables and processes in both natural and human systems and on the response to problems in these areas.

Earthwatch is intended to provide or facilitate:

- comprehensive assessments in the major environmental sectors, supported by long-term monitoring, national capacity building and increased inter-agency cooperation;
- global overviews of status, trends and interactions, with a watch for unanticipated problems or emerging threats, assessment of risks

- associated with environmental problems and threats, and early warning of situations requiring an international response; and
- improved information distribution and communication to decision-makers.

Earthwatch will target the gaps between the present situation and the requirements of the international community and stimulate the production of outputs to fill these gaps.

4. Data and Information Management

Global data collection is being organized through complementary interagency global observing systems for climate (GCOS), the oceans (GOOS) and the terrestrial environment (GTOS). UNEP will continue to make significant contributions via GEMS and its interagency projects GEMS/Air, GEMS/Water, GEMS/Food, GEMS/HEALS, GRID, IRPTC, INFOTERRA, and other contributions to atmosphere and climate programmes, oceans, forests, soils, land degradation, biodiversity, etc.


Earthwatch will provide a framework to achieve the most efficient and economical flows of information, with special reference to improving the flow of information to developing countries. It will help to foster a comprehensive information network based on the widest possible cooperation, together with the necessary coordination, building on initiatives such as the Sustainable Development Network (SDN) of UNDP.

5. Cooperation

Earthwatch is intended to function as a network of all the concerned agencies and bodies within the UN system in close relation with governments and private scientific and non-governmental research institutes and organizations.

6. Contact person

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1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: European Union

3. Programme Profile

The Environment Research Programme was adopted on July 22, 1991 by the EU Council of Ministers as part of the 'Quality of Life' activities within the Community. Research in the Environment Programme is being carried out at four of the nine institutes of the Joint Research Centre:

- Environment Institute;
- Institute for Remote Sensing Applications;
- Institute for Systems Engineering; and
- Safety Technology Institute.

This programme concentrates on environmental protection (assessment of environmental chemicals, atmospheric pollution, chemical waste, water quality, as well as food and drug analysis); application of remote sensing techniques on land and marine monitoring (in particular of marine pollution and areas of upwelling); and industrial hazards.

Within the Environment Institute, the **European Reference Laboratory of Air Pollution (ERLAP)** (see entry), the former Central Laboratory for Air Pollution Measurements (CL), is a key activity. It is extensively involved in improving and harmonizing atmospheric monitoring, research and information management techniques. It was designed to provide technical support for the

preparation and implementation of EC directives on the regulation of air quality.

4. Data and Information Management


N/A

5. Cooperation

The Joint Research Centre contributes information to and collaborates with such programmes and institutions as ESA, EEA, and EMEP at the European level and with ISY at the international level. More specifically, JRC contributes information to and collaborates with European Community (EC) programmes, such as the European Programme for Climatology and Natural Hazards (EPOCH) and the Science and Technology for Environmental Protection (STEP).

6. Contact person

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1. Type of Programme

Intergovernmental; Coordination

2. Geographic Area of Implementation

Regional: European Union

3. Programme Profile

The establishment of the EEA was agreed upon at a March 1990 meeting of the European Ministers' Environment Council in Bruxelles. EEA was conceived as a smaller coordinating unit of large decentralized network. Along with EEA's creation, the European Union (EU) also established a **European Environment Information and Observation Network (EEION)** at the same time. Together, the Agency and the Network are to provide the European Union and its member states with objective and reliable information and assessments about the state of the environment in Europe (see 4. Data and Information Management).

EEION is to be coordinated by the EEA and participants will come from three different backgrounds:

1. a national focal point was set up in each Member State;
2. various national information networks; and
3. institutions will be given responsibilities for specific task and projects. These will be termed European Topic Centres.

In the first years of its operation emphasis will be placed on providing information which can be directly used in environmental policy implementation. Such areas include:

- air quality and atmospheric emissions;
- water quality, pollutants and water resources;
- the state of soil, flora and fauna and of biotopes;
- land use and natural resources;
- waste management;
- noise emissions;
- environmentally hazardous chemical substances; and
- coastal protection.

4. Data and Information Management

Upon its implementation, EEION will coordinate and provide Member States with objective, reliable and comparable information at the European level to enable them to take the necessary measures to protect the environment as well as assess the results of measurements they have taken.

For more information on current activities see CORINE entry.

5. Cooperation

EEA will be open to other non-EU Members. Already, interest has been shown by EFTA, Eastern and Central European nations as well as by the OECD and ESA.

Within the European Commission (EC), JRC and EUROSTAT have also expressed an interest in cooperating closely with EEA. JRC, for example, will play an essential role in researching, developing and harmonizing new environmental measuring methods and the standardization of data.

6. Contact person

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Ref. No. 1 24320
EMAP

EMAP

1. Type of Programme

Governmental; Monitoring and Assessment

2. Geographic Area of Implementation

National: United States of America

3. Programme Profile

The US Environmental Protection Agency's (US EPA) Science Advisory Board recommended in 1988 that: the Agency implement a monitoring programme to report on status and trends in environmental quality; explicitly develop and use monitoring systems to identify emerging environmental problems and recommend actions to address them; and place great emphasis on the development.

EMAP was initiated in 1990 to monitor and assess the condition of the Nation's ecological resources, thereby contributing to decisions on environmental protection and management. EMAP works to attain four objectives:

1. Estimate the current status, trends, and changes in selected indicators of the Nation's ecological resources on a regional basis with known confidence;
2. Estimate the geographic coverage and extent of the Nation's ecological resources with known confidence;
3. Seek associations between selected indicators of natural and anthropogenic stresses and indicators of condition of ecological resources; and

4. Provide annual statistical summaries and periodic assessments of resource condition at regional and national levels.

Major cross-programme activities address landscape characterization, indicator development and testing, statistical design and analysis, quality assurance, assessment and reporting, information management, and field and laboratory methods.

4. Data and Information Management

EMAP is implemented using a probability-based systematic grid whereby sampling is conducted over space and time. This approach allows for statements of inference about resource condition, change, and trends. Samples are spatially distributed over the geographic distribution and extent of the resource. Survey sites are visited over a 4 year cycle. Data collection activities began in 1990 and continue to expand to new regions as indicators are field tested, demonstration projects are completed, resources become available, and partnerships for implementation are established. The data and information resulting from EMAP will be available from an environmental 'information highway' that will allow analysis of data across heterogeneous networks of personal and scientific computers. The information management system will provide access to data distributed across a national network and computational tools to facilitate analyses.

5. Cooperation

The programme is implemented through partnerships with other US Federal agencies, e.g. Department of Agriculture's (US DOA) Forest Service and Agricultural Research Service, Department of Interior's (US DOI) National Biological Survey and Bureau of Land Management, Department of Commerce's (US DOC) National Oceanic and Atmospheric Administration (NOAA), USA.

EMAP staff cooperates with programmes in other countries to implement the statistical monitoring design and other aspects of resource monitoring programmes.

6. Contact person

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**COOPERATIVE PROGRAMME FOR THE
MONITORING AND EVALUATION OF LONG
RANGE AIR POLLUTANTS IN EUROPE**

**Ref. No. 1 38830
EMEP**

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Europe

3. Programme Profile

EMEP was founded by UN ECE, WMO, and UNEP in 1977. In 1983 it became a project under the Convention on Long-Range Transboundary Air Pollution, itself under the auspices of the ECE Protection of the Environment framework. It is one of two regional networks, the other in North America, where a denser network of precipitation monitoring stations has been established to evaluate SO₂ and NO_x emissions and transport, in particular.

4. Data and Information Management

EMEP collects precipitation chemistry data from 106 ground level monitoring stations in 25 European countries. The data are collected daily and are analysed to establish the transportation patterns of essential pollutants. These data are analysed and results published by EMEP's **Chemical Coordinating Centre (CCC)**, Norwegian Institute for Air Research (NILU), P.O Box 64, N-2001 Lillestrom, Norway.

To develop model calculations, of long range transport and deposition of acidifying compounds, the EMEP established two **Meteorological Synthesizing Centres (MSCs)** at the end of the 1970s; one in Oslo (MSC-West) and one in Moscow (MSC-East).

5. Cooperation

As part of the 1983 Convention on Long Range Trans-Boundary Air Pollution, EMEP is linked directly to the International Cooperative Programmes (ICPs) (see entry). Moreover, more than 30 of the 106 monitoring stations also participate in WMO's Background Air Pollution Monitoring Network (BAPMoN) (see entry).

The EC's Joint Research Centre (JRC) also cooperates in implementing this programme and is a site for one of the monitoring stations. In addition, the database containing EMEP information has been identified, for the variables it covers, as a lead database by a UN Intersecretariat Working Group on Environmental Data.

6. Contact person

No name supplied.

**ENVIRONMENTAL PROGRAMME FOR THE
DANUBE RIVER BASIN**

Ref. No. 1 47230

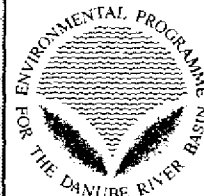
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1. Type of Programme

Intergovernmental; Coordination

2. Geographic Area of Implementation

Danube River Catchment Area

3. Programme Profile

The Environmental Programme for the Danube River Basin was initiated in response to the increasing stress on the environmental quality of the river basin due to human influence. Problems arise from inadequate wastewater treatment and solid waste disposal facilities, the disposal of industrial wastes into the air, water and on land, and modernization and intensification of agricultural practises and livestock production. There is significant water, air and soil pollution at local, regional and transboundary levels, and serious deterioration of environmental conditions of the Black Sea which are significantly influenced by the Danube. The long-term objective of the Environmental Programme for the Danube River Basin is to achieve sustainable use and development of the Danube Basin's natural resources. The Regional Environmental Programme aims to establish an operational basis for strategic and integrated management of the Danube River Basin while focusing initially on priority environmental issues. A Strategic Action Plan will focus on areas of acute environmental concern and the integration of environmental concerns into economic development policies. Overall, the aim is to protect and enhance environmental values.

A Programme Coordination Unit (PCU) supports the activities of the task force. The main responsibilities are:

1. to plan and coordinate Task Force meetings in consultation with the host country/organization;
2. to establish, maintain and support a network of national focal points;
3. to facilitate G-24 (OECD member countries) involvement;
4. to monitor all programme activities;
5. to establish and operate a mechanism to facilitate information sharing and the smooth flow of information among all participants;
6. routine periodic reporting to the Task Force on Programme activities.

4. Data and Information Management

It is intended to develop comprehensive inventories involving the systematic collection of information and its compilation in a form that facilitates study and analysis. Initially, inventories will focus on areas of priority environmental concern and will cover a) existing data, infrastructure, and sources of pollution; b) the accumulation of pollutants in soils, groundwater and sediments; and c) biological resources. A more strategic and comprehensive approach to data collection, processing and exchange is being followed. The aim is to develop tools and methodologies for high level information processing, to create the computerized infrastructure necessary for efficient data input, use, and exchange; and to promote the dissemination of the results. The top level international information system will contain databases relating to bibliographic information; institutional frameworks and expert networks; synthesized environmental information (from national databases); standards and legislation; basin processes and human activities; and decision support systems.

5. Cooperation

The PCU cooperates with many governments and organizations which are involved in the environmental protection of the Danube River basin. The development of networks to link key groups horizontally is a primary concern.

6. Contact person

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EARTH OBSERVATION PROGRAMMES

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Ref. No. 1 51020
EOP



esa

1. Type of Programme

Intergovernmental; Research, Information Services

2. Geographic Area of Implementation

Regional: Europe and ACP states (African, Caribbean & Pacific group of states)

3. Programme Profile

The three Earth Observation Programmes were established between 1989 and 1991 as cooperative ventures between the European Union and the European Space Agency. While each programme focuses on a different media, namely air monitoring systems, marine ecosystems and tropical forest ecosystems, all are related in that they rely on satellite remote sensing techniques. Specifically, the three Earth Observation Programmes are:

- **EARSEC (European Airborne Remote Sensing Capabilities):** The overall goal for EARSEC is to develop environmentally safe processes and products and to introduce techniques and engineering systems to protect and rehabilitate the environment. Specifically, this broad mandate will be pursued through six workplan objectives:
 - 1) to test and verify new methods of remote sensing, namely airborne imaging spectrometry and all-weather radar remote sensing;
 - 2) to test and verify these new methods in support of operational projects;
 - 3) to complement and support ERS-1 pilot projects over European test sites (the ERS-1 satellite went into operation in 1991);
 - 4) to investigate the problem of tropical biomass burning in West Africa as a second phase of the TREES project;
 - 5) to complement

the CORINE land use database on soil erosion; and 6) to study the coastal upwellings along Northwest Africa and the Canary Islands.

- **OCEAN (Ocean Colour European Archive Network):** The OCEAN programme performs a thorough reappraisal of all Coastal Zone Colour Scanner (CZCS) data collected on various oceanographic topics between 1978 and 1986. So far, ESA-ESRIN has distributed, out of 12,500 products in the archive, some 40,000 products to OCEAN users. Within this framework, the OCEAN programme aims to pursue several objectives, including: 1) to compile a catalogue of all CZCS data available in Europe; 2) to generate a dedicated software package based on established methodologies and algorithms to extract relevant information from all CZCS data sets; and 3) to carry out a demonstration programme related to the production and application of specific CZCS data sets which will in turn be directly relevant to the development of climatic and ecological models as well as the management and exploitation of marine resources. A joint initiative entitled OCTOPUS (Ocean Colour Techniques for Observation, Processing and Utilization Systems) ensures the continuity of OCEAN. It aims at collecting, processing and using ocean colour data for scientific exploration of marine environment coming from the new optical remote sensing system of the American SeaWiFS (Sea-viewing Wide Field of view Sensor) which will be launched in early 1995 and in view of MERIS, the Medium Resolution Imaging Spectrometer of the European ENVISAT-1 which will be launched in 1988-99.

- **TREES (Tropical Ecosystem Environment Observations by Satellites):** The European Commission (EC) and ESA proposed the TREES programme to provide an improved scientific basis for quantitative assessments of tropical deforestation. In this framework, ESA-ESRIN has developed tools like the IONIA CD-Browser and the IONIA '1km Net Browser'. TREES takes two approaches to monitoring: 1) optical and thermal sensors aboard NOAA meteorological satellites are used to provide low resolution, global and daily measurements of the Earth's surface, and higher resolution data are obtained from SPOT and LANDSAT satellites; and 2) all-weather sensors like the Synthetic Aperture Radar (SAR), as provided by ESA's ERS-1 (and in 1995 ERS-2) satellite, are deployed to avoid the problems of using optical and thermal sensors over clouded regions. The AVHRR data collection achieved through the Tiros Coordinated Network of acquisition stations has been extended through the agreement between NOAA, NASA, USGS, CSIRO and ESA on the exchange of data with a view to complete the '1km AVHRR Global Land Dataset'. Since 1 April 1992,

15,000 HRPT (High Resolution Picture Transmission) passes have been archived each year during a period of 2,5 years.

The European Space Science Committee (ESSC), a body of space scientists under the umbrella of the European Science Foundation (ESF), has created a sub-panel, the European Earth Observation Panel (EEOP) to evaluate the programme and development of EOP. A strategy paper *A Strategy for Earth Observation from Space* was produced by EEOP in September 1992.

4. Data and Information Management

Data collection and management is one of the key components in the ESA-EC Earth Observation Programmes. EARSEC documentation suggests that data processors must provide, but not for SAR, real time capabilities, must be designed to provide all data shortly after its collection, and be based on standard advanced, network architecture working in the UNIX operating system. Data archiving is ultimately the responsibility of ESA/EARTHNET.

5. Cooperation

Cooperative and complementary efforts are a key component of the Earth Observation Programmes. In particular, OCEAN, OCTOPUS and TREES are seeking to complement efforts currently being pursued within the context of IGBP and ISY'92. The OCEAN programme cooperates with EUREKA's EUROMAR, IGBP's JGOFS and the Marine Science and Technology (MAST) programme of the European Commission (EC). The TREES programme cooperates with WCRP and various national satellite programmes.

6. Contact person

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EUREKA ENVIRONMENTAL PROJECTS

Ref. No. 1 1270

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1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Europe

3. Programme Profile

EUREKA was established in 1985 by 19 Western European countries and the European Commission (EC). Currently, 32 projects within EUREKA can be defined as being environmentally related. These projects have been grouped in four categories. Each category has umbrella projects as well as independent ones. The following, is a list of the four categories and some of the activities existing within each:

1. Large Scale Research and Systems Studies:

Among the various projects within this category, three umbrella projects can be identified:

- EUROTRAC (Project EU 7) - see individual entry.
- EUROMAR (Project EU 37) - focuses on the development and exploitation of Europe's marine technology which is considered to have worldwide market potential. Eighteen projects have been implemented involving remote sensing, models, data systems, bottom systems, instruments and carrier systems and atmospheric input.
- EUROCARE (Project EU 140) - studies the effects of pollution on historic objects and monuments.

2. Development of Clean and Purifying Technologies:

- Here EUROENVIRON can be seen as the largest programme. It seeks to emphasize the use of environmental technology to solve and/or prevent environmental problems. Its ten sub-projects deal with wastewater treatment, contaminated groundwater, polluted soil and atmospheric dispersion of process and accidental releases.

3. Protection Applications:

- Within this category most sub-projects are being initiated under the auspices of EUROCARE. These sub-projects are involved in protecting items including Roman mosaics, foundations, wood protection, wall paintings, marble, cooper, as well as other items.

4. Development of Instrumentation:

- Within this category most sub-projects fall within the framework of EUROMAR. Most sub-projects are involved in developing instruments for use in monitoring and researching ocean and sea movements and sediments.

- Two independent projects, however, also exist in this category. Project EU 94 is developing low-weight, easily operated equipment to identify and simultaneously measure several gases. The second project is LASFLEUR (Project EU 380). It aims to develop an instrument to measure the status of vegetation from an aeroplane.

4. **Data and Information Management**

EUREKA has launched a database project which should ultimately make all projects within the EUREKA-framework publicly accessible. Currently, this database exists on two computer systems, one called ECHO (European Commission Host Organization) and the other managed by the Ministry of Trade and Industry in Paris.

5. **Cooperation**

Almost 2000 European corporations and research centres participate in Eureka projects. Cooperative efforts are generally between the member countries of EUREKA and their respective institutions and programmes.

6. **Contact person**

No name supplied.

EUROTRAC European Experiment on Transport and Transformation of Environmentally relevant Trace Constituents in the Troposphere over Europe

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Ref. No. 1 8390

EUROTRAC



1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Europe

3. Programme Profile

EUROTRAC is one of three projects of EUREKA within the category of 'Large Scale Research and Systems Studies'. EUROTRAC's implementation phase began on January 1, 1988. It is scheduled to run for 8 years, with a reassessment after the first four years. The objectives on which EUROTRAC is to focus are: to increase the basic knowledge in atmospheric science; to promote the technological development of sensitive, specific and fast response instruments for environmental research and monitoring; and to improve the scientific basis for taking future political decisions on environmental management in the European countries.

The scientific projects and activities are carried out by sub-projects. Currently 14 of these exist (see list at end of entry). The sub-projects are not only involved in research activities and monitoring, but also in the development of models and advanced monitoring instruments.

4. Data and Information Management

Currently, a EUREKA database is being developed to make all existing projects publicly accessible (see EUREKA entry).

5. Cooperation

EUROTRAC cooperates closely with the European Commission (EC), as the EC sponsors research activities within the Programme. Results, obtained in research activities, will be contributed to ICSU's International Geosphere-Biosphere Programme (IGBP), especially to its core project: the International Global Atmosphere Chemistry project (IGAC). National cooperative efforts have also been launched. In particular, there are links to EMEP, and cooperation with the EEA is envisaged.

EUROTRAC Sub-projects:

Laboratory experiments:

1. HALIPP (Heterogeneous and Liquid Phase Processes)
2. LACTOZ (Laboratory Studies of Chemistry Related Tropospheric Ozone)

Field Experiments:

3. ALPTRAC (High Alpine Aerosol and Snow Chemistry Study)
4. GCE (Ground-based Cloud Experiments)
5. TOR (Tropospheric Ozone Research)
6. TRACT (Transport of Pollutants over Complex Terrain)

Biosphere/Atmosphere Interactions:

7. ASE (Air-Sea Exchange)
8. BIATEX (Biosphere-Atmosphere Exchange of Pollutants)

Model Development:

9. EUMAC (European Modelling of Tropospheric Constituents)
10. GLOMAC (Global Modelling of Atmospheric Chemistry)
11. GENMIS (Generation of European Emissions)

Development of Instruments:

12. JETDLAG (Joint European Development of Turnable Diode Laser Absorption Spectroscopy for Measurement of Atmospheric Trace Gases)
13. TESLAS (Tropospheric Environmental Studies by Laser Sounding)
14. TOPAS (Tropospheric Optical Absorption Spectroscopy)

6. Contact person

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Ref. No. 1 38840
GAW



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

GAW has been established under the auspices of WMO. The WMO-GAW System can be seen as the umbrella programme for the Background Air Pollution Monitoring Network (BAPMoN) and the Global Ozone Observing System (GO₃OS); for details see entries for both sub-programmes. Established in 1989, GAW integrates WMO monitoring and research activities involving the chemical composition and related physical characteristics of the global atmosphere under GO₃OS and BAPMoN as well as EMEP and IM.

Results from GAW activities are used, among other things, to serve as an early warning system to detect changes in the transport of pollutants, changes in the concentrations of greenhouse gases, and changes in the ozone layer.

The number of measurement parameters recommended at present for GAW varies from station to station, however the core programme includes carbon dioxide, chlorofluorocarbons and their substitutes, methane, nitrous oxide, ozone (surface, total column, vertical profile), radiation (including UV-B) and atmospheric turbidity, total aerosol load, water vapour, chemical composition of rainfall and snow, reactive gas species (sulphur dioxide, nitrogen oxides, etc.), particle concentration and chemical composition, and some radionuclides.

4. Data and Information Management

Data are collected and managed by specially trained staff according to specified criteria and using recommended instruments. In this way the issue of data quality is addressed.

Data are stored at various WMO Data Centres operated by WMO member countries on behalf of the Organization. Canada operates the World Ozone Data Centre (WODC) and publishes results bimonthly; the NOAA National Climatic Data Centre in the USA stores data for turbidity; and the Russian Federation is responsible for the collection of solar radiation data. Since October 1990, the WMO's World Data Centre for Greenhouse Gases (WDCGG) in Japan is responsible for the storage of data on all atmospheric gases except ozone.

5. Cooperation

GAW is a main contributor of background atmospheric composition data to GEMS and cooperates with other programmes, such as the International Geosphere-Biosphere Programme's (IGBP) International Global Atmospheric Chemistry project (IGAC), which will receive data and assessments from GAW. This information will pertain primarily to tropical forest degradation and its relation to climate change; the changing chemistry of the troposphere; and Arctic and Antarctic stratospheric ozone depletion.

6. Contact person

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GLOBAL ATMOSPHERE WATCH

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GAW
BAPMoN



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

Established in 1968, by the WMO's constituent bodies, BAPMoN was intended to provide continuous information on the changing chemical composition and related physical characteristics of the Earth's atmosphere. Currently, BAPMoN is the only globally operational system for monitoring background atmospheric pollution. BAPMoN monitors the tropospheric atmosphere composition at both global and regional levels through a global network of stations. In 1990 the BAPMoN network consisted of about 200 monitoring stations. Of these, many have varying functions, including:

1. 160 that measure precipitation chemistry;
2. 95 BAPMoN stations which measure aerosol optical depth turbidity;
3. 80 measure suspended particulate matter;
4. 38 measure carbon dioxide concentrations;
5. 26 measure surface ozone;
6. methane is monitored at 9; and
7. CFCs are monitored at 5 stations.

4. Data and Information Management

Monitoring at global stations is done in remote locations so as to minimize direct regional influences. Data are collected on a long-term basis. This allows evaluated data to be used, for example, to determine trends in the chemical concentrations of various substances in the atmosphere.

The databases for precipitation chemistry analyses and suspended particulate matter and atmospheric turbidity measurements are located in the USA, while the Russian Federation collects solar radiation data. Other WMO member states also provide central laboratory services and training facilities. Moreover, in October 1990, an arrangement was entered into whereby Japan ensures processing and archiving of greenhouse gases data.

Quality assurance is being addressed through the establishment of Quality Assurance/Science Activity Centres (QA/SACs), the Secretariat of which is located in Germany and is responsible for BAPMoN data covering the area of Europe and Africa. Similar QA/SACs are under consideration.

5. Cooperation

BAPMoN cooperates extensively with other international programmes, such as UNEP-GEMS, the CMEA and the Cooperative Programme for the Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe (see EMEP entry). The BAPMoN Network is a major source of atmospheric information to the UNEP-Global Environment Monitoring System (GEMS). At the same time it cooperates with EMEP by sharing some monitoring stations and information.

The BAPMoN database has been identified, for the variables it covers, as a lead database by a UN Intersecretariat Working Group on Environmental Data.

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**GLOBAL ATMOSPHERE WATCH
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**GAW
GO₃OS**



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

In 1957 the WMO first established an international framework for standardized and coordinated ozone observing projects, related research and publications. It is from this that GO₃OS eventually developed. Currently, GO₃OS has a world-wide network of approximately 140 monitoring stations. These ground-level monitoring activities have been complemented by the implementation of remote sensing techniques. This monitoring versatility has allowed GO₃OS to develop the only ozone observing network which is capable of providing data not only on the horizontal distribution of ozone, but also its total atmospheric concentration and vertical distribution.

At the same time, GO₃OS is the only provider of ozone related information to the UNEP Global Environmental Monitoring Systems (GEMS). To date, GO₃OS has published its monitoring results in a variety of reviews, as well as four major reports on the state of the ozone layer (published 1981, 1985, 1988 and 1989). Each report was prepared in cooperation with the US National Aeronautics and Space Administration (NASA), with the participation of UNEP and various other national agencies.

4. Data and Information Management

Ozone related data are stored at the World Ozone Data Centre (WODC) at the Atmospheric Environment Service in Canada. This Centre has been operational since the 1960s. Consequently, it is able to provide long term data indispensable for calculation of ozone trends. The WMO Centre publishes its findings in a bimonthly bulletin - **Ozone Data for the World**. Further, in 1992 the WMO began distributing bulletins, issues 3-4 per month, containing information about the state of the ozone layer over the Antarctica.

Data gathering, retrieval and reporting procedures are standardized by the WMO, with support from the International Ozone Commission of the International Association of Meteorology and Atmospheric Physics (IAMAP). Quality assurance is both addressed in this way along with periodic recalibrations against a given standard. In the future, the issue of quality assurance is to be increasingly addressed.

5. Cooperation

Through the WMO Global Atmosphere Watch (GAW), GO₃OS is tightly linked with the WMO Background Air Pollution Monitoring Network (BAPMoN) with which it shares a number of stations. Together these programmes are attempting to develop a comprehensive network to study the dispersion, transport, chemical transformation and deposition of atmospheric pollutants, both on terrestrial and aquatic surfaces.

In its monitoring, data management, research and publishing activities, GO₃OS also closely cooperates with the relevant programmes of other organizations.

6. Name of the contact person

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GLOBAL CLIMATE OBSERVING SYSTEM

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1. Type of Programme

United Nations, International non-governmental, Collaborative international observation system; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

GCOS was established following the recommendations of the Second World Climate Conference (SWCC) held in Geneva in 1990. It is co-sponsored by WMO, IOC, ICSU and UNEP and coordinated by a Joint Scientific and Technical Committee (JSTC) and a Joint Planning Office (JPO), housed in the WMO headquarters in Geneva. GCOS was created out of a need for a better understanding of climate change and its implications. The goals are:

- to perform climate system monitoring, climate change detection and response monitoring, especially in terrestrial ecosystems;
- to collect data for application in national economic development strategies;
- to collect data for research aimed at improved understanding, modelling and prediction of the climate system;
- eventually to develop a comprehensive observing system for climate forecasting.

Although some elements of the GCOS programme are covered by existing international and national programmes such as WWW, IGOSS and GLOSS none of these provide the global coverage and continuity on decadal time-scales needed for climate research and prediction. GCOS, however, will build largely

on existing observing systems such as WWW and GAW. It is intended to provide:

- comprehensive information on a wide range of atmospheric, land surface, and coastal and deep ocean properties;
- global coverage;
- continuity of observations on decadal time-scales;
- improved accuracy and resolution, as needed to characterize the thermodynamic, dynamic, geophysical and biochemical processes of the climate system; and
- systematic data acquisition and international data exchange.

4. Data and Information Management

Data management is one of the most crucial aspects of GCOS. It is foreseen that GCOS will closely coordinate its activities with the data components of the World Climate Programme (see WCP entry). To date, virtually all operational meteorological and other ground-based operational data are collected through the WWW Global Telecommunications System (GTS) as well as via satellite data collection systems. The requirements of GCOS are such that a data management system several times larger than that currently existing must be established. Therefore, either GTS will require modification to accommodate additional classes of data or complementary systems must be created. In future, GCOS will strive to develop an International GCOS Data Management Plan based on an integrated master data directory, distributed data centres, integrated international networking capabilities and an open system architecture consistent with international data standards. To this end, GCOS will certainly profit from a strengthening of the existing ICSU World Data Centre system (see WDC entry).

5. Cooperation

Cooperative efforts with other international and national programmes is a key aspect to GCOS. Beyond the cooperation of the four sponsoring organizations, GCOS is seeking to cooperate with other programmes and organizations including the WCP's World Climate Research Programme (see WCRP entry) and, the International Geosphere-Biosphere Programme (see IGBP entry). In addition, GCOS will operate in close conjunction with the many programmes and institutions mentioned in this entry.

6. Contact person

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**GLOBAL ENVIRONMENTAL
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Ref. No. 1 50880
GEENET



1. Type of Programme

United Nations; Networking

2. Geographic Area of Implementation

Global

3. Programme Profile

The World Health Organization (WHO) established the Global Environmental Epidemiology Network to improve training and communication in the field of epidemiology and thus strengthen the capacity of developing countries to deal with environmental health problems.

The aim of GEENET is to provide information and training materials in environmental epidemiology; to promote and organize education and training; to promote applied research; and to foster communication and collaboration among members.

GEENET is linked to other WHO networks of professionals working on the health effects of environmental hazards and human exposure, pollution control technology, and environmental management and planning, e.g. GETNET.

4. Data and Information Management

Information provided by members is stored in microcomputer files using standard software and is available to all Network members. Databases on training materials, training courses and research funding sources have also been prepared.

A Global Environmental Library Network (GELNET) has been established which links the libraries serving the members of the networks. These libraries are encouraged to establish Environmental Health Reference Collections containing key international publications with information on environmental health hazards and their control.

5. Cooperation

GEENET links with other networks and programmes in WHO and other agencies concerned with Health and Environment issues, and provides user-friendly infrastructure for intersectoral collaboration. The Network comprises institutions and individuals actively involved with research and training in environmental and occupational epidemiology.

6. Contact person

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Ref. No. 1 15760
GEMS



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

GEMS was established as part of UNEP's Earthwatch programme in 1975 as a collaborative effort of the United Nations System to monitor and assess the global environment. GEMS is coordinated by a Programme Activity Centre within UNEP - GEMS/PAC.

The objectives of GEMS as defined at its inception are:

- (1) to strengthen monitoring and assessment capabilities in participating countries;
- (2) to increase the validity and comparability of environmental data and information;
- (3) to produce global/regional assessments in selected fields and compile environmental information at the global level.

These objectives are still valid but since the UNCED Conference in 1992 the following objectives have been added in the light of Agenda 21 and the needs for sustainable development:

- (4) increase cooperation within UN specialized agencies;

- (5) promote the collection of sectoral data sets including socio-economic ones;
- (6) provide local and national authorities with tools and methodology to integrate and use sectoral data, for policy option analysis;
- (7) increase the use of indicators;
- (8) provide early warnings on emerging issues of potential international importance.

GEMS is active in the following areas:

Data and information with a focus on systematic environmental data compilation and reporting, data harmonization activities and strengthening national and regional environmental information networks.

Global monitoring networks focussing on terrestrial ecosystem monitoring and environmental pollution monitoring (see separate entries on GEMS/AIR, GEMS/Food, GEMS/HEAL, GEMS/Water, GERMON).

Sectoral and integrated environmental assessments including the development of frameworks, methods and tools and environmental and sustainable development indicators to support assessments at national, regional and global levels.

4. Data and Information Management

See individual programme entries.

5. Cooperation

GEMS cooperates extensively with other international organizations as well as national institutions and specialized centres and programmes in implementing its activities. Data and information activities are carried out in close cooperation with, inter alia, GRID, HEM, MARC and WCMC. The monitoring projects of GEMS/PAC are mostly implemented in coordination with other UN organizations, such as FAO, UNESCO, WHO, WMO and operated under these organizations by national or international institutions. In this way GEMS is operational in more than 140 countries. An international network of collaborating institutes is being expanded to support integrated environment-development assessments.

6. Contact person

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**URBAN AIR QUALITY MONITORING
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Ref. No. 1 19360
GEMS/AIR



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

The GEMS/AIR programme was initiated by the WHO in 1973. In 1975 it became part of the Global Environment Monitoring System (GEMS), now jointly managed by WHO and UNEP. GEMS/AIR was implemented to strengthen urban air pollution monitoring and assessment capabilities, to improve validity and comparability of data among cities, and to provide global assessments on levels and trends of urban air pollutants, and their effects on human health. Approximately 170 monitoring stations in 80 cities in 47 countries participate in the programme. Most cities have established three monitoring sites: one in the industrial zone, one in a commercial area and one in a residential area. The majority of participants measure SO₂ and suspended particulate matter (55 cities in 33 countries) with other stations measuring NO₂, CO, O₃ and Pb. The intention is to collect complete data over the long period.

A standardized system of data monitoring and exchange has been implemented and efforts are underway to improve data completeness and timeliness to make GEMS/AIR's data representative of world-wide urban air quality.

4. Data and Information Management

Data compiled from contributing monitoring sites are managed by the US Environmental Protection Agency (US EPA) at Research Triangle Park in North Carolina, USA. Regular statistical quality assurance tests are made of these data to ensure internal consistency. These results have been published by UNEP and the WHO. In addition, long-term trends have been calculated, for all cities providing regular data. Data are also used to compare to WHO guidelines for short-term (24 hour) and long term (years) human exposure.

Currently, GEMS/AIR is researching a more efficient system by which to monitor, exchange and handle data flows. This includes the development of two software packages:

1. GEMS-DATA: for the transfer of data, from individual institutions to the Data Centre.
2. GEMS-ASYST: for the analysis of AIR quality data.

GEMS/AIR publishes urban AIR data on a city-by-city basis, on a regional basis and reports annually on AIR quality issues.

5. Cooperation

Cooperative activities are primarily pursued between the contributing institutions and the GEMS/AIR Project Secretariat. In addition to UNEP and WHO, important collaborators include the GEMS Monitoring and Assessment Research Centre (MARC) in London, UK, the Harmonization of Environmental Measurement Office (HEM) (see entry) in Munich, Germany, US EPA, and other external technical collaborating centres.

The database, containing information for GEMS/AIR has been identified, for the variables it covers as a lead database by a UN Intersecretariat Working Group on Environmental Data.

6. Contact person

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Ref. No. 1 38860
GEMS/FOOD



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

GEMS/Food was initiated in 1976. Its primary objective is to provide reliable and internationally comparable information to governments, the Codex Alimentarius Commission, other relevant institutions and the general public on levels and trends of contaminants in food, their contribution to total human exposure and their significance in relation to public health. At present 80 countries participate in GEMS/Food by providing information on levels and trends of chemical contaminants in food including PCBs; lead, mercury and cadmium; pesticides such as DDT, aldrin, dieldrin; and aflatoxins. Microbial contamination of food is not covered by the project. Data are available for the period 1977-1992.

4. Data and Information Management

The major components of GEMS/Food are:

- **Monitoring:** collecting relevant information through the GEMS/Food network, Codex contactpoints, scientific reports and other sources. Data from national food contaminating monitoring programmes are collected and computer processed at WHO headquarters in Geneva.

- **Technical Cooperation:** strengthening national food contamination monitoring capabilities and infrastructure through training, advisory services and provision of guidelines.
- **Quality Assurance:** ensuring the quality and the comparability of monitoring data at the global level through the operation of an international quality assurance programme and regional training programmes.
- **Assessment:** analyzing and interpreting the collected information and disseminating authoritative assessments related to human exposure and health risk due to contaminated food.

5. Cooperation

GEMS/Food is a UNEP project executed by WHO in association with FAO. Presently, institutions in 60 countries participate in GEMS/Food although data submissions from developing countries are limited to a few countries. Collaborating institutes for quality assurance include the International Agency for Research on Cancer (IARC), Lyon, for aflatoxins; the Ministry of Agriculture, Fisheries and Food (MAFF), United Kingdom, for heavy metals/cadmium, mercury and lead); and the National Food Administration (NFA), Sweden, for organochlorine compounds (organochlorine pesticides and PCBs).

6. Contact person

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**HUMAN EXPOSURE ASSESSMENT
LOCATION PROJECT**

Ref. No. 1 38870
GEMS/HEAL

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

GEMS/HEAL was initiated by UNEP and the WHO in order to promote the improved monitoring and assessment of human exposure to environmental pollutants. It has been part of the GEMS network since 1984. GEMS/HEAL is also dedicated to improving, testing, coordinating and demonstrating methods for human exposure monitoring, promoting human exposure assessment as a basis for environmental control strategies to protect human health and improving national exposure monitoring capabilities, especially in developing countries.

For each project within HEAL, a participating national institution is appointed to serve as a **Technical Coordinating Centre (TCC)**. A TCC is responsible for preparing monitoring protocols, designing and implementing quality assurance programmes.

4. Data and Information Management

Currently, 27 countries are participating in the GEMS/HEAL project. New components dealing with information exchange, methodology development and training are being introduced into the programme.

5. Cooperation

The GEMS/HEAL project is coordinated by WHO and UNEP in collaboration with the GEMS Monitoring and Assessment Research Centre (MARC) in London, UK; the WHO Collaborating Centre at the US Environmental Protection Agency (US EPA) in Washington, D.C., USA as well as various national institutions in Brazil, China, Germany, Hungary, India, Japan, Sweden, Russian Federation, and the former Yugoslavia.

6. Contact person

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ASSESSMENT OF FRESHWATER QUALITY

Ref. No. 1 50050
GEMS/WATER

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

GEMS/Water was initiated in 1976 as a freshwater monitoring network. It is operated by UNEP and WHO with the support of UNESCO and WMO as part of the GEMS environmental pollution monitoring programmes. The National Water Research Institute (NWRI) of Canada is one of the key collaborating organizations for GEMS/Water. The primary objectives of the GEMS/Water Programme are to monitor the pollution and contamination loads and trends of the world's freshwater resources and to assist national water quality agencies in improving monitoring and assessment programmes. Information is used to determine trendlines and to provide a centre for expertise in the fields of water quality and related issues.

In August 1990 a new phase for GEMS/Water was formally approved. At that point, three long-term objectives were defined:

1. to provide governments, the scientific community and the public timely access to information on the state of fresh waters of the world, long term trends in the levels of critical fresh water quality indicators, cause-effect relations and impact assessment of observed trends and policy options for problem containment and solution;

2. to make accessible, assessments on the flux of toxic chemicals, nutrients and other pollutants from major river basins to the world's oceans and inland seas; as well as
3. to strengthen national water quality monitoring networks in developing countries, including the improvement of analytical capabilities and data quality assurance.

4. Data and Information Management

A computerized database is maintained at the WHO Collaborating Centre on Surface and Ground Water Quality, at Canada's National Water Research Institute (NWRI). Data results are published on a regular basis. PC-based information systems have been developed for water management purposes.

The USA Environment Protection Agency (US EPA) provides quality control (AQC) support to the programme. Eight laboratories in 40 countries participate in the AQC programme in order to ensure good and comparable data quality. GEMS/Water publishes global water quality data every three years as well as technical reports, manuals and software.


5. Cooperation

In cooperating with other programmes, emphasis will be placed on sharing information with UNEP's Oceans and Coastal Areas Programme Activity Centre (OCA/PAC); the UN ECE's programme centre at Norway's Institute for Water Research (NIVA); IGBP; the Danish Water Quality Institute (VKI); and the International Lake Environment Committee (ILEC). To enable comprehensive assessment, covering water quality and quantity, cooperation has been established with the WMO's Global Runoff Data Centre (GRDC) in Koblenz, Germany.

The database containing GEMS/Water information has been identified, for the variables it covers, as a lead database by a UN Intersecretariat Working Group on Environmental Data.

6. Contact person

Mr. E.D.Ongley, Director, WHO and UNEP Collaborating Centres

GLOBAL ENVIRONMENTAL RADIATION MONITORING NETWORK	Ref. No. 1 50890 GERMON
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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

The Global Environmental Radiation Monitoring Network (GERMON) was initiated jointly by the World Health Organization and UNEP to provide information on a regular basis, from as many countries as possible, on environmental radiation levels; to provide rapid and accurate information in radiation release situations; to help and enable governments who do not currently monitor environmental radiation to do so; and to improve the quality and compatibility of data generated by countries through their environmental radioactivity monitoring programmes.

GERMON is based largely on existing national programmes for monitoring environmental radiation and for dealing with major releases of radioactivity. To date, 58 countries participate in this programme.

The main features of GERMON are:

- the ability to collect, compile and disseminate information on environmental radiation;
- the ability to provide an international alert in cases of unusual increases in environmental radiation;

- the ability to collect, compile, and exchange relevant information rapidly during radiation emergencies on a harmonized basis; and
- the ability to improve the quality of measurements, and the harmonization of sampling and reporting in all participating countries.

GERMON is part of GEMS. Its organizational structure is based on: WHO Headquarters and Regional Offices, and UNEP Headquarters; a Scientific Advisory Group (SAC); a Coordinating Collaborating Centre (CCC); Regional Coordinating Centres (RCC); and national Liaison Institutions (LI).

4. Data and Information Management

Data and information is drawn mainly from an existing national programmes for monitoring environmental radiation and for dealing with major releases of radioactivity. The facilities and logistics of UNEP GEMS and WHO collaborating centres are used for data and communication links. The CCC intends to initiate a quality assurance programme to ensure uniformity of data. This will include the distribution of reference standards; the definition of measurement protocols; periodic external dosimetry intercomparisons, and periodic activity samples for intercomparisons.

5. Cooperation

GERMON cooperates closely with many countries to improve the efficiency of environmental radiation monitoring. GERMON also liaises with IAEA, UNSCEAR, WHO and other relevant international organizations.

6. Contact person

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**GLOBAL INVESTIGATION OF POLLUTION
IN THE MARINE ENVIRONMENT**

Ref. No. 1 50060

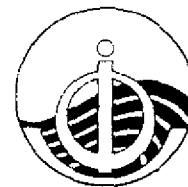
GIPME

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

GIPME was established by the IOC (UNEP) in response to Recommendation 90 of the 1972 Stockholm Conference on the Human Environment. It is intended to provide scientifically sound scientific assessment and regulation of marine pollution.

The scientific activities are primarily developed by three **Groups of Experts**:

1. Methods, Standards and Intercalibration (**GEMSI**) (IOC/UNEP sponsored);
2. Effects (biological) of Pollutants (**GEEP**) (IMO/IOC/UNEP sponsored); and
3. Standards and Reference Materials (**GESREM**) (IAEA/IOC/UNEP sponsored).

GEMSI is involved in a number of studies, including the Spring 1990 **Open Ocean Baseline Study**, which monitored the level of heavy metals and nutrients at four deep ocean stations in the South Atlantic. Moreover, it published a manual on quality assurance and good laboratory practices in marine pollution monitoring in 1989.

GEEP and **GESREM** have both addressed the treatment and interpretation of data. Among other things, GEEP has prepared manuals on the Statistical Treatment and Interpretation of Marine Community Data. GESREM, on the other hand, has placed emphasis on promoting the use of standards and reference materials, as well as the improvement of data quality.

Closely involved with the GIPME Programme is the IOC's Marine Pollution Monitoring System (MARPOLMON) and the Joint IOC-UNEP CEPOL Programme in the Caribbean. MARPOLMON functions as a network of regional components from the South East Pacific, Caribbean, West and Central Africa and the Mediterranean. Data from these regional activities are regularly delivered to the IOC's International Oceanographic Data Exchange system (IODE).

4. Data and Information Management

see IODE Database entry


5. Cooperation

A joint IOC-UNEP Intergovernmental Panel for GIPME has been established, which will be expanded to include IMO. The panel will coordinate the work of GIPME and other marine pollution programme activities.

GIPME cooperates extensively with national, regional and global institutions and projects. It both collects information from these activities and promotes information storage, management and dissemination. Many of these co-operating bodies have been mentioned in the above summary.

6. Contact person

Mr. C. Ibe and Mr. S. Andersson, address see above

<p>GLOBAL SEA LEVEL OBSERVING SYSTEM</p> <p>UNESCO IOC 7, PLACE DE FONTENOY F-75700 PARIS FRANCE</p> <p>Telephone: +33 1 45 68 3983 Telefax: +33 1 40 56 9316 E-Mail/Telex: IOC.SECRETARIAT (omnet) / 204461</p>	<p>Ref. No. 1 50070 GLOSS</p> 
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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

GLOSS is an international system coordinated by IOC to provide high-quality standardized sea level data from a global network of some 300 sea level stations operated and maintained by 87 countries.

GLOSS network has been designed to observe large-scale sea level variations of global implications. It monitors sea level changes which could be indicative of global warming, ocean circulation patterns, climate variability etc. and contributes data to international research programmes such as the World Climate Research Programme (WCRP) and also provides high quality data for practical applications of national importance.

The measurements by GLOSS gauges complement satellite altimetry measurements. A selected set of GLOSS tide-gauge bench marks will be accurately connected to a global geodetic reference system, established by the International Earth Rotation Service with the use of new geodetic techniques, based on Very Long Baseline Interferometry (VLBI), the Global Positioning System (GPS) and absolute gravity measurements. This will enable to distinguish sea level change from land rise or subsidence and ultimately provide the first measure of absolute vs. relative sea level change.

4. Data and Information Management

Permanent Service for Mean Sea Level (PSMSL) at the Proudman Oceanographic Laboratory, UK, collects and archives data from GLOSS stations in the form of monthly mean values. At present 210 GLOSS stations provide sea level data to PSMSL as well as specialized sea-level centers established within IGOSS, TOGA and WOCE in Honolulu, Hawaii and Bidstone, UK.

PSMSL provides data, information and advice to organizations and individuals interested in measuring and analyzing sea level changes.

5. Cooperation

GLOSS cooperates extensively with other organizations involved in ocean and climate monitoring and research, particularly the International Hydrographic Bureau, the IAPSO Sea-Level Commission, WCRP, the Global Ocean Observing System (GOOS) and the Global Climate Observing System (GCOS).

6. Contact person

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**GLOBAL NETWORK ISOTOPES IN
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Ref. No. 1 50110
GNIP



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

In 1958 the Global Network Isotopes In Precipitation was initiated by the IAEA in collaboration with WMO. In 1977, it was extended to fit within the framework of UNEP's Global Environment Monitoring System (GEMS). The initial objective of the programme was to collect systematic data on isotope content of precipitation on a global scale. In 1993, 49 Network stations were in operation, while another 120 nationally implemented stations contributed data. Approximately 50% of the collected precipitation samples are analyzed in the IAEA laboratories at Vienna.

Recently, the project objectives have changed in view of global climatic change. Data is valuable for the verification and further improvement of global atmospheric General Circulation Models (GCMs) and other climatological investigations. Using such data should improve the understanding of what mechanisms control climatic conditions, thus making predictions of future climatic trends more reliable.

4. Data and Information Management

see Global Network Isotopes In Precipitation Database entry

5. Cooperation

Apart from with the WMO, the central Network laboratory at the IAEA co-operates with many local and national institutions that either operate their own monitoring stations or network stations.

6. Name of the contact person

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GLOBAL OCEAN OBSERVING SYSTEM

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Ref. No. 1 50900
GOOS

1. Type of Programme

United Nations, International non-governmental, Collaborative international observing system; Monitoring and Assessment, Data and Information Management

2. Geographic Area of Implementation

Global

3. Programme Profile

The Global Ocean Observing System (GOOS) was initiated in 1990 by the International Oceanographic Commission (IOC) of UNESCO together with the World Meteorological Organization (WMO) and UNEP. The climate related components of GOOS will form the ocean component of the Global Climate Observing System (GCOS). It will build on experience gained in a range of WCRP activities, in particular TOGA and WOCE, and IGBP activities such as JGOFS.

GOOS seeks to obtain and to make available long-term, integrated observations of the physical, chemical, and biological processes over the entire world ocean, i.e. the information needed for oceanic and atmospheric forecasting, for ocean management by coastal nations, and for the needs of global environmental change research. Present ocean observing systems, such as IGOOS, GLOSS and WWW, improved and augmented, will provide the basis for a single comprehensive integrated system. The major applications are climate change; oceanic conditions; coastal zone management; health of the ocean; and living marine resources.

The major operational activities of GOOS are:

- data collection network;
- data and information management;
- data analysis, preparation and dissemination of products; and
- modelling.

GOOS will be established by Member States through concerted and coordinated actions, and implemented through nationally owned and operated facilities and services. Coordination will be provided by IOC in cooperation with WMO and UNEP.

4. Data and Information Management

GOOS is an internationally coordinated system for systematic operational data collection (measurements), data analysis, exchange of data and data products. Participating Member States provide the data and data products. Existing data management systems will be improved to ensure the delivery of high quality data in operational mode. When fully operational GOOS will provide ocean data sets that will allow the production of regular global and regional oceanographic analyses and predictions.

5. Cooperation

GOOS builds on existing programmes such as IGOSS, WWW, GLOSS, DBCP, IODE and MARPOLOM. Climate-related components of GOOS are done jointly between the IOC, WMO and ICSU. Coastal climate change components are handled jointly with UNEP and WMO. There will be close permanent interaction with ongoing and planned international research programmes such as WCRP, IGBP, GIPME, OSLR, LME's, OMEX. Various other national agencies and institutions are involved in IOC, and thus GOOS, activities. Cooperation and coordination will be sought with other organizations and programmes, particularly the International Maritime Organization (IMO), the International Atomic Energy Agency (IAEA), and regional bodies, such as the International Council for the Exploration of the Sea (ICES) and the Permanent Commission on the South Pacific (CPPS).

GOOS is a contribution to the UNEP Global Environment Monitoring System (GEMS) and is a part of UN's Earthwatch.

6. Contact person

No name supplied.

**GLOBAL TERRESTRIAL OBSERVING
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Ref. No. 1 50910
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1. Type of Programme

United Nations, International non-governmental, Collaborative international observation system; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

GTOS is planned to be one of several global observing systems. The three developing systems - GCOS, GOOS and GTOS - will be complementary and mutually supportive.

The main objectives of GTOS are:

- to provide the data basis for detection and understanding of the impacts of regional and global change on terrestrial and freshwater ecosystems, including their biodiversity, of their responses to such change, and their role in causing change;
- evaluation of the impacts and consequences of global change on terrestrial ecosystems components and the environment;
- forecasting, prediction and early warning of future terrestrial changes and their impacts; and
- validation of global models of ecosystem processes and change.

The terrestrial systems on which GTOS will focus include the land (topography, terrain form and soils) and its resources; the surface freshwater and hydrology (including the cryosphere) and non-confined subsurface

hydrology; their microbes, flora and fauna; and human populations and settlements and the results of their impact on the land.

GTOS will include sites representative of the full range of ecosystems, from pristine to intensively managed such as silviculture and farming systems. GTOS will use, as far as possible, existing or planned field monitoring sites. The existing site network will be supplemented where necessary. Remote sensing will also play a vital role in GTOS, particularly in detecting change in spatial patterns and ecosystem structure and extent at the larger spatial scales, in extrapolating local observations to larger areas, and in ensuring a consistent set of measurements around the globe.

A core set of parameters for terrestrial observations will be determined following consultation with potential GTOS user groups. Supplementary sets of parameters can be compiled to meet specialized user needs and/or environmental phenomena unique to particular locations, hydrological regimes or ecosystems types.

Harmonization of measurement and data handling methodologies will be essential to achieving common and comparable data sets around the globe.

GTOS will be developed with a phased approach, starting with a scientific plan and a definition of user needs. For establishing the observational network, the first step will be to identify and incorporate suitable sites and other data sources which already exist. The second step will be to identify the gaps that still exist. The third step will be to recommend the implementation of a programme for establishing sites to fill the gaps.

4. Data and Information Management

GTOS will further encourage the development of appropriate data policies, including policies on access, sharing, archiving and distribution, and on quality control. The system of data and information management is still subject to discussion.

5. Cooperation

Five organizations - UNEP, UNESCO, FAO, WMO and ICSU - are co-sponsoring the planning phase of GTOS.

GTOS will itself be a cooperative system and is likely to operate through a hierarchy of observational levels from a network of sites to transects to remote sensing observations at global level. It will rely to a large extent on national systems for data collection at sites.

GTOS will seek cooperation with capacity building and training networks so as to ensure the training of experts required for the full participation of all countries, especially those in the developing world. A number of organizations and initiatives exist which share some of GTOS' objectives and practices. The network will be encouraged to collaborate and communicate widely in order to benefit from existing experiences and infrastructure.

6. Contact person

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**HUMAN DIMENSIONS OF
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1. Type of Programme

International non-governmental; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

The HDP Programme was initiated by the International Federation of Institutes of Advanced Studies (IFIAS), the International Social Sciences Council (ISSC), the UN University and UNESCO in Tokyo, 1988. It was originally named the Human Response to Global Change Programme (HRGCP), but this was changed at the 1988 Tokyo Conference. In many ways the HDP Programme is seen as a social scientific counterpart to ICSU's International Geosphere-Biosphere Programme (IGBP). At the Tokyo Conference the following Programme objectives were adopted:

1. to improve scientific understanding and increase awareness of the complex dynamics governing human interaction with the total Earth System;
2. to strengthen efforts to study, explore, and anticipate social change affecting the global environment;
3. to identify broad social strategies to prevent or mitigate undesirable impacts of global change, or to adapt to changes that are already unavoidable;
4. to analyse policy options for dealing with global environmental change and promoting the goal of sustainable development.

4. Data and Information Management

Although not formalized yet, HDP will focus its data collection on remote sensing and other computer aided techniques and instruments. In particular, emphasis will be placed on collecting data in a suitable form for use in Geographical Information Systems (GIS).

5. Cooperation

HDP co-sponsors the START programme which was conceived and initiated by the IGBP.

6. Contact person

No name supplied.

**INTERNATIONAL CENTRE FOR
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Ref. No. 1 41510
ICIMOD



1. Type of Programme

Intergovernmental; Monitoring and Assessment, Mountain Development

2. Geographic Area of Implementation

Hindu Kush-Himalayan region

3. Programme Profile

In 1983, ICIMOD was established on the basis of an agreement signed by His Majesty's Government of Nepal and the United Nations Educational, Scientific and Cultural Organization (UNESCO). The following Regional Member Countries participate in ICIMOD: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. Financial support is presently provided by 14 bilateral and multilateral development cooperation organizations and foundations. ICIMOD is a non-profit autonomous institution, international in character and non-political in management, staffing and activities. Its role can best be defined as that of a facilitator of development operating at the interface between research and development activities.

The primary objective of ICIMOD is "to help promote the development of an economically and environmentally sound mountain ecosystem and to improve the living standards of mountain populations" especially in the Hindu Kush-Himalayan Area. The specific objectives and assignments of ICIMOD are to function as a multidisciplinary documentation centre, as a focal point for applied and problem-solving research activities, as a focal point for training, and as a consultative centre for expert services on mountain development and resource management.

Programmes are concentrated in four thematic groups:

mountain farming systems;
population and employment;
infrastructure and technology;
environmental management.

4. Data and Information Management

ICIMOD has established computerized bibliographic and serial databases as well as bibliographies on a number of specific subjects of works carried out by ICIMOD itself and through collaborative efforts to enforce the exchange of information and knowledge.

In 1989, ICIMOD established a sub-programme entitled **Mountain Environment and Natural Resources' Information Systems (MENRIS)** to disseminate GIS technology to member countries. Geographical Information Systems (GIS) prove to be a powerful tool to integrate data from a variety of resource disciplines, thus helping to enable an adequate utilisation and management of the natural resources and environment of the Hindu Kush-Himalayan Region. MENRIS concentrates on capacity-building by providing training in GIS applications (mainly ARC INFO and ERDAS) for government employees from member countries. Close links exist with UNEP/GRID Bangkok.

5. Cooperation

ICIMOD has collaborative arrangements with many institutions in its member countries in specific fields of crucial importance to sustainable mountain development. International and regional organizations often co-sponsor ICIMOD activities and otherwise collaborate in certain fields of their specific mandate. As a follow up to UNCED, increasingly links are being developed with organizations with activities in other high mountain areas, e.g. International Mountain Society, United Nations University and relevant CGIAR Institutions. Chapter 13 of Agenda 21 being devoted to Sustainable Mountain development provides a framework for cooperation, in which ICIMOD is expected to play an important role.

6. Contact person

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**INTERNATIONAL COOPERATIVE
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Ref. No. 1 38920
ICPs

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Inter-Regional: Europe, Canada and United States of America

3. Programme Profile

Under the auspices of the Convention on Long Range Transboundary Air Pollution, UN ECE initiated five ICPs. The following is a list and brief description of each:

1. The ICP for **Assessment and Monitoring of Air Pollution Effects on Forests** was established in 1985. The ICP for Forests is primarily responsible for monitoring and documenting the extent of forest damage in Europe. It has established methods and criteria for harmonizing sampling, assessment and monitoring of the effects of air pollution on forests. Based upon this information, the amount of defoliation in the forest regions have been classified. Monitoring is done by national stations and data is supplied to one of two Programme Coordinating Centres for digitization and evaluation.
2. The ICP for **Assessment and Monitoring of Acidification of Rivers and Lakes**. The ICP on Rivers and Lakes was established in 1986. Its aim is to identify long-term trends and the extent of surface water acidification in the UN ECE region. Data are collected by national monitoring and research stations. These are delivered to the Programme Centre at the Norwegian Institute for Water Research

(NIVA). To ensure their comparability, inter-laboratory analytical quality control exercises were conducted. Results were to be published in 1989.

3. **The ICP on Effects of Air Pollution on Materials, including Historic and Cultural Monuments.** This Programme was established in 1986 to monitor the effects of sulphur and nitrogen compounds on the weathering rates of buildings. At chosen sites, humidity, temperature, solar radiation, ozone, precipitation amount and chemistry are also routinely measured. Measurements are being made at 39 sites in 13 countries. Data are collected and managed at the Main Research Centre of the Swedish Corrosion Institute.
4. **The ICP for Research on Evaluating Effects of Air Pollutants and other Stresses on Agricultural Crops.** Approved for implementation in 1987 and coordinated by the UK, this ICP researches dose/response relationships between pollution exposure and economically important crops. The use of agricultural crops as indicators of pollutant impacts on ecosystems is also being explored. The full implementation of this programme began in 1989.
5. **The International Pilot Programme on Integrated Monitoring (IMP)** came to an end in 1992 and was replaced by the **ICP Programme on Integrated Monitoring of Air Pollution Effects on Ecosystems.** The main objectives of this Programme are the integrated determination and prediction of the state of ecosystems and their predicament under the influence of anthropogenic transboundary air pollutants. The Environmental Data Centre (EDC) in Helsinki has the sole responsibility for storing, processing and analyzing data from this Programme.

4. Data and Information Management

See individual ICP entries above for more detail, where available.

5. Cooperation

The ICP programmes function in conjunction with all other international and national activities adhering to the Convention on Long Range Transport of Air Pollutants in Europe. Among others, it cooperates with EMEP, which is also sponsored by the UN ECE.

The actual implementation of the programmes is done in collaboration with UNEP's Global Environment Monitoring System (GEMS) and the European Commission (EC).

More specifically, the database containing information for the ICP on Forest Damage has been identified, for the variables it covers, as a lead database by a UN Intersecretariat Working Group on Environmental Data.

6. Contact person

No name supplied.

**INTERNATIONAL GEOSPHERE-BIOSPHERE
PROGRAMME**

Ref. No. 1 18980
IGBP

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1. Type of Programme

International non-governmental; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

The IGBP was established in September 1986, by the ICSU General Assembly. Since then it has developed extensively, receiving support from various organizations including UNEP, UNDP, UNESCO and private sponsors. IGBP activities are steered by an ICSU Scientific Committee for the International Geosphere-Biosphere Programme.

The overall aim of IGBP is:

To describe and understand the interactive physical, chemical and biological processes that regulate the total Earth System, the unique environment that it provides for life, the changes that are occurring in this system, and the manner in which they are influenced by human activities.

To facilitate this aim, IGBP has at present ten projects: six Core Projects have been established and are in varying degrees of implementation, a land-use project to incorporate the social sciences is being developed, three framework activities have been established to integrate research efforts and results.

1. **Biospheric Aspects of the Hydrological Cycle (BAHC)** includes patch scale observational and modelling studies of soil-vegetation-atmosphere transfer processes; regional scale studies of hydrological fluxes and other land-atmosphere interactions; spatial and temporal synthesis of biospheric parameters at the regional to continental scale; and the down-scaling of weather information from General Circulation Models (GCMs), for application to ecosystem research.
2. **Global Change and Terrestrial Ecosystems (GCTE)** aims to develop a predictive understanding of the effects of changes in climate and atmospheric composition, and land use on terrestrial ecosystems (both natural and managed), and to determine feedback effects to the physical climate system. Activities are being developed in collaboration with the proposed **Global Terrestrial Observing System (GTOS)**. Modelling studies are focused on the construction of dynamic vegetation and agricultural systems models at a variety of scales, both for compiling to biogeochemical models and physically based GCMs and for direct impact studies.
3. **International Global Atmospheric Chemistry Project (IGAC)** addresses the relationships between atmospheric composition, biospheric processes and climate. Emphasis is on the atmospheric constituents that have a role in global climate control: greenhouses gases (such as carbon dioxide, methane and nitrous oxide); aerosols and cloud condensation nuclei; and ozone and other trace reactive gases and radicals. The project also includes work on global emission inventories, measurement intercalibration and standards, the establishment of global monitoring networks, and modelling.
4. **Joint Global Ocean Flux Study (JGOFS)** will improve our knowledge of the processes controlling carbon fluxes between the atmosphere, surface ocean, ocean interior and its continental margins, and the sensitivity of these fluxes to climate change. Ocean regions under investigation by JGOFS include the North Atlantic, Equatorial Pacific, the north-west Indian Ocean and the Southern Ocean. A global CO₂ survey is being carried out in close collaboration with the **WCRP World Ocean Circulation Experiment (WOCE)**.
5. **Land-Ocean Interactions in the Coastal Zone (LOICZ)** is directed at an assessment of fluxes of matter between land, sea and atmosphere through the coastal zone; the responses of the land-sea interface to global change, particularly sea level rise; the biogeochemical responses of coastal systems to global change, with emphasis on the carbon cycle and exchanges of certain atmospheric trace gases; and the socio-economic implications of the degradation of the coastal zone and the need for the development of new policies for the integrated management of coastal environments.

6. **Past Global Changes (PAGES)** is the IGBP Core Project charged with providing a quantitative understanding of the Earth's past environment and defining the envelope of natural environmental variability within which we can assess anthropogenic impact on the Earth's biosphere, geosphere and atmosphere. PAGES seeks to obtain and interpret a variety of palaeoclimatic records and to provide the data essential for the validation of predictive climatic models.
7. **Land-Use/Cover Change (LUCC)** is being jointly planned with the **Human Dimensions of Global Environmental Change Programme (HDP)**. It will address how land use, and thus land cover and surface properties, is affected by socio-economic factors, and aims to integrate the driving forces of land-cover change into a global land-use and land-cover change model.
8. **Global Analysis, Interpretation and Modelling (GAIM)** aims to develop comprehensive, prognostic models of the global biogeochemical system that can be coupled with GCMs, in collaboration with modelling groups of the WCRP. It has recently started to bring together previously unlinked models of interacting processes, with initial emphasis on the global carbon cycle and the interaction between climate and terrestrial ecosystems at regional scales.
9. **IGBP Data and Information System (IGBP-DIS)** (see IGBP-DIS entry).
10. **Global Change System for Analysis, Research and Training (START)** (see START entry).

4. Data and Information Management

Data and Information Management is carried out by the IGBP Framework Activities: IGBP-DIS (see IGBP-DIS entry). It has its own office in Paris at the Université Pierre et Marie Curie: IGBP-DIS, IGBP-DIS Office, Université of Paris 6, Tour 26, 4ème Etage, 4, Place Jussieu, F-75230 Paris Cedex 05, France, Tel.: +33 1 44 27 61 68 (to 70), Fax: +33 1 44 27 61 71, e-mail: ludo@biogeodis.jussieu.fr

5. Cooperation

IGBP National Committees provide the major part of IGBP research at the national level. Sixty-nine countries now have National IGBP Committees, assisting in the national coordination of relevant studies and ensuring that appropriate links are made to the international research effort.

World Climate Research Programme (WCRP) is the research component of the World Climate Programme, jointly sponsored by ICSU, WMO and UNESCO

IOC. Many collaborative undertakings are in progress at the project level; others are planned. Current WCRP activities comprise: The Arctic Climate System Study (ACSYS), the Climate Modelling Programme (CMP), Climate Variability and Predictability (CLIVAR), the Global Energy and Water Cycle Experiment (GEWEX), Stratospheric Processes and their Role in Climate (SPARC), Tropical Oceans and Global Atmosphere (TOGA), and the World Ocean Circulation Experiment (WOCE).

Human Dimensions of Global Environmental Change Programme (HDP) was set up in 1990 by the International Social Science Council (ISSC). Its aim is to advance understanding of the socioeconomic causes and impacts of global environmental change; it will also examine options for (and obstacles to) effective response. IGBP projects involving collaboration with natural scientists include Land Use/Cover Change (LUCC), the human implications of changes in coastal zones; socio-economic factors affecting greenhouse gas emissions; and the relationships between past environmental and social changes.

UN organizations and associated bodies

Well developed links between IGBP and UN bodies include those with UN Educational, Scientific and Cultural Organization (UNESCO), and its Intergovernmental Oceanographic Commission (IOC); the World Meteorological Organization (WMO); the UN Environmental Programme (UNEP), and the UN Development Programme (UNDP).

The Intergovernmental Panel on Climate Change (IPCC) was set up in 1988 by WMO and UNEP. IPCC assessments (1990 and 1992) have provided a thorough review of existing knowledge. IGBP made significant contributions to that exercise, and is closely involved in the 1994 and 1995 assessments.

The Global Climate Observing System (GCOS), co-sponsored by WMO, IOC, UNEP and ICSU (with IGBP involvement), addresses detection and monitoring of the climate system including relevant parts of the atmosphere, oceans and land. Many other links have been developed, including those with regional intergovernmental bodies, space agencies, and the Committee for Earth Observation Satellites (CEOS).

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**INTEGRATED GLOBAL OCEAN SERVICES
SYSTEM**

Ref. No. 1 50080
IGOSS

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

IGOSS is the international operational system for the collection and exchange of ocean data and the timely preparation and distribution of products and services. It is a joint programme of the Intergovernmental Oceanographic Commission (IOC) of UNESCO and the World Meteorological Organization (WMO), and consists of national facilities and services provided by the participating member states, who share data for mutual benefits.

IGOSS consists of three components:

1. **Observing System:** Surface based and space-based, the system includes research vessels, ships of opportunity, buoys and satellites.
2. **Data Processing and Services System:** National, specialized and world oceanographic centres process observational data, provide products and manage data exchange activities for various marine user groups. Over 500 products from 50 countries are prepared routinely using IGOS data.
3. **Telecommunications Arrangements:** Telecommunications facilities of the WWW Global Telecommunications System (GTS) are used to rapidly and reliably collect and distribute data and information.

4. Data and Information Management

Close collaboration is maintained with the companion programme, IODE (see entry). Operational IGOSS data are submitted to the IODE archives to update existing data and insure a comprehensive data set for users. Within IGOSS data management is the responsibility of the Data Processing and Services System.

5. Cooperation

IGOSS, as a joint programme of the IOC and WMO, maintains close cooperation with international research and scientific activities such as those of the World Climate Research Programme (WCRP).

6. Contact person

The IGOSS Operations Coordinator (the contact person changes every 3 years).

**INTERNATIONAL HYDROLOGICAL
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Ref. No. 1 38940
IHP

1. Type of Programme

United Nations; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

IHP was initially founded as the International Hydrological Decade (IHD) by UNESCO in 1965. In 1975, IHP was established as an international coordinating programme with a mandate to improve the scientific and technological basis for the development of methods and human resources to rationally manage and develop water resources while protecting the environment.

In 1990, IHP began implementing its fourth five-year-plan (1990-1995), entitled **Hydrology and Water Resources for Sustainable Development in a Changing Environment**. Within this plan, IHP's objectives were divided into three sub-programmes, each with a number of themes:

Hydrological Research in a Changing Environment was established with themes researching issues such as Interface Processes between Atmosphere, Land and Water Systems, the Relationship between Climate Variability (and Expected Change) and Hydrological Systems, the Changes in Water Quality through the Hydrological Cycle, the Role of Snow and Ice in the Global Water Cycle, as well as Hydrological Problems of Specific Regions.

Management of Water Resources for Sustainable Development was divided into themes researching Methodologies for Water Resources Assessment and Hydrological Design, Scientific and Technical Water-Related Information and Documentation Systems, Evaluation of Social and Environmental Aspects of Fresh Water Systems and Prediction of Impacts of Man's Activities, Integrated Water Resources Development and the Incorporation of Risk-Based Decision-Making, as well as Hydrological and Water Management Aspects of International Water Systems.

Education and Training, the Transfer of Knowledge and Public Information includes themes involving Educations and Training of Senior Technicians, University Education, Postgraduate Training, Continuing Educations, as well as Public Education and Information.

To effectively implement its objectives, IHP has established several **National Committees** in Member States. The role of these Committees is to be strengthened to ensure that activities within the fourth Plan are implemented in a fully coordinated and cooperative fashion.

4. Data and Information Management

Within the sub-programme 'Management of Water Resources for Sustainable Development', the theme addressing the Scientific and Technical Water-Related Information and Documentation Systems aims to assist in the establishment and maintenance of various hydrological information and data systems. Special emphasis will be on using the Geographical Information System (GIS) to handle the large amounts of data resulting from IHP activities. Several projects have been planned for the next five years including:

1. the development of national water-related information and documentation systems on non-numerical information;
2. the use of internationally available water-related information systems; and
3. the use of GIS in hydrological and water resources studies.

5. Cooperation

As mandates often overlap, IHP cooperates closely with IAHS and IAH. Efforts are also being made to cooperate with organizations and programmes including IAHR, ICID, IWRA and IGBP.

Within UNESCO, IHP is establishing links with programmes such as MAB and IGCP.

6. Contact person

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**ENVIRONMENT PROGRAMME OF THE
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Ref. No. 1 280

IIASA



1. Type of Programme

International non-governmental; Research

2. Geographic Area of Implementation

Global

3. Programme Profile

The International Institute for Applied Systems Analysis (IIASA) was founded in 1972 by the USA and the former USSR, together with the governments of 14 other Eastern and Western nations. IIASA is an interdisciplinary, non-governmental research institution sponsored, at present, by a consortium of National Member Organizations in 15 countries. The dominant methodology employed has been the collaborative development and application of databases, analytic methods, and quantitative models as tools for exploring the future implications of policy options with respect to global society, economy and environment.

IIASA's goal is to conduct international and interdisciplinary scientific studies to provide timely and relevant information and options, addressing critical issues of global environmental, economic and social change, for the benefit of the public, the scientific community, and national and international institutions.

To achieve these goals, IIASA focuses on three central research themes. Each programme, in turn, is responsible for a number of projects.

Global Environmental Change: The goal of this programme is to advance understanding and develop the means to assess the

implications of the interactions between human development and the environment. Projects included in this research theme are: Regional Material Balance Approaches to Long-term Environmental Policy Planning (IND); Implementation and Effectiveness of International Environmental Commitments (IEC); Transboundary Air Pollution (TAP); Environmental Impacts on Water Resources (WAT); World Agriculture, Environment and Land Use (FAP); Radiation Safety of the Biosphere (RAD); Population, Development and Environment Interactions (POP); Advanced Computer Applications (ACA).

Global Economic and Technological Transitions: Projects in this group are concerned with the magnitude, timing and nature of regional economic impact of environmental change; the economic costs and benefits of alternative measures to mitigate, or adapt to environmental changes; economic measures that might be used domestically and internationally to align economic incentives with environmental objectives, and the political economy of reaching and enforcing international agreements concerning environmental issues. Projects included in this research theme are: Forest Resources; Ecological and global change activity; Integrated Assessment of climate Change Impacts on European Forests.

Environmentally Compatible Energy Strategies: Overall focus is on long-term, global energy development and emissions of greenhouse gases (GHGs). The ultimate goal is to analyse strategies for achieving decarbonization of global energy systems during the next century. The specific objects are: to assess potentials and costs of measures to reduce energy-related sources of GHGs and increase their sinks, and; to take an integrative approach in the assessment of emissions mitigation and impacts of adaptation to climate change. At the same time, the analysis will include other air pollutants, and it will combine analyses of mitigation options with those of adaptation measures. Global scenarios are being developed, disaggregated into 11 world regions that can fulfil this role. These scenarios will include technological improvements towards decarbonization and socio-economic development leading to more environmental compatibility.

4. Data and Information Management

Data and information management are essential components of practically all the research studies undertaken at IIASA. The databases developed in relation to different projects are: for Rhine River Basin, a database on aqueous and

atmospheric emissions and deposition 1955-1990; for Upper Elbe/Oder River Basin, an atmospheric deposition model, a water pollution database and a soil sampling programme for heavy metal pollution (with Landinfo, Prague); a database (being developed) for Implementation and Effectiveness of International Environmental Commitments on mechanisms by which international environmental agreements can help solve environmental problems; for Transboundary Air Pollution - an emission inventory for Central Europe for SO₂, NO_x and particulate matter (1988) and RAINS (Regional Acidification Information and Simulation System), an integrated assessment model for reduction of air pollution (SO₂, NO_x, NH₃, Ozone, implemented for Europe (to the Urals), South and East Asia); for Environmental Impacts on Water Resources - a database of global vulnerability of water resources, water supply and demand for 140 countries (1960-1990); for World Agriculture, Environment and Land Use the Basic Linked System Model (BLS) which links some 35 national and regional agricultural systems to provide a global integrated tool for large-scale economic integration of agricultural effects over long time periods. The BLS is maintained and serviced for the world-wide network of collaborating institutions, the Food and Agriculture Network (FAN); for Advanced Computer Applications - the CLIMEX (Climate Impact Assessment Expert System) and EARS (Environmental Assessment and Reporting Support System). CLIMEX is a Global Geographical Information Systems (GIS) plus expert system with databases of global coverage, e.g. on geography, population, soil, vegetation, General Circulation Models etc. from various sources. EARS allows interactive access to a large volume of environment and development - related socio-economic data; for Environmentally Compatible Energy Strategies - the Inventory of Carbon Dioxide Mitigation Measures (CO₂DB), an integrated database for a comprehensive inventory of technological options that might become available globally over long-time horizons covering the full range of technological and economic measures; and the Global Energy and Emissions Scenarios, which is a systems analysis of global energy perspectives to the middle of the next century, and possibly beyond, undertaken jointly by the World Energy Council (WEC) and IIASA. The analysis assesses future energy development cases and takes into account environmental, economic and social aspects. It builds upon the ECS '92 global energy and emissions scenario, and incorporates the findings of the 1992 WEC Congress and the Commission Report. The energy systems model MESSAGE III and the energy macro-economic model GLOBAL 2100 are used, harmonizing the bottom-up and top-down approaches taken by these two models.

5. Cooperation

IIASA is a member of such organizations as ICSU, SCOPE and IFIAS. It collaborates very extensively with such programmes as IFIAS's Human Dimensions of Global Change and ICSU's International Geosphere-Biosphere

Programme (IGBP). IIASA actively contributes to and/or works with such institutions as UNEP/WMO Intergovernmental Panel on Climate Change (IPCC), WMO's World Climate Programme (WCP), as well as many others.

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INTERNATIONAL JOINT COMMISSION

Ref. No. 1 38950

IJC

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1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Canada and the United States of America

3. Programme Profile

The IJC was established by the Boundary Waters Treaty of 1909. The Treaty was signed to provide the principles and mechanisms to help prevent and resolve disputes, primarily those concerning water quantity and quality. The Commission has three members appointed by the United States and three by Canada. Traditionally, the IJC's work falls into 2 categories:

1. **Applications** made to the Commission to obstruct, use or divert waters are considered and authorized; and
2. **References** are considered situations where the IJC is requested by a government to investigate a specific issue or monitor a situation.

Although all waterbodies along the Canada-United States boundary fall within the IJC's mandate, it primarily concentrates on the following:

1. St. Croix River Basin;
2. The Great Lakes/St. Lawrence River Basins;
3. Rain Lake/Lake of the Woods Basins;
4. Souris/Red River Basins;
5. St. Mary/Milk River Basins; and
6. Columbia River Basin.

The Great Lakes programmes are the largest and most comprehensive. These programmes mainly focus around the fluctuating lake levels and water quality. Fluctuating lake levels are addressed by five study groups:

1. Group 1: hydraulics, hydrology, and climate;
2. Group 2: coastal zone ecology, resources, uses and management
3. Group 3: socio-economic and environmental assessment;
4. Group 4: public participation and communications;and
5. Group 5: cross impact evaluation.

To monitor and evaluate water quality, the Great Lakes Water Quality Agreement was signed in 1972. Under this Agreement, a **Great Lakes Water Quality Board** was initiated to advise the IJC on issues such as eutrophication, toxic substances, Areas of Concerns and the general health of the Great Lakes Basin ecosystem. To fulfil its mandate, the Water Quality Board has developed **Remedial Action Plans (RAPs)** in addition to its Subcommittees:

1. **Objectives Evaluation Subcommittee;**
2. **Restorations Subcommittee** which coordinates the RAPs, point source impact zones, the phosphorous management plans and lake wide management plans, and
3. **Surveillance Subcommittee** which will review the implementation of the **Great Lakes International Surveillance Plan (GLISP)**; and
4. **Loadings and Sources Subcommittee** which will develop parts of GLISP including the loading and sources components as well as related data.

In addition, a **Great Lakes Science Advisory Board** was established to advise both IJC and the Water Quality Board on scientific matters. In the period 1987-1988 the Science Advisory Board changed its committee membership to enhance the use of integrated science in exploring ecosystem approaches to managing human uses of the Great Lakes Basin ecosystem. To fulfil its mandate, the Science Advisory Board has established four standing committees on Health, Society, Technology, and Ecology.

A **Council of Great Lakes Research Managers** was implemented within the framework of the Science Advisory Board to enhance the ability of the Science Advisory Board and the IJC to provide effective leadership, guidance, support and evaluation of Great Lakes research programmes. In the past, the Council has completed a **RAP Research Needs Report**.

4. Data and Information Management

N/A

5. Cooperation

The IJC is a binational organization which coordinates efforts between the governments of the USA and Canada. As such, it cooperates with the contracting parties and other individuals. On matters concerning the fisheries and other aquatic flora and fauna in the Great Lakes, the IJC cooperates with the Great Lakes Fisheries Commission.

6. Contact person

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Ref. No. 1 38960

IM



1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Nordic Countries

3. Programme Profile

The Integrated Monitoring (IM) projects are implemented under the auspices of the Working Group of Environmental Monitoring and Data, which is supported by the Environment Committee of The Nordic Council of Ministers. All programmes exist within the IM framework (UN ECE) and are fully coordinated. This is intended to stimulate the development of harmonized methods between various laboratories and institutes.

IM activities include projects in the fields of atmospheric deposition, soil water chemistry and ion fluxes in forests, groundwater monitoring in small catchments, soil chemistry and discharge measurements. Results of these projects are published on a yearly basis.

4. Data and Information Management

Environmental data standardization and coordination is done by the Environmental Data Centre (EDC) in Helsinki, Finland, according to guidelines set by the Environmental Data Group of The Nordic Council of Ministers.

5. Cooperation

Currently cooperative activities are primarily established between the member states of The Nordic Council of Ministers and their respective environmental institutions. However, the EDC is both responsible for the Nordic and UN ECE Programme on Integrated Monitoring of Air Pollution Effects on Ecosystems (see ICPs entry) project datasets. Consequently, there exists a substantial amount of cooperation between the UN system and The Nordic Council of Ministers on this level.

6. Contact person

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**Ref. No. 1 19520
IPCC**



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

IPCC was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) (i) to make periodic assessments of the climate change issue and report to governments as appropriate and (ii) to provide scientific and technical advice to the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change.

In order to carry out its tasks, IPCC established three Working Groups:

Working Group I responsible for assessing available information on the science of climate change, in particular that arising from human activities;

Working Group II to assess available technical, environmental, social and economic information regarding impacts of climate change and regarding response options to adapt to and/or mitigate climate change;

Working Group III to deal with cross-cutting economic and other issues (e.g. development and assessments of emissions scenarios) related to climate change.

IPCC issued its First Assessment Report during 1990 and updated it in its 1992 Supplement. A special Report, for the first session of the Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC) is currently undergoing peer review and is expected to be finalized by November 1994. The IPCC Second Assessment Report updating the earlier reports will be issued during the last quarter of 1995.

4. Data and Information Management

N/A

5. Cooperation

IPCC cooperates with the individual supporting nations and with intergovernmental and appropriate non-governmental organizations.

6. Contact person

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**INTERNATIONAL PROGRAMME ON
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Ref. No. 1 50920

IPCS



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

The International Programme on Chemical Safety is a joint programme of three United Nations bodies: the World Health Organization (WHO), the International Labour Organization (ILO) and the United Nations Environment Programme (UNEP). IPCS is concerned with the international assessment and communication of the health and environmental risks of chemicals. Over 30 countries and national agencies now collaborate with IPCS. Its assessments are produced in various formats:

1. Environmental Health Criteria documents: for use by scientific experts in the evaluation of chemical risks to health and the environment,
2. Health and Safety Guides: providing summarized toxicity information and practical advice, for example on storage and handling of chemicals,
3. International Chemical Safety Cards: providing summarized basic toxicity information for workers in industry and agriculture,
4. Poisons Information Monographs: providing medical advice on prevention and treatment of poisoning, and
5. Pesticide Data Sheets: containing toxicity information and guidance on first aid and laboratory analysis.

4. Data and Information Management

Data and Information are published in the outputs mentioned under 3.

5. Cooperation

Among other collaborations, IPCS works closely with UNEP's International Register of Potentially Toxic Chemicals (IRPTC). It also provides technical help to national governments and agencies.

6. Contact person

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Ref. No. 1 51820
IPGRI



1. Type of Programme

International non-governmental; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

The goal of IPGRI (formerly known as the International Board for Plant Genetic Resources (IBPGR)) is to advance the conservation and the use of plant genetic resources for the benefit of present and future generations. IPGRI has encouraged the establishment of plant genetic resources programmes in many countries. It has raised general awareness of the issues related to plant genetic resources, which in turn has stimulated the demand for training and research, for technical publications, and for scientific assistance to national plant genetic resources programmes.

IPGRI has four major objectives which form the basis of IPGRI's programme of activities. First, the institute will assist countries, particularly in the developing world, to assess and meet their needs for the conservation of plant genetic resources and to strengthen links to users. Second, it will build international collaboration in the conservation and use of plant genetic resources, mainly through the encouragement of networks on both a crop and a geographical basis. Third, it will work to develop and promote improved strategies and technologies for the conservation of plant genetic resources; and finally, the institute will provide an information service to inform the world's genetic resources community of both practical and scientific developments in the field.

4. Data and Information Management

IPGRI has developed computerized databases covering a wide range of topics which are used extensively in programme planning. These databases include information on national genetic resources programmes, *ex situ* germplasm collections world-wide, and germplasm collecting carried out with IPGRI's support. To assist genebanks in establishing their own documentation procedures, IPGRI has provided expertise as well as computer hardware and software to developing countries where appropriate.

IPGRI also has a library and produces a wide range of publications including an Annual Report.

5. Cooperation

IPGRI's partners are: national programmes, for example the Centre for Agricultural Documentation and Information (ZADI) in Germany; CGIAR and other IARCs; UN Agencies (especially FAO); regional programmes; NGOs; and private sector.

IPGRI is an institute that stimulates and supports programmes conducted by other organizations. Consequently, its partners must have a key role in its strategy. International, national, governmental and non-governmental organizations, scientific and development institutions all have interests in plant genetic resources, and IPGRI will respond to the need and aspirations of its partners as collaboration with them develops.

6. Name of the contact person

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**INTERNATIONAL SATELLITE LAND
SURFACE CLIMATOLOGY PROJECT**

Ref. No. 1 38970
ISLSCP

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1. Type of Programme

International non-governmental; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

ISLSCP was initiated in 1983 by COSPAR, IAMAP, UNEP and WMO, to promote and improve the interdisciplinary studies of land surface and climate system interactions. Specifically, research will focus on climate induced changes to land surfaces and climatically significant changes in land surfaces, regardless of their origin. Primary emphasis has been on the development and improvement of General Circulation Models (GCMs). It was also to study the climatic impact on land surfaces using satellite data analysis.

Key areas of research have been defined to organize ISLSCP's activities:

1. demonstrate usefulness of satellite information for the assessment of climate relevant changes at land surfaces;
2. specification of type, resolution and accuracy of information needed for studies and to improve the algorithms to derive this information from the primarily pixel-radiance measurements; and
3. to develop validation and calibration methods for direct surface measurements information inferred from satellite information.

One of the more important ISLSCP tasks is to acquire data, necessary for the refinement and testing of the reliability of parameterisation of the interaction

between atmosphere and land surfaces. This requires that monitoring activities are functional on a continuous basis.

4. Data and Information Management

ISLSCP was initiated to promote and foster interdisciplinary research in the area of satellite remote sensing and to develop methods as well as models for deriving the quantitative information content of remotely sensed data.

5. Cooperation

In the future ISLSCP is planning to conduct research as part of ICSU's International Geosphere-Biosphere Programme (IGBP). It also works closely with the World Climate Research Programme's (WCRP) Global Energy and Water Cycle Experiment (GEWEX), and NASA's Global Change initiative under the ISY's Mission to Planet Earth (MTPE). Funding for ISLSCP activities is also provided by the European Commission (EC)

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INTERNATIONAL SPACE YEAR

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Ref. No. 1 6840
ISY



1. Type of Programme

Intergovernmental; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

The first initiatives for ISY were made by the late US Senator S. Matsunaga, who proposed such an event in 1985, and NASA who sponsored the first ISY planning conference in 1988. Soon after, it was endorsed by such organizations as COSPAR, The International Astronautical Federation (IAF), ICSU and the UN General Assembly. ISY has three main objectives:

1. to enhance international collaboration among space agencies and among scientists on the global phenomena of the Earth's environment;
2. to enhance public awareness of the benefits resulting from space activities, in particular from spaceborne Earth observation data for scientific and applications research; and
3. to demonstrate the usefulness of space technology and its contributions to the better understanding of key problems of the environment on our planet.

Presently, the Space Agency Forum for ISY (SAFISY) has 28 members and 8 affiliates. To advise it on the different fields of expertise, SAFISY created three panels of experts:

1. Panel of Experts on Earth Science and Technology;
2. Panel of Experts on Education and Applications; and

3. Panel of Experts on Space Science.

In 1988, a **Mission to Planet Earth (MTPE)** was adopted by SAFISY members. It will be ISY's primary theme with the Panel of Experts on Earth Science and Technology. The following is a list of MTPE projects with their lead participants:

- Global Consequences of Land Cover Change (France, USA);
- Enhanced Greenhouse Effect Detection Experiment (NASA with the participation of NOAA);
- Ocean-Climate Interrelationships (ESA);
- Polar Stratospheric Ozone (ISY Ozone Hole Project) (NASA and Germany);
- Productivity of the Global Ocean (Canada and the EC's Joint Research Centre (JRC) at Ispra, Italy);
- Global Tropical Forest Monitoring (Rate of Deforestation) (Brazil and JRC);
- Sea-Surface Temperature (UK and Japan);
- Polar Ice Extent (Japan and ESA);
- Global Change Encyclopedia (Canada with significant input from USA); and
- Global Change Atlas (Austria).

4. Data and Information Management

The collection and management of advanced spaceborne data and information is the focus of ISY's data activities. The Panel of Experts on Earth Science and Technology divided their data and information related work into three general categories:

1. **Space Data for Global Change (SDGC):** This is an overall category involving initiatives in the fields of the Global Consequences of Land Cover Change, Greenhouse Effect, Ocean-Climate Interrelationships, and Polar Ozone Holes.
2. **Global Information System Test (GIST):** This project aims to improve the efficiency of data exchange between sources. To do this a GIST was devised and implemented on four selected areas: the productivity of the global oceans, rate of deforestation, global sea surface temperature, and extent of polar ice.
3. **Global Change Outreach:** This project aims to provide the information from space related environmental observations to the widest possible audience. The 'Global Change Encyclopedia' and a 'Global Change Atlas' would serve this purpose.

In February, 1990 a meeting of the Panel of Experts on Education and Application held a major Conference on the training in applications of remote

sensing. It was organised by the French Centre National d'Etudes Spatiale (CNES) and NASA with the participation of ESA.

5. Cooperation

ISY is a cooperative effort between national agencies, international organizations as well as of other affiliates and supporters. As such it is bringing together vast amounts of information from an equally large number of sources.

6. Contact person

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**TSUNAMI WARNING SYSTEM IN THE
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Ref. No. 1 38980
ITSU



1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Pacific

3. Programme Profile

Established in 1968, ITSU consists of regional and national centres which take the responsibility for monitoring seismological and tidal stations and instruments around the Pacific Ocean to evaluate potentially tsunami generic earthquakes. The Pacific Tsunami Warning Centre (PTWC) near Honolulu is the headquarters of the Operational Tsunami Warning System (OTWS) in the Pacific. PTWC is responsible for determining the location of the earthquake epicentre and for issuing the tsunami watch, which tells the participants of the system about the possibility of a tsunami. When there is an indication of the existence of a tsunami, the PTWC issues warnings to the system participants of the upcoming potentially destructive tsunami.

Tsunami Watches, Warnings and Advisory Bulletins are disseminated throughout the Pacific to member states in accordance with procedures outlined in the **Communication Plan for the Tsunami Warning System**.

Activities of the tsunami warning system participants are coordinated by an IOC **International Coordination Group for ITSU (ICG/ITSU)**, which meets every two years and is comprised of 26 member states from the Pacific.

4. Data and Information Management

Data collection occurs with emphasis on sea-level and seismic data. Data and information collection and dissemination is being carried out by the **International Tsunami Information Centre (ITIC)** maintained by IOC. ITIC is responsible, among other functions, for monitoring international tsunami warning activities in the Pacific and recommending improvements with regard to communications, data networks, data acquisition and information dissemination; for gathering and promulgating knowledge on tsunamis and fostering tsunami research and its application to prevent loss of life and damage to property. ITIC publishes regularly (two issues per year) **Tsunami Newsletter**. In data collection and exchange ITIC and ICG/ITSU are cooperating closely with the WDC-A for solid Earth Geophysics.

5. Cooperation

ITSU cooperates closely with international organizations including ICSU (IUGG Tsunami Commission), IDNDR, IGOSS, as well as IAPSO and Tsunami Society.

6. Contact person

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Ref. No. 1 20820
IWRB



IWRB

1. Type of Programme

International non-governmental; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

IWRB was established in 1954, as an independent non-governmental organization, with a mandate to stimulate and coordinate international cooperation for the conservation of migratory waterfowl and their wetland habitats. The Bureau pursues its mandate through research, monitoring and management programmes whose results are made available for conservation activities through conferences and workshops, publications and training programmes. IWRB has played an instrumental role in the development of the Ramsar Convention on the conservation of wetlands, and in the drafting of Agreements for migratory waterbirds under the Bonn Convention.

IWRB activities are implemented through three programmes:

Development Programme

This covers the strategic development of IWRB, including the development of a global alliance with the Asian Wetland Bureau and Wetlands for the Americas, the development of sub-regional programmes in Europe and Africa, the strategic development of the IWRB Research Groups, development of IWRB's policy input to the conservation conventions, and core fundraising for IWRB's work.

Conservation Programme

IWRB's Conservation Programme covers three broad thematic areas:

1. Inventory, Assessment and Monitoring

This includes the development of methodologies for inventory and monitoring of wetlands and wetland biodiversity, technical assistance and coordination of the Ramsar sites database, and coordination of the International Waterfowl Census.

2. Policy and Management

This includes IWRB's technical input to the Ramsar and Bonn Conventions, actions to conserve threatened wetlands and wetland species, and management planning for wetlands and wetland species.

3. Information, networks, training and awareness

This includes the activities of the IWRB Research Group network, the development of training courses and resource materials, and education and public awareness programmes.

Support Services Programme

This Programme provides support to the Development and Conservation Programmes, as well as to IWRB's Governing Body.

4. Data and Information Management

IWRB coordinates extensive data gathering programmes. Regional wetland inventories have been completed for the Neotropics, Asia, Oceania and Europe; further inventories are underway for the Middle East and CIS. The International Waterfowl Census, conducted with the Asian Wetland Bureau and Wetlands for the Americas, collects standardized annual census data for waterbirds in 100 countries representing all continents except Antarctica and North America. IWRB also maintains the database on the world's Ramsar sites, on behalf of the Ramsar Convention Bureau.

5. Cooperation

IWRB is forming a Global Wetland Alliance together with the Asian Wetland Bureau and Wetlands for the Americas.

IWRB cooperates with many international and national organizations and institutions. In particular, much work is done in collaboration with WWF and affiliated national groups, IUCN, Birdlife International, the Ramsar Bureau and the Bonn Convention Secretariat. Currently IWRB has some 45 Member Countries.

6. Contact person

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MAN AND THE BIOSPHERE PROGRAMME

Ref. No. 1 6900

MAB

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1. Type of Programme

Intergovernmental; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

MAB was initiated by UNESCO to address problems relating to the conservation of resources, resources systems and human settlement development. Activities are proposed and implemented by MAB National Committees, who in turn are also responsible for coordinating these internationally. Currently, approximately 100 countries are participating in the MAB Programme. Overall MAB activities are coordinated by an International Coordinating Council (ICC).

In the early 1980s the MAB Programme was concentrated on six key areas:

1. Coastal Areas and Islands;
2. Humid and Sub-Humid Tropics;
3. Arid and Semi-Arid Zones;
4. Temperate and Cold Zones;
5. Urban Systems; and
6. Biosphere Reserves.

These key areas were expanded in 1984 to include four new research orientations:

1. Ecosystem functioning under different intensities of human impact;
2. Management and restoration of human-impacted resources;
3. Human investments and resource use; and
4. Human responses to environmental stress.

MAB has organized these activities by developing Pilot Projects, Biosphere Reserves, Networks, Institutions and by providing appropriate training.

MAB Biosphere Reserves are of particular interest here. Biosphere Reserves are protected areas which serve to provide scientific knowledge, training and human values needed to support sustainable development. Currently, some 324 Reserves exist in 82 countries. Since 1984, the Action Plan on Biosphere Reserves has provided guidelines for developing functional Biosphere Reserves. The Action Plan was the result of the first International Biosphere Reserve Congress in Minsk (1983), Russian Federation, which was sponsored by UNESCO and UNEP in cooperation with FAO and IUCN. Among other things, the Action Plan binds these Reserves together as a Network. Such a Network is intended to promote voluntary cooperation as well as information and expertise exchange.

The priority and complementary themes of the MAB Programme after UNCED have been identified by the MAB Council as: a) conserving biological diversity and ecological processes; b) exploring approaches to land use planning and sustainable management of resources in regional landscapes; c) formulating and communicating information on sustainable resource management and promoting corresponding environmentally sound behaviour; d) building up human and institutional capacity for land use planning and sustainable resource management; and, e) contributing to the Global Terrestrial Observing System (GTOS).

4. Data and Information Management

The MAB Information System has been established to provide continuously updated information on MAB activities. Also, Biosphere Reserve databases (site descriptions and contracts) have been set up.

A directory of contacts, environmental databases and scientific infrastructure, titled ACCESS, was published by the International Cooperation of the Man and the Biosphere Programmes of Europe and North America (EuroMAB) in 1993. The directory provides information on 175 Biosphere Reserves in 32 countries in Europe, Canada, and the United States. Data and information contained in the ACCESS directory is also available on disk.

5. Cooperation

Cooperation between MAB and other institutions is dependent on the specific activity. Cooperative activities with other international organizations can be presented thus:

Humid Tropics:

- UNEP
- FAO Tropical Forestry Action Plan
- International Union of Forestry Research Organizations (IUFRO)
- IUBS (TSBF Programme)
- Smithsonian Institution
- UNDP

Arid and Semi Arid Land:

- UNEP
- UN Statistical Office (UNSTAT)
- FAO
- UNDP

Biological Diversity and biosphere reserves:

- IUCN
- IUBS
- SCOPE
- IGBP
- WCMC
- World Bank (WB)

Urban Projects:

- UNEP
- Habitat (UNCHS)
- IIASA (see IIASA Environment Program entry)
- International Federation of Institutes of Advanced Studies (IFIAS)

Within UNESCO, activities are coordinated with the International Hydrological Programme (IHP), Intergovernmental Oceanographic Commission (IOC), International Geological Correlation Programme (IGCP) and the Coastal Marine Programme (COMAR). MAB is also extensively involved in collaborating with ICSU's International Geosphere-Biosphere Programme (IGBP).

6. Contact person

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Ref. No. 1 41850
**MEKONG
COMMITTEE**



1. Type of Programme

Intergovernmental Development Programme

2. Geographic Area of Implementation

Regional: South-East Asia, Mekong River Basin

3. Programme Profile

The Mekong Committee was established by Cambodia, Laos, Thailand and Viet Nam in 1957 during the 13th session of the Economic and Social Committee for Asia and the Pacific (ESCAP) to address the comprehensive development of water resources and related resources in the Lower Mekong Basin. The Interim Mekong Committee (IMC) was formed in 1978 following the cessation of participation by Cambodia in 1975. The IMC's purpose is to coordinate the work of the riparian countries in order to maximize the social and economic benefits by following a course of sustainable and environmentally sound development of the Mekong's water resources. It concentrates primarily on areas such as hydroelectric power generation, irrigation, flood control measures, drainage, navigation improvement, agriculture, watershed management, fisheries and water supplies, as well as training programmes.

The Bangkok-based Mekong Secretariat oversees the implementation of programmes and projects with professional staff from the riparian countries in collaboration with international experts. The Secretariat also serves as a repository of data and studies conducted for the development of the lower Mekong basin and as a platform for in-house training of riparian personnel. The Mekong activities are organized in three main areas: Policy and Planning covering activities including macro level and sectorial studies which are used

for policy formulation and decision-making; Technical Support representing several core activities such as database development, surveys, monitoring and analysis of information related to hydrology, remote sensing/Geographical Information Systems (GIS) and mapping; and Resources Development focusing on activities related to resource management, river and sub-basin planning, and pre-investment activities, including reconnaissance, and prefeasibility and feasibility studies.

The Water Quality Monitoring Network (WQMN) was launched in January 1985 with financial support from the Swedish International Development Authority (SIDA), to monitor the health of the Mekong river. The WQMN is an integral part of the Environment Programme of the Mekong Secretariat. It is one component of the programme which has resulted from a 'top-down' analysis of a macro level development need (for example, to ensure the sustained water quality of the Mekong river). Specific components which are interconnected and interdependent have been formulated, such as the hydrometeorological network, water pollution campaign, waterborne diseases programme etc. Activities include both routine monitoring and problem-oriented sampling campaigns.

4. Data and Information Management

Currently, data are being collected from different areas including:

1. meteorological, hydrologic and hydrographic data;
2. geographical data;
3. economic and social data; and
4. environmental impact assessment.

These data will be used for river forecasting services such as floods, droughts, salinity intrusions and water quality; thematic mapping; as well as for project evaluations, pollution and erosion control projects, monitoring activities, etc.

The Mekong Committee has developed and maintains databases for its activities including a **Hydrologic and Meteorologist Database (HMDB)** and a **Mekong Bibliographic Database (MBDB)**. In total, the databases currently contain about 5,100 records.

The Mekong Geographical Information Systems (GIS) was established in 1991 to create a spatial resource database to support information needs for assessing and appraising project requirements, utilizing GIS and remote sensing technology. Thematic maps (watershed, drainage, elevation, administrative, geological, soil, land use, hydrological and reservoir maps) of the lower Mekong basin and riparian countries at a scale of 1:25,000 to 1:500,000 were

stored in ARC/INFO and SPANS GIS in digital form of 22,818 Mb at the Mekong Secretariat.

The development of a **Mekong Secretariat Socio-Economic Database (MSEDB)** began in 1987 to collect macro-economic data about the riparian States.

5. Cooperation

In addition to cooperative efforts between the participating nations, the Mekong Committee is supported by UNDP and ESCAP and 20 other donors (seven from Europe as the core group).

Projects were also initiated between the Committee and the EC to exchange information on the development of the Rhine, Rhône and Danube, and Mekong River Basins.

The Committee has established cooperative linkages with various River Basin Authorities in the World.

6. Contact person

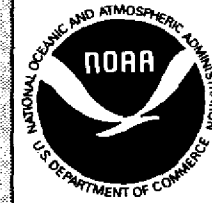
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1. Type of Programme

Governmental; Monitoring and Assessment

2. Geographic Area of Implementation

United States of America

3. Programme Profile

The Mussel Watch Programme was initiated in response to increasing public and scientific concern for the quality of the marine environment.

In 1984, the National Oceanic and Atmospheric Administration (NOAA) initiated the National Status and Trends Programme (NS&T) to monitor trends of chemical contamination and assess the effects of human activities on coastal and estuarine areas around the United States of America. The Mussel Watch Programme is a major part of the NS&T. The programme makes chemical measurements on surface sediments and whole soft-parts of mussels and oysters collected from about 200 coastal and estuarine sites.

The measurements are made at sites designed to be representative of large areas rather than small-scale patches of contamination. The results gained are used to describe the spatial distribution of coastal contamination and temporal trends, and to help differentiate between the effects of human activity and those of natural influences. A specimen bank of samples taken each year at about 10 percent of the sites is maintained at the National Institute of Standards and Technology (NIST) for future, retrospective, analyses. A related programme of directed research is examining the relationships between contaminant exposures and indicators of biological responses in fish and shellfish (i.e.

bioeffects) in areas that are shown by the NS&T monitoring results to have high levels of toxic chemicals.

4. Data and Information Management

Samples are analyzed to determine levels of synthetic chlorinated compounds (e.g. DDTs), polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs), and trace metals (e.g. mercury and lead).

The entire NS&T programme uses a uniform set of techniques to measure coastal and estuarine environmental quality over relatively large space and time scales. Additional data needed for assessment, such as temperature and time, are also recorded. Data are presented in the form of assessments of status and trends enabling long-term trends and pollution sources to be recognized, appropriate actions to be decided, and their effects to be assessed.

5. Cooperation

The Mussel Watch Programme is a major contributor to the NS&T programme which monitors the concentration of organic compounds and trace metals in bottom-feeding fish, shellfish, and sediments at almost 300 coastal and estuarine locations throughout the United States in order to determine the status and long-term trends of contamination in these important areas.

6. Name of the contact person

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Ref. No. 1 7720

OECD

OCDE



OECD

1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Inter-Regional: Member Countries of the Organization for Economic Cooperation and Development (OECD)

3. Programme Profile

As part of the OECD Environment Committee, the Group on the State of the Environment is responsible for the organization's major projects. These include the System of Information on Resources and the Environment (SIREN), Report on the State of the Environment (ROSE) and the International Review of Environment Information Systems (IRIS).

1. **SIREN**: The main project within this sub-programme is the compilation and publication of environmental data. Questionnaires are sent out annually requesting the most up to date information from the relevant institutions in the member states of the OECD. Supplementary data are collected from international sources and from within the OECD itself. The data are published in the OECD Environmental Data Compendium, the last of which was published in 1989.

2. **ROSE**: Within this sub-programme, the major activity is the publishing of the Report on the State of the Environment. In 1990, the third Report will be completed. The Report addresses not only the state of the environment, but also the various anthropogenic

pressures on it and the responses; such as legislation, information dissemination and other environmental protection measures.

3. **IRIS:** This sub-programme provides for the exchange of information on ways to make the management and application of environmental information more effective.

Currently, the Group on the State of the Environment is also researching the development of environmental indicators. In December of 1989 a Workshop was held regarding this issue.

4. Data and Information Management

As was stated above, SIREN is responsible for the majority of environmental data and statistics within the OECD. The Compendium of Environmental Data publishes these, without attempting to present interpretations. As with most of the environmental reports, the Compendium is organized into three components. First, the state of the environment is presented using relatively unprocessed data. This section is divided into air, water, land and living resources. Then the anthropogenic 'pressures' on the environment are addressed, followed by the responses to environmental degradation and pollution.

5. Cooperation

The OECD cooperates with such organization as the EC, UNEP and the World Bank (WB) in its environment related activities. As stated above, SIREN questionnaires are developed in close cooperation with the European Communities Statistical Office (EUROSTAT).

6. Contact person

No name supplied.

REGIONAL SEAS PROGRAMME

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Ref. No. 1 50120
OCA/PAC



1. Type of Programme

United Nations; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

The UNEP Oceans and Coastal Areas/Programme Activity Centre (OCA/PAC) is responsible for implementing and maintaining the Regional Seas Programme. Currently there are thirteen individual programmes, each governed by corresponding Conventions and Agreements, referred to as **Action Plans**. The following is a list of the Action Plans, as well as the contributing institutions:

1. **Mediterranean Action Plan (MAP)** (adopted in 1975) has several contributing institutions including the Coordinating Unit for MAP, Regional Activity Centre (RAC) for the Blue Plan (BP/RAC), the RAC for the Priority Actions Programme (PAP/RAC), the RAC for Specially Protected Areas (SPA/RAC), and the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC);
2. **Caribbean Action Plan** (adopted in 1981) is coordinated by the Regional Coordinating Unit for the Caribbean Environment Programme;
3. **Kuwait Action Plan** (adopted in 1978) operates in cooperation with the Regional Organization for the Protection of the Marine Environment (ROPME) and the Main Emergency Mutual Aid Centre (MEMAC-ROPME);

4. **West and Central African Action Plan (WACAF)** was adopted in 1981 and is coordinated by the Regional Coordinating Unit for WACAF, presently based in Nairobi but soon to be relocated to Abidjan, Côte d'Ivoire;
5. **South-East Pacific Action Plan (SEPCF)** (adopted in 1981) is coordinated by the Regional Coordinating Unit for SEPCF;
6. **Gulf of Aden and Red Sea Action Plan** (adopted in 1982) is maintained by the Secretariat of the regional Environment Programme for the Red Sea and Gulf of Aden;
7. **South Pacific Action Plan** (adopted in 1982) is organized by the SPREP Secretariat;
8. **East Asian Seas Action Plan** (adopted in 1981) is coordinated by a Regional Coordinating Unit from Bangkok, Thailand;
9. **Eastern African Action Plan** adopted in 1985 and soon to be run from a secretariat based in the Seychelles;
10. **South Asian Seas Action Plan** and
11. **Northwest Pacific** and
12. **Southwest Atlantic Action Plan** are under development; as well as
13. **The Framework Action Plan for the Black Sea** (adopted in 1993).

To work on a scientific justification for an integrated global ocean monitoring programme, OCA/PAC initiated the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP). This is of importance to monitoring programmes, as it interconnects marine biology, geology, chemistry and physical oceanography.

4. Data and Information Management

Each programme collects and manages its own data, according to its own criteria. Results are published by OCA/PAC.

5. Cooperation

The Regional Seas Programme are implemented with the help of the concerned nations. In addition, UNEP also collaborates with such international organizations as the UN Economic Commissions for each region, FAO, IAEA/MEDPOL, IOC, IMO, UNESCO's Man and the Biosphere Programme (MAB), UNDP, UNIDO, WHO, WMO as well as many others.

6. Contact person

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Ref. No. 1 38990
SCOPE



1. Type of Programme

International non-governmental; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

SCOPE was established by the International Council of Scientific Unions (ICSU) in 1969 as an international, non-governmental, non-profit organization with the mandate to advance knowledge of the influence of humans on their environment, paying particular attention to those influences and effects which are either global or shared by several nations and to serve as a non-governmental, interdisciplinary and international council of scientists and as a source of advice for the benefit of governments and inter-governmental and non-governmental bodies with respect to environmental problems. SCOPE functions as an interface between environmental science and the decision-making sphere. It does not itself directly engage in primary research, instead focusing on synthesising existing information, presenting balanced appraisals and pointing out critical research needs and information gaps. Its assessment and communication of knowledge on global environmental problems have been instrumental in the development of international research programmes.

In 1994, sixteen projects are currently underway or in preparatory phases in the current programme which is now subdivided into five clusters which, though complementary, have, inevitably, varying degrees of overlap. These five clusters are:

Sustainability - which covers a broad, new subject area overlapping widely with all the other clusters and including major interdisciplinary efforts towards the utilization of ecological and socio-economic knowledge to identify options to ensure the sustainability of the biosphere;

Biogeochemical Cycles - which concentrates on essential elements and toxic substances, including radionuclides;

Global Changes - which assesses the effects of various types of systemic or cumulative global environmental changes. This includes liaison with IGBP which implements research programmes in this area;

Ecosystems and Biodiversity - which focuses on ecosystem processes as affected by environmental change, and on losses in biological diversity, especially in relation to ecosystem function;

Health and Ecotoxicology - which develops methodologies for assessing chemical risk to human and non-human targets, and case studies of environmental contamination.

Issues examined by SCOPE reflect environmental priorities defined by AGENDA 21. The roster of currently operational SCOPE projects respond to several challenges to promote sustainable development goals voiced by world leaders.

4. Data and Information Management

N/A

5. Cooperation

In the past, SCOPE has published joint reports with both UNESCO's Man and the Biosphere Programme (MAB) and with the International Union of Biological Sciences (IUBS). SCOPE also cooperates closely with UNEP, the European Union, and the WHO with which it has co-sponsored a joint programme on chemical safety, SGOMSEC.

6. Contact person

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Ref. No. 1 39000
SPREP POL



1. Type of Programme

Intergovernmental; Monitoring and Assessment

2. Geographic Area of Implementation

Regional: South Pacific

3. Programme Profile

SPREP POL is a regional programme which was initiated and is maintained by governments of South Pacific Island nations. In January 1989, a panel of scientific experts on the pollution of the South Pacific concluded that the four major environment problems were the destruction of coastal ecosystems; lowering of water quality; changing ocean processes and properties; as well as climate change and sea level rise. The first three, are problems which can directly be addressed by the island governments. In addition, several sources for the first three problems were also identified: 1. disposal of domestic wastes (sewage and solid waste); 2. disposal and management of non-domestic waste; 3. increased sedimentation due to land use changes, mining and construction; 4. coastal development activities, such as gravel extraction; 5. over-exploitation of living marine resources; and 6. natural disasters.

To address the problems of pollution various monitoring and research activities have been implemented including:

Monitoring Activities:

1. ocean processes and properties such as circulation patterns, thermal structure, salinity distribution, nutrient fluxes, etc.;
2. heavy metals, especially mercury, cadmium, lead and tin levels;

3. pesticides levels, especially of organochlorine pesticides;
4. sewage related parameters including the problems of increased nutrients and microbiological contamination; and
5. other pollutants such as hydrocarbons and detergents.

Research Activities:

6. preparation of a regional status report on land-based pollutants entering the marine environment;
7. study of the role of sedimentation in marine pollution;
8. development of a circulation model for the main Southwest New Caledonia lagoons; and
9. review of the Guam EPA coastal water pollution monitoring programme (1978-88).

These projects were implemented with several long term objectives in mind and the ultimate goal of gaining comprehensive as well as consistent information and data which can be implemented in the development of a sustainable economic and social base.

4. Data and Information Management

Data varies from island to island and institution to institution in terms of quality. As part of its long term objectives SPREP POL intends to collect a consistent and comparable time-series of data on the state of the marine environment in the South Pacific.

As part of UNEP's Regional Seas Programme (see entry), SPREP POL will ensure data quality, by implementing the use of relevant reference methods for marine pollution studies. This includes regional and global intercalibration and data quality control exercises.

5. Cooperation

SPREP POL cooperates with UNEP's Regional Seas Programme in implementing its activities and is seen as the South Pacific Region's contribution to the Programme and the Global Environment Monitoring System (GEMS).

Cooperative efforts are also being discussed with the South East Asian Seas Programme in terms of sharing data and relevant evaluations.

6. Contact person

No name supplied.

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1. Type of Programme

International non-governmental; Coordination, Standardization, Harmonization, Monitoring and Assessment

2. Geographic Area of Implementation

Regional: Arid and semi-arid zones of the African continent

3. Programme Profile

The mission of the International Association of the Sahara and Sahel Observatory (IASSO) is to serve as a mechanism for liaison and an international forum for partnership and consultation. It is composed of legal entities devoted to desertification control and to the economic development of the arid and semi-arid zones of the African continent. The IASSO agreed to establish the Sahara and Sahel observatory (SSO) in order to assist entities with differing viewpoints but common goals in coming closer together, and in defining effective projects that are best adapted to needs at the grass roots level.

The main objectives of the Sahara and Sahel Observatory (SSO) are to consolidate a regional area of cooperation and promote sustainable management of natural resources in the arid and semi-arid zone ; capacity building in Africa for research and development related to drought and desertification; promotion of an integrated 'Observation, Research-Development' approach to be used in jointly defining new action projects and in facilitating liaison between operations in progress; to workout a comprehensive view and diagnosis of desertification in order to prepare a status report on desert control and to keep it up to date; and to improve the effectiveness of partnership and developmental

activities which shall remain under the jurisdiction of the States and organizations concerned.

The SSO shall strive to contribute to assessing, enhancing, and disseminating knowledge on drought and desertification; favour global approaches for the implementation of regional and national strategies to prevent and combat environmental degradation; promote the harmonization of multisource data collection and processing procedures, and develop mechanisms for evaluation, communication, and information; support and encourage effective training programmes at all level and promote the exchange of local know-how and the acquisition of relevant techniques.

4. Data and Information Management

The objective is to contribute to the development of national databases rather than developing an own system.

5. Cooperation

Various governments and UNESCO participate in the work of SSO providing funding and subsidies. The United Nations cooperates with SSO in specific activities.

The 'Institut des aménagements régionaux et de l'environnement' (IARE) is an operator of SSO. They are concerned with the launching of a network called ROSELT (Réseau d'Observatoires de Surveillance Ecologique à Long Terme) which covers all the circum-saharan countries, i.e. areas where the desertification process is very active. UNITAR is an operator as well, concerned with the Integrated System on the Environment (IISE).

Different organizations or operators are concerned with different aspects of the programme, LERTS with pre-processing NOAA/AVHRR data; AGRHYMET, ACMAD, FAO, EPSAT and TAMSAT with rainfall estimation by satellite; CIEH, ACSAD, BRGM, BGR with aquifers of major basins; the 'Centre Régional de Télédétection' d'Afrique du Nord with dynamic monitoring of environmental negotiation; the GTZ with local population and resource management.

6. Contact person

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**GLOBAL CHANGE SYSTEM FOR ANALYSIS,
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1. Type of Programme

International, non-governmental; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

START (Global Change SysTEm for Analysis, Research and Training) is the acronym for a system of interconnected regional research networks being developed by the International Geosphere-Biosphere Programme (IGBP) of the International Council of Scientific Unions (ICSU), in cooperation with the World Climate Research Programme (WCRP), a joint initiative of the World Meteorological Organization (WMO), ICSU, and the International Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO); and the Human Dimensions of Global Environmental Change Programme (HDP) of the International Social Science Council (ISSC). The fundamental purpose of a system of networked regional research centres and sites is to promote research in the regional origins and impacts of global environmental changes such as global warming, and through training and fellowship programmes, to enhance indigenous scientific capacity to engage in focused research on critical regional environmental issues of global importance.

START will be a world-encompassing system of Regional Research Networks (RRNs), each of which includes at least one Regional Research Centre (RRC) and a number of Regional Research Sites (RRSs). Each of the RRCs serves as the information centre for the RRN, with additional coordination functions both

within and between the region. A major function of the RRC is to provide a multidisciplinary setting within which results from various disciplines concerned with global change phenomena can be synthesized in a framework that is policy relevant. Thus, by necessity this synthetic function will include both natural and social sciences aspects. The RRCs will also have access to regional and global databases that are necessary for analyzing both the contribution of the regions to global change phenomena as well as the impacts of global changes within the regions. The RRSs are institutes in the region with specialized expertise that allows them to carry out research on important components of the specific core projects of the global change research programmes. Both RRCs and RRSs will also host training courses and provide foci for capacity building in the region.

Within START, distinct biogeographic regions have been defined, in the context of which priority has been given to developments of RRN/RRC in regions covering primarily developing countries. Ultimately, the START initiative foresees the creation of some 13 regional networks world-wide. The START initiative has already initiated six regional networks in the following areas: Northern Africa; Southern, Central and Eastern Africa; Mediterranean; East Asia; Southeast Asia; South Asia. In case of the Americas, the START concept is being implemented by an intergovernmental initiative, the IAI (the Inter-American Institute for Global Change Research). Sixteen nations have agreed to participate and several IAI workshops have been or will be organized.

Numerous regional planning meetings, research workshops, and training courses have already been held, largely in developing countries. Research and training workshops have been undertaken on topics such as land use and land cover change, methodologies for assessing greenhouse gas emissions, climate and ecosystem modelling, and climatic variability and its implications and past global changes in Africa, and are planned on the frontiers of global change research. As part of its plan for capacity building, START is developing scientific exchange programmes to enable scientists to study in major laboratories within and outside their region and is supporting developing country scientists to participate in international global change meetings. Activities during the year will have involved the scientists and scientific communities of some 50 countries.

4. Data and Information Management

A key thrust of START is to assist development of regional data and information systems and networked electronic communications facilities. Resources permitting, START will assist regional networks in developing networked electronic communications capability by acquiring the necessary computing hardware and software required for regional data and information

sharing. In this regard, START is working with the Consortium for International Earth Science Information Network (CIESIN) to develop training programmes on data and information systems management using state of the art software and technology that will assist the regional research networks in developing communications systems for data and research sharing.

5. Cooperation

START is closely collaborating with the development efforts for IGBP and HDP Data and Information Systems (DIS), as well as the global observing systems, such as GCOS (Global Climate Observing System), GOOS (Global Ocean Observing System), GTOS (Global Terrestrial Observing System), and the international Committee on Earth Observation Satellites (CEOS).

6. Name of the contact person

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UNIDO ENVIRONMENT PROGRAMME

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Ref. No. 1 49990

UNIDO



1. Type of Programme

United Nations; Coordination

2. Geographic Area of Implementation

Global

3. Programme Profile

The Environment Programme is being pursued by UNIDO's Environment and Energy Branch as a result of numerous General Assembly resolutions and a mandate from the General Conference held at Yaounde, Cameroon, in December 1993, when it was agreed that, as a UN system-wide coordinating body in the field of industry, UNIDO should play a major role in the implementation of Agenda 21, as adopted by the UNCED Conference in Rio de Janeiro in 1992. The programme of the Environment and Energy Branch aims to ensure environmentally sustainable industrial development. Developing countries are most affected, particularly in terms of access to appropriate technologies and sources of funding for upgrading or establishing industries on an environmentally sound basis. The Branch will focus on three areas of support to developing countries, namely in:

- (a) adopting environmental and energy-related policies and strategies;
- (b) the transfer of cleaner technology and supporting cleaner production, approaches and methods;
- (c) pollution prevention programmes through end-of-pipe treatment.

The Environment and Energy Branch constitutes the focal point in UNIDO of industry related environment and energy activities. As such, it has four responsibilities:

1. to develop cross-organizational environment and energy programmes in response to international concerns;
2. to analyse national and UN system-wide efforts in response to Agenda 21 and develop UNIDO's support to those efforts;
3. to monitor the results of UNIDO's efforts in response of (1) and (2) above and report them to UN system-wide and UNIDO's policy making bodies, as well as to other constituencies of the Organization; and
4. selective implementation of operational activities.

The main functions of the Branch are to assist developing countries in integrating environmental considerations into their industrial strategies and policies, in promoting cleaner technologies and cleaner production concepts and in establishing related institutions, as well as in deploying industrial pollution abatement technologies and processes. It is also active in developing and promoting programmes to support the transfer of technology for cleaner energy, new and renewable sources of energy and energy efficiency in industry. It will also promote technical procedures to evaluate and test processes, products and services and provide assistance in developing assessment techniques for identifying and measuring the environmental impact of industrial production. Special emphasis is placed on developing and undertaking operational activities of a pilot or innovative nature on industry sector-wide subjects, particularly with regards to regional or subregional initiatives. Another aim is to develop approaches to restructuring or reorienting environment related institutions to enhance their links with and responsiveness to industry.

4. Data and Information Management

The industrial and Technological Information Bank (INTIB) of UNIDO is responsible for the Energy and Environment Information System (EEIS) programme which was developed to support the environment activities of the organization to ensure a systematic approach to information management for this subject area, both in headquarters and in the field. The objective of the programme in the field is the establishment of sustainable, cost-effective mechanisms for management of industrial environment information targeted to small and medium-scale industries (SMIs).

It is envisaged that existing and emerging national institutions which are responsible for the SMI sector will, through this project, develop cost-effective mechanisms for the capacity-building support necessary to address the issues of

information provision for environmental awareness and improved industrial response to pollution prevention. This will be achieved through: a review of existing national information mechanisms; development of appropriate packages of information; continued access to and processing of external sources of information; the development of appropriate distribution and dissemination mechanisms utilizing existing infrastructure as far as possible; the development of appropriate promotion and pricing mechanisms to support the sustainability of the activity.

5. Cooperation

The Branch will interact and cooperate with all the operational components of the Organization, such as in analyzing policy mandates established by the legislative organ of UNIDO and other UN system organs (such as CSD) and translating them into operational guidelines to UNIDO. It diagnoses, advises and assists other units within UNIDO in the development of environment and energy-related programmes and projects. It initiates, monitors and reports on the operational activities and analytical work of UNIDO on environment and energy-related issues. It also analyzes environment-related work programmes of other UN agencies and institutions, particularly UNEP, CSD, WB and UNDP, to identify areas of cooperation. The Branch initiates and facilitates systematic staff training on and awareness of specific environment and energy-related issues.

6. Contact person

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WORLD CLIMATE PROGRAMME

Ref. No. 1 39020

WCP

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

WCP was initiated as a result of the (first) World Climate Conference held in 1979. It has been maintained by decisions of the four-yearly Congresses of WMO held in 1983, 1987 and 1991. The current structure of WCP as adopted by the Eleventh Congress (May 1991) taking into account the recommendations of the Second World Climate Conference (SWCC) (1990) includes the following four sub-programmes:

1. **World Climate Data and Monitoring Programme (WCDMP):** see entry.
2. **World Climate Applications and Services Programme (WCASP):** to promote the application of climate information and knowledge in selected special fields of activity such as those relating to food, water, energy, urban planning and construction, etc.
3. **World Climate Research Programme (WCRP):** see entry.
4. **World Climate Impact Assessment and Response Strategies (WCIRP):** to study the economic and social impacts of predicted climate changes and to develop related policy options and responses.

4. Data and Information Management

see WCDMP entry

5. Cooperation

WMO as the lead agency, provides for the overall coordination of the WCP as well as for the WCDMP and WCASP. The United Nations Environment Programme (UNEP) is responsible for the WCRP; the WCIRP is being jointly implemented by the International Council for Scientific Unions (ICSU), WMO and IOC. The Executive Heads of these and other organizations involved such as the Food and Agriculture Organization (FAO), the World Health Organization (WHO) and the United Nations Development Programme (UNDP) meet regularly to ensure coordination of all inter-agency climate activities. Cooperation with major international programmes such as the International Geosphere-Biosphere Programme established. Overall coordination of WCP is provided by the Coordinating Committee for the WCP. Coordination of activities on the climate change issue involves overall coordination of the WCP mentioned above, public information aspects and support to intergovernmental mechanisms such as the WMO/UNEP Intergovernmental Panel on Climate Change (IPCC), and to the development of international agreements on climate and its protection, such as the United Nations Framework Convention on Climate Change (UNFCCC).

6. Contact person

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**WORLD CLIMATE PROGRAMME
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**Ref. No. 1 51690
WCP
WATER**

1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

WATER was established by the World Climate Programme (WCP) to research the effective use of climate data and information in planning and operating water-resource systems as well as the use of hydrological data in climate-related studies.

Several projects have been implemented, in cooperation with other international organizations and institutions, under the following six areas:

1. Studies of hydrological data in the context of climate variability and change;
2. Modelling of hydrological cycles;
3. Application of climate information in the planning, design and operation of water-resource systems;
4. Studies of the influence of climate change and variations of water resources.
5. Climate impacts on society through water resources; and
6. Humankind's influence on climate through its activities.

4. Data and Information Management

N/A

5. Cooperation

WCP/WATER's activities are planned under the auspices of WMO and UNESCO. These are then implemented jointly or separately by FAO, IAHS, IIASA, ICSU, UNEP, UNESCO and WMO as well as with WMO and UNESCO National Member governments and institutions.

6. Contact person

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**WORLD CLIMATE RESEARCH
PROGRAMME**

Ref. No. 1 50510
WCRP

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1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

The WCRP is a joint programme of WMO, ICSU and UNESCO IOC with the general objective of determining whether or not climate can be predicted and the extent of anthropogenic influences on climate. In order to best pursue these goals, the WCRP initiated a number of projects and experiments, including:

1. **World Ocean Circulation Experiment (WOCE)** - a comprehensive programme encompassing hydrographic campaigns at sea, satellite observations (in particular by means of the dedicated USA/France TOPEX/POSEIDON altimetry satellite), laboratory analysis work (geochemical and radioactive tracers), data assembly, archival and distribution, and global ocean modelling. Comprehensive organization for the handling of diverse classes of physical and geochemical ocean data including a hierarchy of Data Assembly Centres (for each class of data), Regional Data Assembly Centres (for Pacific, Atlantic and Indian Oceans), Supporting National Data Assembly Centres, a Special Analysis Centre (for the WOCE Hydrographic Programme), and a Central Data Information Unit.
2. **Global Energy and Water Cycle Experiment (GEWEX)** - a comprehensive programme encompassing field observations (intensive regional studies), global space-based monitoring programmes, data processing, calibration, analysis and merging by

means of global atmosphere-surface boundary models, global, regional and micro-scale modelling of atmospheric radiation, cloud, rain, boundary layer and hydrological processes. The implementation of GEWEX is based on the cooperation of national environmental/meteorological administrations, space research agencies, scientific institutions and individual Principal Investigators. Network of data assembly and analysis centres for each participating project, including the International Satellite Cloud Climatology Project (ISCCP), the Surface Radiation Budget (SRB) Project, the Global Precipitation Climatology Project (GPCP), the International Satellite Land Surface Climatology Project (ISLSCP). Project specific databases are assembled and made available on CD-ROM.

3. **Arctic Climate System Study (ACSYS)** - a comprehensive programme including a basin-wide hydrographic survey of the Arctic deep ocean basins as well as long-time series of oceanographic and sea-ice measurements at fixed stations, satellite monitoring and in-situ observation of sea-ice properties and transport, observation of the surface energy and water balance including radiation, clouds and snowfall, comprehensive modelling of ocean-ice-atmosphere-land interactions in the Arctic region.
4. **Programme on Climate Variability and Predictability (CLIVAR)** - performs international coordination of studies of natural climate variability and predictability on interannual to centennial time-scales, emphasizing the role of the ocean in climate, as well as estimation of climate change induced by the increase in greenhouse gases and other anthropogenic climate forcing factors, using comprehensive coupled atmosphere-ocean-ice-land models. Four parallel scientific thrusts are: variability and prediction of the El Niño/southern oscillation; variability of monsoon regimes; variability of the thermohaline circulation of the global ocean; global climate and sea-level change, by means of numerical simulation with interactive models of the coupled atmosphere-ocean-ice-land system.
5. **Study of Stratospheric Processes and their Role in Climate (SPARC)** - performs international coordination of studies of the mechanical (fluid dynamical), physical and chemical processes that determine the composition and structure of the stratosphere, impacts of changes in the stratosphere on the tropospheric climate and the penetration of solar ultra-violet radiation down to the earth surface. The SPARC research objectives and projects are organized around four scientific foci: influence of the stratosphere on lower atmosphere and climate; physical and chemical processes involved in the changes in stratospheric ozone; stratospheric variability,

including the organization of long-term monitoring projects; changes in ultra-violet radiation.

Together these projects and experiments should allow the WCRP to gain an improved understanding of climatological processes as they relate to anthropogenic influences on them.

4. Data and Information Management

Climate research data is primarily managed by ICSU's World Data Centres. Various component projects have specific arrangements for data processing and archival, using for example the US National Oceanographic and Atmospheric Administration's (NOAA) National Climate Data Centre in Washington, D.C.

5. Cooperation

Within the WCP, the WCRP leads the main interagency effort to develop an understanding of the global atmosphere. Cooperation has been organized with ICSU's International Geosphere-Biosphere Programme (IGBP), particularly in the fields of biospheric aspects of the hydrological cycle and global atmospheric modelling.

6. Contact person

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**WORKING GROUP ON CLIMATE
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Ref. No. 1 50950
WGCCD



World
Meteorological
Organization
World Climate Data
and Monitoring
Programme

1. Type of Programme

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

Based on a resolution passed at the 43rd Session of the Executive Council of the WMO, the Working Group on Climate Change Detection began operation in January 1992. Specifically, the Executive Council gave the Working Group a number of objectives, including:

- to prepare regular reports on the interpretation and applicability of databases for the detection of climate change on regional and global levels;
- to serve as an advisory body to the WMO Executive Council through the Commission for Climatology on activities related to the detection of climate change;
- to provide relevant input toward updating the implementation plan for the WMO Climate Change Detection Project.
- to pursue cooperative efforts between other WMO projects as well as other organizations; and
- to keep abreast of scientific developments involving the monitoring and detection of climate change.

4. Data and Information Management

The primary objective with respect to data management is the enhancement of currently existing datasets that are relevant to climate change detection. For example, the WMO already has a number of data projects related to climate change detection, including *inter alia* CLICOM, DARE, GBDP, GCOS (see separate entry) and INFOCLIMA.

5. Cooperation

In addition to improving cooperative efforts between various projects within the WMO, cooperation is also being sought with other international organizations involved in climate change related work such as ICA, UNESCO, IOC, ICSU, and UNEP.

6. Contact person

Mr. Peter Scholefield, Chief, World Climate Data and Monitoring Programme (WCDMP) Division, World Climate Programme Department, WMO Secretariat, address see above

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E-Mail/Telex: N/A**1. Type of Programme**

International non-governmental; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

In 1967, the International Commission on Snow and Ice (ICSI) established the Permanent Service on the Fluctuations of Glaciers (PSFG). The PSFG compiled and standardized data on glacial fluctuations. In 1976, ICSI established the World Glacial Inventory (WGI) in cooperation with WMO and within the framework of the UNEP Global Environment Monitoring System (GEMS). WGI studies were designed to serve as a baseline for the long-term monitoring of glacial behaviour in various climatic regions. First results were published in 1988 and provided details of the extent of the world's ice as recorded at more than 750 glaciers in 21 countries.

In 1986, these two ICSI components combined to form the World Glacial Monitoring Service (WGMS). WGMS is now located at the facilities of the Swiss Federal Institute of Technology (ETH) in Zurich. The tasks of the WGMS are 1. to continue collecting and publishing standardized data on glacier fluctuations at 5-yearly intervals, 2. to complete and continuously upgrade an inventory of the world's glacier, 3. to publish results of mass balance measurements from selected reference glaciers at 2-yearly intervals, 4. to include satellite observations of remote glaciers in order to reach global coverage, and 5. to periodically assess ongoing changes.

4. Data and Information Management

WGMS collects standardized observations on changes in mass, volume, area and length of glaciers with time (glacier fluctuation), as well as statistical information on the distribution of perennial surface ice in space (glacier inventories). The collection of standardized glacier fluctuation data follows recommendations published by UNESCO in 1969 and regularly update instructions for submission of data for the publication series 'Fluctuation of Glaciers'. Data from WGMS flow into the World Data Center (WDC-A) for Glaciology and the Global Resources Information Database (GRID) in Geneva.

The 1989 published "World Glacier Inventory -Status 1988" is a guide to the existing statistical database on the world-wide distribution and morphological characteristics of glaciers as documented in regional inventories (some detailed others preliminary). Publication of the biennial 'Glacier Mass Balance Bulletin' has been started (No. 1: 1988-89; No. 2: 1990-91).

In addition to regular publications, a strategy is being developed on how to correctly interpret and periodically assess ongoing changes. The goal is to establish a modern service of global glacier monitoring with the measured information being stored in a database system enabling easy access to scientific users.

5. Cooperation

The work of WGMS is carried out at the Swiss Federal Institute of Technology (VAW/ETH) in Zurich under the auspices of the International Commission on Snow and Ice (ICSI/IAHS), the Global Environment Monitoring System (GEMS) of UNEP, the Federation of Astronomical and Geophysical Data Analysis Services (FAGS) of ICSU and the Division of Water Sciences of UNESCO.

6. Contact person

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E-Mail/Telex: N/A / 41 41 99 OMMCH**1. Type of Programme**

United Nations; Monitoring and Assessment

2. Geographic Area of Implementation

Global

3. Programme Profile

The overall objectives of the World Weather Watch Programme (WWW) are:

1. to maintain an effective world-wide integrated system for the collection, processing and rapid exchange of meteorological and related environmental data, analyses and forecasts;
2. to make available, in real-time and non-real-time, as appropriate, observational data, analyses, forecasts and other products to meet the needs of all Members, of other WMO Programmes and of relevant programmes of other international organizations;
3. to arrange for the introduction of standard methods and technology which enable Members to make best use of the WWW system and ensure an adequate level of services and also the compatibility of systems for cooperation with agencies outside WMO.

4. Data and Information Management

WWW Data Management aims to fully integrate the WWW observational networks and communications links into a coherent global system that meets the

expanding requirements of the WWW and other related WMO programmes. It coordinates development and maintenance of standard WMO codes and representation forms for exchanging data, manages a project to facilitate exchange of software for processing and manipulating data, and coordinates development of a system of distributed data bases to exchange meteorological data that is required but not routinely exchanged over the GTS.

The information provided by the WWW system consists of:

1. basic meteorological, hydrological, oceanographical and other environmental data, stored in numerical code, for various applications;
2. weather analysis, warnings and forecasts for general purposes and for many types of specialized activities, such as agriculture, shipping, fishing, transportation, hydrology, water management, industry and recreation;
3. warnings against natural disasters caused by meteorological phenomena, particularly tropical cyclones.

5. Cooperation

The technical coordination of the WWW is carried out by the WMO Commission for Basic Systems and by the WWW Department of the WMO Secretariat. The collection of information is done through operational facilities operated by WMO members as part of the WWW system. Information is distributed to a wide variety of users. This includes, for example, the Red Cross and Red Crescent in emergency situations.

6. Contact person

No name supplied.

Data and Information System Programmes

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Ref. No. 2 38800
ACSAD



1. Type of Programme

Intergovernmental; Data and Information Management

2. Programme Objectives

In the collection of data, ACSAD has placed emphasis on the compilation, management, and dissemination of water data. Consequently, ACSAD has established:

1. the ACSAD Water Resource Data Bank
2. the Hammad Basin Water Resource Data Bank and
3. the Water Resource Documentation Centre.

Large quantities of data have also been collected relating to agricultural and animal production in the Arab nations. These are part of an attempt to integrate arid lands development efforts and the prevention of further desertification.

3. Data and Information Management

Data are primarily collected and managed through the use of field survey equipment, air photos, agro-meteorological stations and computerized storage and evaluation capabilities.

4. Affiliated Monitoring Programme

see ACSAD monitoring programme entry

5. Cooperation

ACSAD primarily collects and manages its own data. Information, however, flows from both participating nations to ACSAD and vice versa. As such, ACSAD is attempting to integrate development efforts between itself and national programmes.

6. Contact person

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**AQUATIC SCIENCES AND FISHERIES
INFORMATION SYSTEM**

Ref. No. 2 50140
ASFIS

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1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

ASFIS was established in 1971 as an abstracting/indexing service and information centre. It is sponsored cooperatively by the FAO, UNESCO's Intergovernmental Oceanographic Commission (IOC) and the UN Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs (UN/DOALOS/OLA). Internationally, ASFIS provides a range of products, services and standards on subjects including aquaculture, fishery, littoral zones, the marine environment, oceanography and water pollution. At a national and regional level ASFIS aims to catalyze local identification of specific information needs and efforts to build-up information services and personnel with the help of funding agencies.

3. Data and Information Management

The principal global product of ASFIS is the **Bibliographic Data Base-Aquatic Sciences and Fisheries Abstracts (ASFA)**. ASFA is produced by a network of the four ASFIS sponsors, UNEP, 13 Member States, and a commercial publisher. The database contains some 400,000 references to scientific literature collected since 1975 and is available on numerous on-line information retrieval services, on magnetic tape, and on CD-ROM (entries since 1978). About 3000 new references are added each month. A journal in three sections appears monthly on these updates and there are specialized journals for Aquaculture and Biotechnology.

ASFIS is also involved in other activities including:

1. a **Reference Series** which sets bibliographic standards widely used in aquatic information management and by ASFA itself; and
2. **Current Awareness Services** which include Freshwater and Aquaculture Contents Tables, Marine Science Contents Tables and a list of scheduled meetings.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

ASFIS was founded as a collaborative effort between the sponsor organizations and member states.

6. Contact person

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**BALTIC MARINE ENVIRONMENT
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Ref. No. 2 50150
BALTIC



1. Type of Programme

Intergovernmental; Data and Information Management

2. Programme Objectives

The Baltic Marine Environment Bibliography has been produced by the Baltic Marine Environment Protection Commission (Helsinki Commission/HELCOM) since the 1970's. An on-line version of the bibliography, database BALTIC, was established in 1987. BALTIC contains 9000 references and is updated twice a year. The annual increase is about 500 references. All aspects of the Baltic Sea Area are covered, for example ecology, fauna and flora, fisheries, hydrography, pollution, environmental impact, research planning, and administrative measures. The Baltic Sea Area consists of the Baltic Sea and its entrance, including the Gulf of Bothnia, the Gulf of Finland and the Kattegat.

3. Data and Information Management

Baltic is a computerized database which is available on-line through the Swedish Environmental Protection Agency and the host service Dafa Data AB. Two retrieval languages, one of which consists of ISO commands, can be used, either alone or in combination. Other on-line service hosts are DIMDI (Deutsches Institut für Medizinische Dokumentation und Information) and the Technical Research Centre of Finland.

4. Affiliated Monitoring Programme

Monitoring and assessment activities in the Baltic Sea Area are one of the responsibilities of HELCOM. HELCOM was established by the states bordering the Baltic Sea to prevent and abate all forms of pollution and to

protect and enhance the marine environment of the Baltic Sea Area. According to the Ministerial Declaration in 1988, the contracting parties agreed to reduce discharges from point sources, such as industrial installations and urban waste water treatment plants in order to reduce 50 per cent of the total discharges as soon as possible but not later than 1995.

5. Cooperation

The countries around the Baltic Sea are contracting parties of the Helsinki Commission and cooperate in collecting, cataloguing and indexing relevant reports, journal articles, books, conference documents, dissertations etc. As contracted by the Commission, the bibliography (database BALTIC) is compiled by the Technical Research Centre of Finland and made publicly accessible on-line by the Swedish Environmental Protection Agency.

6. Contact person

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**INFORMATION EXCHANGE SYSTEM ON
COUNTRY ACTIVITIES ON CLIMATE
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1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

The Interim Secretariat of the UNFCCC (United Nations Framework Convention on Climate Change) established the CC:INFO programme jointly with the United Nations Environment Programme (UNEP) to act as a clearinghouse for information. The main objective of this project is to improve the availability of information on country activities, and the availability of resources for these, in order to match, on the one hand, demands for resources as requested by countries, and on the other hand, supply of these in other countries and international organizations. The resources in question include financial, human and scientific and technical resources, to be used in climate change activities, projects and programmes.

3. Data and Information Management

The programme collects information from organizations that are involved in supporting activities on climate change, on the kinds of resources they have available. It also collects information from countries on activities that are now going on, or which are being planned, and for which resources are still needed. The information is being collected in a set of linked data bases (presently under MS-Access), including essentially organizations, individuals, and activities.

Reports from the databases are being disseminated both on request, and through regular dissemination channels, both in traditional printed and in electronic forms.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

The success of the programme depends greatly on the cooperation of supporting organizations and countries. Good relationships have already been built up with the supporting organizations, and are now continuing with the countries.

6. Contact person

Mr. Janos Pasztor, Manager CC:INFO, address see above,

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**CARBON DIOXIDE INFORMATION
ANALYSIS CENTER**

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Ref. No. 2 51860
CDIAC



1. Type of Programme

Governmental; Data and Information Management

2. Programme Objectives

The Carbon Dioxide Information Analysis Center (CDIAC), located within the Environmental Sciences Division of the US Department of Energy's (US DOE) Oak Ridge National Laboratory (ORNL), has been in operation since 1982. CDIAC's objective is to see that data underlying the issues related to global change are identified, gathered, evaluated, and presented in such a fashion as to ensure their accuracy and usefulness to research, policymaking, and education communities world-wide.

CDIAC is funded by the US DOE to support its Global Change Research Programme (GCRP). The goal of the GCRP is to develop sound scientific information for policy formation and governmental action in response to changes of atmospheric levels of carbon dioxide (CO₂) and other greenhouse gases.

3. Data and Information Management

The Center's data holdings are eclectic, related more to the issues of concern rather than specific scientific disciplines. Data managed by CDIAC cover a broad range of issues related to carbon dioxide, other atmospheric trace gases, and their impacts on climate and ecosystems. CDIAC's efforts foster a cross-disciplinary exchange of information, which is critical for developing policies in response to global climate change.

One of the fundamental services offered by CDIAC is providing fully documented, machine-readable CO₂-related data sets and computer models to the international research and policy-making communities. All data are put through a rigorous and extensive quality assurance review, and are comprehensively documented.

Further services and products offered by CDIAC include the newsletter 'CDIAC Communications' and 'ARM Outreach'; a glossary 'Carbon Dioxide and Climate'; a 'Catalogue of Databases and Reports'; the report 'Trends '91: A Compendium of Data on Global Change'; the 'DOE Research Summary' Series; numeric data packages; CDIAC Factsheets; one-to-one information exchanges; document and report distribution; and data archives. CDIAC issues a Factsheet listing details of more than 160 newsletters that cover the topic of global environmental change.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

Because of the nature of CDIAC's role and mission, it was recently designated as part of the International Council of Scientific Unions' (ICSU) World Data Center (WDC) System. CDIAC houses the World Data Center-A for Atmospheric Trace Gases (WDC-A).

6. Name of the contact person

Mr. Robert M. Cushman, Director, address see above

**CENTRAL EUROPEAN ENVIRONMENTAL
DATA REQUEST FACILITY**

Ref. No. 2 38770
CEDAR

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1. Type of Programme

International non-governmental; Data and Information Management, UN affiliate: Regional Service Center for INFOTERRA

2. Programme Objectives

Established by the Austrian Federal Environmental Ministry to support environmental information and technology flow to EU countries. Information services exploit TCP/IP network protocol as the search, retrieval and delivery medium. CEDAR is administered by ISEP.

3. Data and Information Management

CEDAR's system is supporting several databases prepared by remote groups in order to serve as a host system. The staff is also compiling a database of regional environmental expertise to facilitate exchanges between East and West. The system currently hosts 20 reference data sets on full-text software and offers a public Gopher server hosting Austrian environmental information, INFOTERRA documentation and databases, and Regional Environmental Center for Central and Eastern Europe (REC) materials.

Gopher address is: pan.cedar.univie.ac.at

4. Affiliated Monitoring Programme

N/A

5. Cooperation

CEDAR's infrastructure is supporting UNEP INFOTERRA/PAC, National Focal Points and Regional Service Centers using various networks, and is coordinating information resources with the REC in Budapest and regional INFOTERRA National Focal Points.

The CEDAR, INFOTERRA and REC constituencies consist of government, academic, research and NGO offices.

6. Contact person

Mr. Douglas J. Kahn, Manager, CEDAR Project, address see above,
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**COMMITTEE ON EARTH OBSERVATION
SATELLITES**

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Ref. No. 2 51450
CEOS



1. Type of Programme

International; Coordination, Data and Information Management

2. Programme Objectives

The Committee on Earth Observations Satellites (CEOS) was created in 1984, in response to a recommendation from a panel of experts on Satellite Remote Sensing under the aegis of the Economic Summit of Industrialized Nations Working Group on Growth, Technology, and Employment.

The primary objectives of CEOS are to optimize the benefits of space borne observations through cooperation in mission planning and in the development of compatible data products, formats, services, applications and policies, to serve as a focal point for the international coordination of space-related Earth observation activities, to exchange policy and technical information to encourage complementarity and compatibility among space borne Earth observations systems currently in service or development and the data received from them, and to address issues of common interest across the spectrum of Earth observations satellite missions.

CEOS currently has 19 members as representatives of states and agencies both international and national that are responsible for civil space borne Earth observation programmes. Affiliate members are scientific or governmental bodies that are international in nature and whose programmes will utilise data flowing from satellite missions.

It conducts its activities through two permanent working groups: the Working Group on Data, and the Working Group on Sensor Calibration and Geophysical

Validation. An ad-hoc Working Group on Networks, chartered to address international network issues was formed recently.

The requirements for planned missions are drawn from the CEOS affiliate organizations which are the World Meteorological Organization (WMO), the International Council of Scientific Unions (ICSU), the Intergovernmental Oceanographic Commission (IOC) of UNESCO, UNEP, FAO, and the European Commission (EC), the International Geosphere-Biosphere Programme (IGBP), the World Climate Research Programme (WCRP) and the Global Climate Observing System (GCOS).

3. Data and Information Management

CEOS encourages broad dissemination of information on satellite missions and data, and fosters wide use of satellite data for national and international needs. It encourages environmental programmes to formulate data needs and priorities for member consideration in future mission planning.

4. Affiliated Monitoring Programme

The requirements for mission include the needs of various major international, interagency monitoring programmes such as the Global Climate Observing System (GCOS), the Global Ocean Observing System (GOOS), the World Climate Research Programme (WCRP) and the International Geosphere-Biosphere Programme (IGBP). These are linked to CEOS through the international organizations responsible for the programmes.

5. Cooperation

see 1. Programme Objectives


6. Contact person

CEOS Secretariat *c/o*

ESA: Mr. H. Hopkins

NASDA: Mr. A. Fujita

NASA/NOAA: Ms. Lisa Shaffer, Mr. Brent Smith, address see above

COMITÉ EUROPÉEN DES RESPONSABLES DE LA CARTOGRAPHIE OFFICIELLE	Ref. No. 2 1120 CERCO
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1. Type of Programme

Intergovernmental; Data and Information Management

2. Programme Objectives

CERCO was established in 1980 under the umbrella of the Federation of the European Scientific and Technical Cooperation Networks of the Council of Europe. The thirty-one member National Mapping Agencies meet at least once annually to exchange relevant information related to geo-information. More specifically, CERCO has a number of tasks which focus on the **mutual exchange of information and experience, and consultations and cooperation in all fields and processes of cartography** including: geodesy, photogrammetry, remote sensing, classical and digital cartography and cadastre for some of them. CERCO has some working groups: for copyright and economic affairs, advisory board, geodesy (EUREF and unique levelling system), for European road database, and for environmental protection.

Traditionally, it has been the role of the official surveying and mapping agencies in Europe to provide basic spatial data to the many users and applications. To the present, these agencies have produced maps based on national standards. With the move towards Europe-wide spatial data sets on a single European geodetic network, especially by agencies like the European Environment Agency (EEA), EUROSTAT and various industrial sectors, CERCO is becoming increasingly important and cooperates with the Commission of the European Union.

3. Data and Information Management

CERCO, as the responsible European body for official surveying and mapping, has created a **Multi-purpose European Ground Related Information Network (MEGRIN)** with the aim of homogenising geo-information within Europe. Based on a Europe-wide network, future users will be able to access national topographic and cartographic databases from all CERCO member countries using a simple dispatcher.

MEGRIN will be responsible, through CEN/TC287, for the definition of database language, conceptual and quality modelling of the database and for spatial references. In the long-term, MEGRIN aims to make the data produced by CERCO homogenous for reasons of data compatibility, data quality and clarity. CERCO national members have agreed to harmonize their national spatial data transfer standards and have further agreed to a common European standard. The European Transfer Format (ETF), prepared by CERCO, is based on existing standards such as ISO 8211 used for files and EDIFACT for the messages.

MEGRIN cooperates with European governments and their cartographic departments to ensure that the data received by MEGRIN is of a standard and quality possible to facilitate effective data modelling and exchange.

MEGRIN is now a Group of Economic Interests under the French law.

4. Affiliated Monitoring Programme

Seamless administrative boundaries datasets for EUROSTAT.

5. Cooperation

A Coordination Board exists to integrate the activities of CERCO and the European Organization for Experimental Photogrammetric Research (OEEPE). In addition, cooperative efforts are foreseen with several of the European Commission's (EC) Directorate Generals as well as with the European Committee for Standardization (CEN). Close connections have also been established with such international institutions as the International Cartographic Association (ICA) and the International Federation of Surveyors (IFS).

CERCO is member of the European Association for Geographic Information (EUROGI), which was created in 1993 in Luxembourg. The primary goal of EUROGI is to stimulate, encourage and support the development and use of geographic information (GI) at the European level and to become the official partner for GI with the relevant European Institutions.

6. Contact person

CERCO: Mr. J. Mousset, Secretary General, address see above

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**CONSORTIUM FOR INTERNATIONAL
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**Ref. No. 2 47930
CIESIN**



1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

The Consortium for International Earth Science Information Network (CIESIN) was established in 1989 as a private, non-profit organization dedicated to fostering the interdisciplinary study of global environmental change and to facilitating world-wide access to earth, social, and health science information resources. CIESIN's charter specifically addresses the need for data and information resources relating to the human dimensions of global environmental change.

3. Data and Information Management

The Information Cooperative will be the organizational and technical infrastructure of CIESIN that will serve global environmental change research scientists and the broader community of policy analysts, resource managers, educators and the general public. It is a distributed archive that allows user communities to catalogue and share data and information electronically among major international data archives and resource centers and thus promotes collaborative projects for analysis and assessment of integrated data. The Information Cooperative exploits recent development in information technology to offer its members an on-line distributed directory system. These developments include use of industry standards such as Open Systems Interconnect (OSI), Wide Area Information Service (WAIS), Gopher servers, electronic mail, and electronic conferencing.

CIESIN provides tools for creating and maintaining standardized directory entries. Members are responsible for ensuring directory entry quality. Guidelines for data quality are defined by a Data Quality Panel in which members participate

CIESIN conducts User Workshops to provide forums for enhancing the interaction among the members of the Information Cooperative, and for enhancing the benefits of the Cooperative to the broad researcher community.

The Human Dimensions Kiosk is an electronic forum for rapid dissemination of human dimensions research (for further requests contact: Kiosk@ciesin.org (internet)).

4. Affiliated Monitoring Programme

N/A

5. Cooperation

The Global Student Village (GSV) is a project funded by CIESIN to assist NASA in disseminating the information derived from the Earth Observing System (EOS) during the Global Change Programme Era (1990-2001).

6. Contact person

CIESIN: Mr. Steve Wise, address see above, E-mail: steve.wise@ciesin.org (internet)

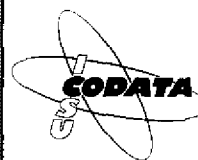
The Information Cooperative: Mr. Vincent J. Abreu, Director, Information Cooperation Program, CIESIN, address see above, E-mail: vabreu@ciesin.org (internet)

**COMMITTEE ON DATA FOR SCIENCE
AND TECHNOLOGY**

Ref. No. 2 6800
CODATA

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1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

CODATA is a scientific committee of the International Council of Scientific Unions (ICSU). It was implemented to address data quality and utilization on an international level. In this respect, CODATA was given several general objectives:

1. to improve data quality and accessibility, as well as the collection, management, and analysis methodology;
2. to facilitate international cooperation among those collecting, managing and using data; and
3. to promote an increased awareness in the scientific and technical community of the importance of these activities.

In order to address and achieve these objectives, CODATA initiated several projects, including:

1. coordinating multinational projects;
2. establishing format standards to promote compatibility of databases;
3. developing guidelines for the presentation of data in the primary literature;
4. training and educational programmes; and
5. organizing conferences and workshops.

3. Data and Information Management

Only recently CODATA has begun formally addressing environmental data in a comprehensive fashion. To date, it has been concerned with all types of quantitative data collected from a wide variety of monitoring sources and disciplines. The following is a list of current CODATA projects and a brief description of each:

1. **Chemical Thermodynamic Tables** - a standardized, computer based mechanism for the collaboration of thermodynamic data centres in five countries;
2. **Fundamental Physical Constants** - a task group of physics and metrology experts is responsible for maintaining this database of fundamental constants which are generally accepted; and
3. **Biological Macromolecules** - a project addressing the improved co-ordination of protein and DNA sequence data compiling institutions.
4. **Working Group on Access to Data** - a group charged by ICSU with examining and reporting on problems in freedom of access to scientific and technical data by the International Scientific community.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

CODATA cooperates extensively with a wide variety of organization including international scientific unions, UNESCO, OECD, EC, WHO, UNEP, and national scientific bodies.

6. Contact person

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Ms. P. Glaeser, Executive Director, address see above

**COORDINATION OF INFORMATION ON
THE ENVIRONMENT**

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CORINE

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1. Type of Programme

Intergovernmental; Data and Information Management, Coordination

2. Programme Objectives

CORINE was established in June 1985 by the European Community's Council of Ministers. It was given three main objectives:

1. gather information on the state of the environment, for use in priority Community applications;
2. coordinate national initiatives taken by Member States, and to improve information at the international level; and
3. ensure the consistency of nomenclatures, definitions, etc., as well as creating the conditions necessary to compare data.

All three objectives were intentionally seen as interdependent. Within this framework, there were defined a number of priority areas, including the protection of biotopes, combating local and transboundary air pollution and to preserve the environment of the Mediterranean region.

3. Data and Information Management

The CORINE Information System has three components:

1. projects (air pollution, biotopes, coastal erosion, land cover, marine environment, soil erosion/quality, and water resources);
2. data collected under EU Legislation; and
3. basic data required for analysis and presentation of results.

These components aim to provide the information requirements of the objectives. The associated data sets and information have been organized within two broad areas:

1. the compilation of environmental data and the development of a Geographical Information System (GIS) on the state of the environment in Europe; and
2. the improvement of consistency, comparability, and availability of environmental data. This is to be addressed by developing standards for the collection, handling and management of environmental data.

The essential component of this system is its integration. In other words, information from various sources must be made intercompatible. The ARC/INFO system contains modules which will allow the conversion between commonly used projections. Once fully developed, this system will be similar in nature to UNEP's Global Resource Information Database (GRID).

4. Affiliated Monitoring Programme

see EEA entry


5. Cooperation

CORINE cooperates extensively with other organizations and programmes. The following is a list, organized by environmental media, which shows some of the groups with whom CORINE cooperates:

Biotopes: Council of Europe
IUCN and others
Air: OECD air pollution inventory
EUROTRAC
IIASA and others
Marine: EUROMAR
OSPARCOM
ICES
MAP and others
Climate: WMO

6. Contact person

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<p>DESERTIFICATION INFORMATION SYSTEM</p> <p>INFORMATION AND DATABASE UNIT UNEP DESERTIFICATION CONTROL/PROGRAMME ACTIVITY CENTRE - UNEP DC/PAC P.O. BOX 30552 NAIROBI, KENYA</p> <p>Telephone: +254 2 623 280/623 836 Telefax: +254 2 215 615 E-Mail/Telex: N/A</p>	<p>Ref. No. 2 50160 DESIS</p> 
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1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

Since the adoption of the 1977 Plan of Action to Combat Desertification, efforts to address the problems of desertification have increased dramatically. As a result of increasing amounts of data from remote sensing and other monitoring activities, the UNEP Desertification Control (DC/PAC) has developed DESIS. DESIS is an information resource centre offering services encompassing agriculture, environmental degradation, food and natural resources within the context of desertification.

3. Data and Information Management

As part of its mandate, DESIS is developing and maintaining several databases including:

1. **Activities on Wind Effect and Techniques to Wind Erosion Control (ACWIND):** This database offers approximately 200 items encompassing climate, land use, soils and wind.
2. **Desertification Library (DELI):** This database was initiated in 1987 and currently contains over 1,200 items encompassing agriculture, desertification, environment, food and natural resources.
3. **Desertification Mailing List (MAIL):** This database currently contain over 3,000 items and is currently being developed as a referral service.
4. **Desertification Thesaurus (KEYS):** This database is currently being developed as a controlled vocabulary reference service.

5. **Directory of Organizations Dealing with Desertification Control and Dryland Development (DIOR):** This database was initiated in 1985 and developed as a referral service.
6. **Network of Researchers and Institutions Dealing with Wind Erosion (REWIND):** This database is currently being developed as a referral service.
7. **Query/Response Database (Q/R):** This database is currently in the planning stage and will function as a factual and referral service.
8. **UN Compendium on Dryland Development and Desertification Control Projects (PROCOM):** This Compendium was established in 1987 as a factual and full text database.
9. **UNEP Desertification Control Projects (DEPRO):** This database was established in 1987 and currently contains some 62 entries; it is continuously updated.
10. **Worldwide Documentation on Wind Erosion Control (BIWIND):** This database contains over 5,700 items, but is still considered in the developing stage of becoming a bibliographic service.

All databases are stored on Compaq 386 computers using CDS/ISIS software. Information is available to all UN institutions as well as to external users in most cases.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

DC/PAC cooperates extensively with organizations outside of UNEP. In particular, emphasis is placed on cooperating with institutions in Africa, including AMCEN.

6. Contact person

Mr. Zewdie Gebeyehu, address see above

**EUROPEAN CLIMATE COMPUTER
NETWORK**

Ref. No. 2 51730
ECCN

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1. Type of Programme

Intergovernmental; Data and Information Management

2. Programme Objectives

The first goal of the European Climate Computer Network (ECCN) is to enable and improve access to supercomputing resources for European climate researchers. The second goal is the coordination between the four participating climate computing centres: Deutsches Klimarechenzentrum, Hamburg; Hadly Centre, Bracknell; Institute Laplace, Paris; M teo France, Toulouse, for the exchange of model software and climate data. ECCN is financially supported by the Human Capital and Mobility Programme of the European Union.

3. Data and Information Management

The ECCN computing centres offer computing time and support on their Cray C-90 supercomputers, access to large climate data sets, usage of existing model codes, and specialized postprocessing equipment for approved users. The harmonization of model, data and software conventions between the four centres is attempted. Existing computer networks are made available to users.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

ECCN cooperates with the European Climate Support Network, Madrid, Spain, the Max-Planck-Institute for Meteorology, Hamburg, Germany and other climate researchers through current users of the computing centres.

6. Name of the contact person

Mr. Ruediger Jakob, Project Coordinator, address see above

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ENVIRONMENTAL DATA CENTRE

Ref. No. 2 6160

EDC

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1. Type of Programme

Intergovernmental; Data and Information Management

2. Programme Objectives

The EDC was established as a unit of the Finnish National Board of Waters and the Environment (NBWE) in 1988. Its steering is divided between the NBWE, the Finnish Ministry of the Environment, the UN ECE and the Nordic Council of Ministers. In particular, it has become an integral part of the UN ECE International Pilot Programme on Integrated Monitoring (IMP) (see ICPs entry, number 5 of the programme profile). In this regard, the EDC functions as the Central Integrated Monitoring Data Bank and Management System.

3. Data and Information Management

Data are collected by National Focal Centres (NFCs), who then send these to the EDC. Sampling, analysis and reporting are done according to manuals prepared by the EDC. Consequently, quality assurance can be controlled to a great extent. The responsibility for data quality lies primarily with the NFC. The importance in the EDC is its work for the development and maintenance of uniform and centralized data bases. As such, it provides the basis for an integrated network of nationally collected data.

The EDC has access to an extensive network of computer hardware and software. This is provided by NBWE resources, other Finnish sources as well as international ones. These form an integral part of the EDC's modelling, GIS, Remote Sensing and other computerized information management system capabilities.

4. Affiliated Monitoring Programme

see International Cooperative Programmes (ICPs) entry

5. Cooperation

Although established nationally, the EDC is primarily engaged in work international in scope. Not only does it function as part of the UN ECE ICPs, but the EDC also collects data for the UNEP GRID network.

6. Contact person

Mr. Guy Soedermann, address see above

**ENVIRONMENTAL INFORMATION SYSTEM
NETWORK FOR SUB-SAHARAN AFRICA**

Ref. No. 2 50960
EIS

**THE WORLD BANK EIS PROGRAM SECRETARIAT
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1. Type of Programme

International multi-donor; Coordination

2. Programme Objectives

In 1990 the World Bank (WB) initiated the multi-donor Programme on Environment Information Systems in conjunction with other donors and international agencies.

The aim of the Programme on Environment Information Systems (EIS) in Sub-Saharan Africa is to help Sub-Saharan African countries to set up operational environment information systems (EIS), to meet the priority demands of resource users, planners and decision-makers for better renewable resource management. The work of the programme falls under the auspices of the National Environmental Action Plans (NEAPs) processes. The programme provides the framework for:

1. an assessment of the environmental information requirements/priorities of resources users, planners and managers at local, district and national levels;
2. an assessment of the current situation of the country and in particular an analysis of the issues the country faces in renewable resource information management and the gap between priority information demand and current supply;
3. the elaboration of a long-term strategy (15-20 years) to establish a national environment information system;
4. the identification of low-cost interventions to be implemented in the short term;

5. the preparation of the first investment segment (possibly 5 years) to implement the long-term strategy; and
6. the provision of help to relevant national institutions to initiate implementation under adequate financing.

3. Data and Information Management

The Programme on Environment Information Systems (EIS), hosted at the Environmentally Sustainable Development Division (AFTES) within the World Bank's Africa Technical Department, will act as an information clearinghouse on environment information systems, their activities and trends in Sub-Saharan Africa.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

Several bilateral and multilateral agencies, e.g. UNEP GEMS, UNITAR, and including the World Bank are supporting the programme in sharing relevant information and funding.

6. Contact person

Mr. Koffi Kouakou, EIS Programme Secretariat, address see above

**ENVIRONMENTAL LAW INFORMATION
SYSTEM**

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ELIS

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1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

In accordance with the IUCN's Environmental Law Programme, ELIS was established to provide information on existing legal instruments and literature on both national and international levels. Specifically, ELIS is a bibliographic and factual data and information system. The broad subject categories included in ELIS are: soils, water and seas, hazardous substances and wastes, noise, fauna and flora, protected areas, hunting and fishing, forestry, land-use and planning as well as other related information. Currently, ELIS contains:

1. 35,035 laws and other legal documents;
2. 42,420 literature references;
3. 492 supranational legal documents (e.g. EU Guide-lines);
4. 1,006 international treaties and agreements;
5. 11,726 fauna species; and
6. 3,667 floral species.

This collection has an annual growth rate of approximately 5000 documents. Information is primarily from and regarding European environmental activities.

3. Data and Information Management

Currently, ELIS databases are operated on an IBM/38 mainframe using Romulus software developed specifically for ELIS. ELIS is not yet available on an on-line basis. Information, however, will be retrieved by IUCN upon demand for a minimum base price of 50 Deutsche Mark. Keyword and

descriptor searches can be carried out by IUCN in English, French, German, Spanish, Italian, Dutch and Danish.

4. Affiliated Monitoring Programme

The Environmental Law Programme is not involved in actual environmental monitoring or research, but monitors and coordinates legal activities related to the environment.

5. Cooperation

The Environmental Law Programme is supported by institutions including the Karl Schmitz-Scholl Fond, the Swedish International Development Authority, the Royal Norwegian Ministry of Development Cooperation, the Finnish International Development Agency, Germany, and the EU.

6. Contact person

No name supplied.

ENVIRONMENTAL INFORMATION SYSTEM	Ref. No. 2 25010
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1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

In September 1987, the Environmental Operations and Strategy Division (ENVOS) of the World Bank (WB) began developing ENVIS. The main objective was to provide WB staff with a central source of environmental information and tool for environment related analysis, project design and policy development work. ENVIS was designed with three components:

1. **Project Monitoring and Tracking System** which provides access to project-related information;
2. **Country Module:** This component of ENVIS has two important sub-modules:
 - i. the **Protected Areas Sub-Module (CMCP):** information for this database was provided by the WCMC's Protected Areas Database.
 - ii. the **Environmental Legislation Sub-Module (EMC1)** is only in the preliminary stages, but will incorporate the Environmental Law Centre's (ELC) Environmental Law Information System (ELIS) in much the same way as the Protected Areas Database is being incorporated;
3. **Environmental and Economic Bibliography:** this database provides information on reports and studies carried out by the World Bank, but are not considered project documents.

3. Data and Information Management

The ENVIS system functions using an IBM computer system. The software used in ENVIS is the **Storage and Information Retrieval System (STAIRS)**. STAIRS is also provided by IBM Corp.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

As stated above, ENVOS cooperates with and receives information from WCMC and the ELC in implementing ENVIS.

6. Contact person

No name supplied.

**EARTH OBSERVING SYSTEM
DATA AND INFORMATION SYSTEM**

Ref. No. 2 50970
EOSDIS

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1. Type of Programme

Governmental; Data and Information Management

2. Programme Objectives

EOSDIS has been developed to manage the data resulting from NASA's Earth science research satellites and field measurement programmes, and other data that are essential for the interpretation of these measurements. It will also provide access to data held in the archives of other government agencies, organizations, and countries. EOSDIS will encourage interdisciplinary research and offer an integrated view of existing environmental data.

EOSDIS is a key component of the US Global Change Research Program (USGCRP) and NASA's portion of the Global Change Data and Information System (GCDIS).

The activities and services carried out by EOSDIS follow the recommendations of various interagency and international groups, including the Working Group on Data of the Committee on Earth Observation Satellites (CEOS).

3. Data and Information Management

EOSDIS services cover data archiving, distribution, and information management. For EOS satellites, EOSDIS will also provide data product generation and command and control functions. For non-NASA satellites, EOSDIS will provide access to the archives and distribution systems of the responsible agencies. EOSDIS will provide analyzed data sets generated by assimilation of applicable observations into global climate models.

It builds on existing discipline-specific Earth science data centers and data systems. The pre-existing data systems that formed the starting point for the initial or Version 0 EOSDIS are NASA Climate Data System (NCDS); NASA Ocean Data System (NODS); Cryospheric Data Management System (CDMS); Alaska Synthetic Aperture Radar (SAR) Facility (ASF); Global Land Information System (GLIS); NASA Pilot Land Data System (PLDS); NASA Crustal Dynamics Data Information System (CDDIS); Trace Gas Dynamics Data Information System (TGDDIS).

The scientific community can acquire data and information from EOSDIS through nine Distributed Active Archive Centers (DAACs) with specific areas of interest. These are:

1. Godard Space Flight Center (GSFC): climate, meteorology, stratosphere, ocean biology and geophysics; AVHRR and TOVS pathfinder data sets
2. Langley Research Center (LaRC): clouds, radiation, aerosols, and tropospheric chemistry
3. EROS Data Center (EROS EDC): land processes (see EROS entry)
4. University of Alaska-Fairbanks (UAF): SAR imagery of ice, snow, and sea surface
5. University of Colorado (CU): polar oceans and ice
6. Jet Propulsion Laboratory (JPL): physical oceanography
7. Marshall Space Flight Center (MSFC): hydrologic cycle; SSM/I pathfinder data sets
8. Oak Ridge National Laboratory (ORNL): trace gas fluxes
9. CIRESIN Data and Research Center (CDRC): human dimensions of global change and policy making applications; socio-economic data

4. Affiliated Monitoring Programme

EOSDIS is the data system for NASA's Mission to Planet Earth, which includes the Earth Observing System (EOS).

5. Cooperation

As part of the USGCRP EOSDIS cooperates with the agency partners NASA, the National Oceanic and Atmospheric Administration (NOAA), the Department of Defense (DOD), the Department of Energy (DOE), the Department of Interior (DOI), the US Environment and Protection Agency (US EPA), the National Science Foundation (NSF), the US Department of Agriculture (USDA), the Health and Human Services (HHS), the Smithsonian Institution and the Tennessee Valley Authority. NOAA, USGS, and DOE have responsibility for the long-term archival of EOSDIS data once these are three years old.

NASA's EOS Programme and EOSDIS are part of a large international endeavour. The Earth Observations International Coordination Working Group (EO-ICWG) is the forum in which the international partners discuss, plan, and negotiate the cooperation essential for the success of the International Earth Observing System (IEOS). The Committee on Earth Observation Satellites (CEOS) provides a forum for cooperation among agencies with Earth observations satellite programmes. Both EO-ICWG and CEOS are supported by the CEOS Working Group on Data on key data-related issues. These issues include negotiation of international data format standards applicable to Earth observations data, implementation of an international directory network, and demonstrations of data exchange using commercially available networks in support of collaborative research projects.

6. Contact person

Mr. Dixon Butler, NASA Headquarter, address see above

**US GEOLOGICAL SURVEY
EARTH RESOURCES OBSERVATION
SYSTEMS**

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Ref. No. 2 50980
EROS

1. Type of Programme

Governmental; Data and Information Management

2. Programme Objectives

The Earth Resources Observation Systems (EROS) Data Center (EDC) is a data management, information systems development, and research field centre of the US Geological Survey (USGS). Through agreements between NASA and USGS, the Data Center will be one of nine DAAC's (Distributed Active Archive Center) in the Earth Observing System Data and Information System (EOSDIS) network and will be responsible for archiving, processing and disseminating EOS data related to land processes.

EROS EDC has been operating since the early 1970's. In 1987, the capability was established to receive and process Advanced Very High Resolution Radiometer (AVHRR) data from the National Oceanic and Atmospheric Administration (NOAA) polar orbiting meteorological satellites. The capability was expanded in 1990 to receive tape recorded AVHRR data.

3. Data and Information Management

The Data Center develops and operates advanced systems for receiving, archiving, processing and distributing earth observations data acquired from satellites, aircraft, and other information gathering systems. These data include photographic and digital remotely sensed data of Earth's surface, and digital Earth science data and cartographic and geographic information.

In addition to data stored at the Center, users are provided with information about, and access to, data held by other earth science data facilities.

The Data Center is further responding to the new data management objectives of the US Global Change Research Programme and National Aeronautics and Space Administration (NASA) Earth Observing System (EOS) programme by developing

1. satellited data conversion and preservation techniques;
2. information management systems that provide rapid on-line access to catalogues, indexes, and data and electronic transmission of data and information to customers;
3. advanced systems for data archiving, retrieval, processing and distribution; and
4. land data products.

In 1991, EROS EDC implemented the USGS **Global Land Information System (GLIS)**, which is an on-line land data directory, guide and inventory system that provides Earth science data users access to the remote sensing, cartographic, hydrologic, geologic data, and information programmes maintained by the USGS.

4. Affiliated Monitoring Programme

EDC's activities are primarily directed by USGS, NASA, and US Agency for International Development.

5. Cooperation

Participation in international data management activities, such as the United Nations Environmental Programme/Global Resource Information Database (UNEP/GRID), the International Geosphere-Biosphere Programme (IGBP), and the International Space Year (ISY).

6. Contact person

Ms. Donna K. Scholz, Program Manager, Information and Data Services, address see above

**FLOW REGIMES FROM INTERNATIONAL
EXPERIMENTAL AND NETWORK DATA**

Ref. No. 2 50990
FRIEND

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1. Type of Programme

International non-governmental; Research

2. Programme Objectives

The FRIEND (Flow Regimes from International Experimental and Network Data) research programme is an international collaborative study into regional hydrology in northern Europe. The primary objective of the project is to improve the understanding of hydrological variability in time and space in order to develop hydrological science and practical design methods. The project is of interest to research hydrologists, practising engineers (involved in hydrological design of extreme events) and water resource planners (concerned with natural and artificially influenced flow regimes). The results of the project have a number of practical applications, such as: river abstraction schemes; dilution of effluent; stream ecology; flood alleviation schemes; hydropower schemes; culvert, bridge and reservoir design. FRIEND research also contributes to the understanding of the processes that effect global climate change.

3. Data and Information Management

Central to the FRIEND project is the European Water Archive - an international hydrological database containing time series data (gauged river flow data) and spatial data for over 4200 catchments in northern and western Europe.

4. Affiliated Monitoring Programme

FRIEND is a major contribution to UNESCO's fourth International Hydrological Programme and was recently nominated Project 1.1 for the next phase of IHP, IHP V.

5. Cooperation

FRIEND was founded at the Institute of Hydrology in 1985 to pool the knowledge and research activities of scientists across Europe in order to understand the regional characteristics of hydrological behaviour. Initially involving the collaborative efforts of scientists from Belgium, Germany, Finland, the Netherlands, Norway and the United Kingdom, the project has since grown considerably and now involves the participation of researchers from over 50 organizations in 20 European countries. Other FRIEND initiatives have been set up in the Mediterranean region (AMHY), Southern Africa, and Western and Central Africa. Further interest has also been shown in South East Asia, the Hindukush Himalayan region and South America. The project has close links with the World Meteorological Organization (WMO), the European Environment Agency Task Force, the European Network of Experimental and Representative Basins (ERB) and the United Nations Environment Programme Global Resources Information Database (UNEP/GRID).

6. Name of the contact person

Mr. Alan Gustard, Coordinator, address see above

Mr. Gwyn Rees, Technical Secretary, address see above

GLOBAL DATABASE PLANNING PROJECT

Ref. No. 2 4450
GDPP

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1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

In 1988, the International Geographical Union (IGU) started a Global Database Planning Project (GDPP). It was initiated with the intention that it become one of the IGU's contributions to ICSU's International Geosphere-Biosphere Programme (IGBP). At its first meeting, the GDPP formed six Study Groups (SG):

1. SG on a Global Digital Database Directory;
2. SG on Effects of Spatial Data Errors on Global Models;
3. SG on Legal and Institutional Aspects of Global Database Development;
4. SG on Global Socio-Economic Databases;
5. SG on Long-Term Global Geographical Information System (GIS) Objectives; and
6. SG on Global GIS Data Interchange.

3. Data and Information Management

As the GDPP is seen as one of IGU's contributions to the IGBP, emphasis is being placed on assisting in the use of both spatial and temporal geographical data. Thus, GDPP is looking at the various issues related to the creation of an integrated, multi-disciplinary, and comprehensive database. The specific topic under study is planned to be global digital databases containing geographically referenced earth descriptive data. These data will represent the vertical bounds between the ozone layer and the Mohorovicic Discontinuity.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

Not only will GDPP provide ICSU's IGBP with information, but cooperative efforts are also being discussed with CORINE in the areas of data processing.

6. Contact person

Dr. Roger F. Tomlinson, Chairman, address see above

GLOBAL ECOSYSTEMS DATABASE

Ref. No. 2 51550

GED

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1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

In 1988, the International Geosphere-Biosphere Programme's (IGBP) Scientific Advisory Council recommended a multi-thematic database project to fulfil the need for a wide exchange, availability and usability of existing data for global change studies. Three primary goals of this project within the IGBP are:

1. to provide a wide operational test of a pilot database and concepts for its implementation and use in global change related studies;
2. to encourage compatibility and exchange among data development efforts; and
3. to involve a wide cross-section of worldwide scientists in data management for global change.

3. Data and Information Management

A database has been established on CD-ROM with support from US EPA and several international and national organizations .

The first release of the database was focused on Africa and contained data developed for desertification assessment (the UNEP/FAO Desertification database) by the Environmental Systems Research Institute Inc. (ESRI) and made available through UNEP/GRID.

4. Affiliated Monitoring Programme

N/A


5. Cooperation

A collaborative effort between the World Data Center-A and UNEP/GRID took place in 1989 to incorporate the UNEP/FAO Desertification database produced in 1984 by ESRI.

This multi-thematic project can be understood as a joint effort of UNEP/FAO, UNEP/GRID, UNEP/UNITAR, World Data Center-A (WDC-A), the National Geophysical Data Center (NGDC) of the National Oceanic and Atmospheric Administration (NOAA), US EPA and ESRI, under the international coordination of the ICSU Panel on World Data Centres.

6. Contact person

No name supplied.

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1. Type of Programme

Governmental; Coordination

2. Programme Objectives

The UK Global Environmental Research (GER) Office was established in 1990 jointly by the five UK Research Councils. The basic objective is to increase information flow and exchange and to act as a UK focal point for interests and activities in global environmental research. The work carried out by the UK GER Office reflects the interdisciplinary approach required to address the many problems and the extent to which the issues cross traditional scientific disciplines within the natural and social sciences. The issues covered by global environmental research include both processes that are truly global and local and regional problems which occur on a world-wide scale.

3. Data and Information Management

The UK GER Office acts as a focal point for flow and exchange of information on UK and international science and policy developments and as a contact point for equivalent offices in other countries. The UK GER Office publishes many documents including: an 'International Directory of Global Environmental Research' and maintains a database of UK GER which is widely accessible.

4. Affiliated Monitoring Programme

The UK GER Office provides the Secretariat for the UK Inter-Agency Committee on Global Environmental Change (IACGEC) whose membership includes representatives from the Department of the Environment, the

Meteorological Office and the British National Space Centre as well as the five UK Research Councils.

5. Cooperation

Cooperative efforts are based on delegating research activities to academic institutions, government research establishments, industry and non-governmental organizations.

6. Contact person

Mr. David A. Brown, Head of the UK GER Office, address see above

**GLOBAL ASSESSMENT OF SOIL
DEGRADATION
WORLD SOILS AND TERRAIN DIGITAL
DATABASE**

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Ref. No. 2 51010

**GLASOD
SOTER**



ISRIC

1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

Strengthening the awareness of policy-makers and decision-makers on the dangers resulting from inappropriate land and soil management, resulting in a Global Assessment of Soil Degradation (GLASOD). Developing the national capability of soil research institutions to provide accurate, up-to-date geo-referenced soil and terrain information, leading to the development of a World Soils and Terrain Digital Database (SOTER).

3. Data and Information Management

Under the leadership of the International Soil Reference and Information Centre (ISRIC) and in close cooperation with UNEP, FAO and the International Society of Soil Science (ISSS), and national soil scientists world-wide, a World Map on the Status of Human-induced Soil Degradation was prepared between 1988 and 1990 and officially published in October 1990 and distributed by ISRIC and UNEP. A digitized version of this GLASOD map was prepared by ISRIC and is available on request at UNEP GRID.

In May 1992, UNEP, in collaboration with some national and international institutions, published a World Atlas of Desertification. Data from GLASOD were used in the preparation of the global and continental portions of the Atlas.

Though GLASOD provides a first approximation of the Status of Human-induced Soil Degradation which is qualitative in nature, there is need for a better and more quantitative and scientifically acceptable assessment. this can

be achieved through the implementation of SOTER. When this is completed it will be possible to make accurate assessments of soil degradation and its impact on land productivity at the national and regional levels, including socio-economic aspects.

The methodology for the implementation of global and national Soils and Terrain Digital Databases (SOTER) is described in the Procedures Manual: a joint UNEP/ISSS/ISRIC/FAO publication, issued in English and Spanish in 1993. The methodology has been tested in two pilot areas, covering portions of Argentina, Brazil, Uruguay providing data for the database LASOTER, and portions of Canada, USA providing data for the database NASOTER. To date SOTER databases are being prepared for Kenya, Uruguay and major portions of Argentina at scale 1:1 million, for Hungary at scale 1:500,00. In addition, the SOTER methodology is also tested at scale 1:100,00 in specific regions in Uruguay and Argentina. Under a joint UNEP/FAO/ISRIC activity a continental SOTER database is being implemented for Latin America at scale 1:5 million. Areas for future implementation of SOTER are: China, Russian Federation, Indonesia, West Africa.

A first version of the SOTER Water Erosion Assessment Programme (SWEAP), a computer programme to run the universal soil loss equation and the soil loss estimation model for Southern Africa with data from the SOTER database, is at present in its testing phase.

4. Affiliated Monitoring Programme

GLASOD/SOTER is carried out under the auspices of UNEP. FAO, ISRIC and the International Soil Science Society (ISSS) are involved in the evaluation of the implementation and the database.

5. Cooperation

Many types of organizations will be used by UNEP as contractors to carry out case studies or to identify organizations capable of doing it. Among them are the World Association of Soil and Water Conservation (WASWC), the Subcommittee on Salt Affected Soils of ISSS, FAO, internationally connected national research institutes having international contacts, and experienced NGOs.

6. Contact person

Mr. L. Roal Oldeman, Project Director, address see above

**GLOBAL NETWORK ISOTOPES IN
PRECIPITATION**

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Ref. No. 2 50110
GNIP



1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

In 1958 the Global Network Isotopes In Precipitation was initiated by the IAEA in collaboration with WMO. In 1977, it was extended to fit within the framework of UNEP's Global Environment Monitoring System (GEMS). The initial objective of the programme was to collect systematic data on isotope content of precipitation on a global scale. In 1993, 49 Network stations were in operation, while another 120 nationally implemented stations contributed data.

3. Data and Information Management

Data are collected on a monthly basis for the tritium, deuterium and ^{18}O contents of precipitation samples collected by participating national stations. Samples are evaluated directly at the IAEA Section of Isotope Hydrology laboratory facilities in Vienna. Detailed technical procedures to be followed by individual sampling stations for the collection and shipment of samples and a standardized data reporting format were introduced from the beginning of the network's operation. This allows a comprehensive statistical evaluation of the data, which in turn secures good data quality. In addition, regular intercomparisons among the national laboratories are organized by the IAEA.

To manage the information, a system of four components was developed:

1. **Station Data:** To identify stations and related information, the Network uses a system of index numbers. Although slight variances exist, the same is used as was developed by the WMO to identify its stations.
2. **Meteorological Data:** The great majority of data are collected monthly or annually. The data are sub-categorised into amount of precipitation, type of precipitation, vapour pressure, and temperature.
3. **Sampling/Analysis Information:** This includes the date of sampling; the concentrations of tritium, deuterium and ^{18}O and the laboratory code (sampling station identification)
4. **Calculations:** Further calculations of the samples are conducted including the sums and means of the precipitation and vapour pressure. Weighted annual means of Tritium, Deuterium and ^{18}O are also calculated.

The isotope and meteorological data are published regularly in the form of data books and are also available in digitized form on floppy disks.

Network data are useful for global and/or regional scale atmospheric circulation models; which in turn should improve the actual understanding of the mechanisms controlling present climatic conditions and future trends.

4. Affiliated Monitoring Programme

For more information see Global Network Isotopes in Precipitation monitoring programme entry.

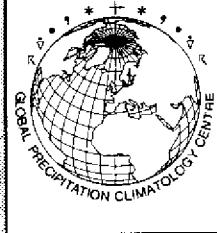
5. Cooperation

For more information see Global Network Isotopes in Precipitation monitoring programme entry.

6. Name of the contact person

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Mr. L. Araguás Araguás, address see above, Tel.: +43 1 2360 1733

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1. Type of Programme

Governmental; Monitoring and Assessment

2. Programme Objectives

The Global Precipitation Climatology Centre was initiated by WMO and established by the German Federal Government at the German Weather Service in 1988 as a contribution to the World Climate Research Programme (WCRP). The main task of the centre is the regular evaluation of global monthly precipitation totals on a latitude by longitude grid of 2.5 degrees. At present it is in a 'trial operational phase'. Routine operation will start in 1995.

3. Data and Information Management

Data from different sources are collated to construct the gridded global monthly precipitation fields:

- rain gauge data from a total of 30,000 stations on land; and
- remote sensing IR and microwave data from several meteorological satellites.

Where no other data are available, e.g. polar regions, theoretical results of numerical weather prediction models are used.

The rain gauge data are collected through the World Weather Watch (WWW) Global Telecommunication System (GTS), and complemented by data obtained from bilateral contacts. The final data products are supplied to the World Data Centers (WDCs) for Meteorology.

Areal mean monthly precipitation data on the large-scale grid are published and disseminated on diskettes to the WMO and to the data delivering countries and institutions. The original data delivered to GPCC are not be sent to other users so that national interests are protected.

4. Affiliated Monitoring Programme

GPCC is a central element of the Global Precipitation Climatology Project (GPCP) which is a part of the Global Energy and Water Cycle Experiment (GEWEX) of the World Climate Research Programme (WCRP).

In future, the GPCC will also contribute to the Global Climate Observing System (GCOS).

5. Cooperation

The GPCC cooperates world-wide with other precipitation related projects and with the Global Runoff Data Centre (GRDC).

6. Name of the contact person

Mr. Bruno Rudolf, Programme Manager, address see above

GLOBAL RUNOFF DATA CENTRE

Ref. No. 2 10900
GRDC

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1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

GRDC was initiated in May 1987 by the German Federal Ministry of Research and Technology (BMFT) at the German Federal Institute of Hydrology (BfG) on behalf of WMO and UNESCO. Currently, datasets for both WMO and UNESCO are being managed by GRDC.

As part of their Global Atmospheric Research Programme (GARP), ICSU and WMO first established a runoff database. This was later included as part of the World Climate Programme (WCP) Water Programme. The database was given two components:

1. to collect world-wide runoff data; and
2. to develop a spatial grid system for hydrological measurements.

Data were collected on the basis of two questionnaires (Aug. 1982, June 1984). In total 1200 laboratories from 67 countries contributed data representing a time period from 1978 to 1983. Unfortunately, contributions were not sent from several regions causing gaps in the data. Currently an expansion of the database is foreseen by researching documents for relevant data and using UNESCO data.

UNESCO's database was established as part of the International Hydrological Decade (IHD, 1965-74). This data set represents data from 860 stations in 106 countries for a period from ca. 1900 to 1965. Results were published as part of the series 'Studies and Reports in Hydrology' with the title 'Discharge of

Selected Rivers of the World'. Work is underway to publish data up until 1984. The ultimate goal will be to publish up-to-date data from all the major rivers in the world.

3. Data and Information Management

The two programmes have data representing different collection techniques. WMO's WCP-Water project 'Analysis of Long Time Series of Hydrological Data' collected data which represented daily flow values, whereas IHD data represent weekly flow rates. Data for WMO had to be collected according to guidelines which included that the water way was relatively untouched and that the flow system was representative of the region. Data are thus collected on an individual river basis. The data for the IHD project were more regional in character as monitoring was done at river mouths.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

As a cooperative effort between WMO and UNESCO, GRDC receives information gathered by both organization's programmes. Ultimately, this will allow it to bring together data and information from a wide variety of programmes and initiatives. GRDC also cooperates with the Global Precipitation Climatology Centre (GPCC).

6. Contact person

No name supplied.

**GLOBAL RESOURCE INFORMATION
DATABASE**

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Ref. No. 2 15780

GRID



UNEP

1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

GRID was established as part of the Global Environment Monitoring System (GEMS) network after the 1972 UN Stockholm Conference on the Human Environment. GRID aims to collect and disseminate the most advanced information available on the state of natural resources world-wide.

GRID's long-term objectives are threefold: 1) to enhance availability and open exchange of global and regional environmental geo-referenced data sets, 2) to provide UN and intergovernmental bodies with access to improved environmental data management technologies, and 3) to enable all countries in the world to make use of GRID-compatible technology for national environmental assessment and management.

In order to better collect, manage and disseminate datasets and other information, GRID has established a series of Nodes. At the moment Nodes exist, in 1. Nairobi, Kenya, 2. Geneva, Switzerland, 3. Bangkok, Thailand, 4. Arendal, Norway, 5. Warsaw, Poland, 6. Sioux Falls, USA, 7. Ottawa, Canada, 8. Sao José dos Campos, Brasil, 9. Tsukuba, Japan, 10. Kathmandu, Nepal, 11. Copenhagen, Denmark. Together these centres form an interconnected network for data management and exchange.

3. Data and Information Management

The information GRID holds consists of environmental geo-referenced data sets contributed by various sources. All the data are stored in the form of Geographic Information Systems (GIS). GRID can be used then to locate digital environmental maps within a given region. GRID maintains in computer-accessible format a distributed global archive containing environmental data for use by analysts addressing environmental issues. The complete catalogue of distributable data sets includes thousands of entries and is constantly being updated.

Some of GRID's services are: 1. Digital Data Distribution; 2. References to data not held by GRID; 3. Information products which include various reports and publications on case studies, applications etc.; and 4. Project support (for specific selected activities).

4. Affiliated Monitoring Programme

For details see individual GEMS monitoring programme entries.

5. Cooperation

GRID-Nairobi and GRID-Geneva are the only two UNEP funded centres, other centres are established at cooperating institutions and provide expertise to assist in regional problems or thematic areas. Cooperating centres are among others ICIMOD, Nepal (see entry); SPREP; the Asian Institute of Technology (AIT) in Bangkok, Thailand; NIES (see entry); the Indian Ocean Committee; EROS Data Center (see entry); NASA; the Instituto de Pesquisas Espaciais (INPE) (the Brazilian Space Agency); and the Canada Center for Remote Sensing (CCRS).

6. Contact person

Ms. Laura Meszaros

**INTERNATIONAL CLEANER PRODUCTION
INFORMATION
CLEARINGHOUSE**

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Ref. No. 2 6990
ICPIC



1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

ICPIC is an electronic International Information Exchange Clearinghouse. It is one activity of the UNEP IE/PAC Cleaner Production Programme. As background, the Cleaner Production Programme was established in 1989 to increase world-wide awareness of cleaner production - a preventive environmental protection strategy - and to help governments and industry adopt cleaner production as a counter point to the traditional, reactive end-of-pipe pollution control approach. In addition to ICPIC, the Programme contains three elements:

1. **Publications** including the Cleaner Production newsletter, technical guides and others such as **Cleaner Production World-wide**, which provides examples of cleaner production applications from around the world.
2. **Training and Technical Assistance** (workshops and seminars) for government, industry and academia to increase awareness, to educate people, and to help developing cleaner production programmes.
3. **Working Groups** providing input on the direction of the Cleaner Production Programme, facilitating the collection and dissemination of information, and reviewing its ongoing activities. Specific industry sector working groups are leather tanning, cleaner products, textiles, solvents, metal finishing, pulp and paper, and biotechnology. Other working groups include education and policies, strategies, and instruments.

The programme objectives of the Cleaner Production Programme are:

- to increase world-wide awareness of the cleaner production concept;
- to help governments and industry develop cleaner production programmes;
- to foster the adoption of cleaner production; and
- to facilitate the transfer of cleaner production technologies.

3. Data and Information Management

ICPIC is an electronic system accessible to anyone with a personal computer, a modem communication software, and access to a telephone line. There is no cost for using the system. The only cost is the price of the telephone call to connect with the system.

ICPIC contains:

- a message centre, for communication amongst all users;
- bulletins, which contain news about cleaner production activities world-wide;
- a calendar of events, which contains information on events, workshops and seminars;
- a case study database with over 1100 case studies that highlight the industry and wastes involved, economic incentives, and cost recovery time;
- a bibliographic database, with hundreds of document abstracts; and
- contact databases with names of experts and how to contact them world-wide.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

ICPIC was established in conjunction with the United States Environment Protection Agency (US EPA). Assistance in collecting information for the system and disseminating information about the system has been provided by:

Governments: Australia, Austria, Denmark, Finland, France,
The Netherlands, Norway, Sweden, The United
Kingdom, The United States, The European Union

Organizations: UNSCTD, UNIDO, IMO, OECD, UN ECE, ICC

6. Contact person

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**DATA AND INFORMATION SYSTEM
for the INTERNATIONAL GEOSPHERE-
BIOSPHERE PROGRAMME**

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Ref. No. 2 50001
IGBP-DIS

GLOBAL
I G B P
CHANGE

1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

IGBP is based on coupling observations over a range of spatial and temporal scales through studies and developing models, to understand and eventually predict global change. To understand Earth system processes, geographically referenced models and datasets must be developed to permit the integrated use of various types of data and information. Moreover, methods and protocols for managing large volumes of data must also be developed.

3. Data and Information Management

After the initial implementation phase is over in 1992, IGBP has installed the DIS facility at the University of Paris.

IGBP-DIS assists, as needed, IGBP Core Projects in the development of their individual data system plans; helps to provide an overall data system plan for IGBP; carries out activities directly leading to the generation of data sets; ensures the development of effective data management systems and acts, where appropriate, to ensure the meeting of the data and information needs of IGBP through international and national organizations and agencies.

4. Affiliated Monitoring Programme

see IGBP monitoring programme entry

5. Cooperation

Cooperative efforts have been proposed between IGBP-DIS and other appropriate data systems operating within ICSU, such as the WDC system, WDDIS, IGU, etc. as well as with such UN activities as UNEP/GRID, WMO, UNESCO IOC and the proposed ISSS/UNEP World Soils and Terrain Database (SOTER) (see GLASOD SOTER entry).

Regarding more specific issues cooperation has been suggested with other institutions including SAFISY and NASA for remote sensing data on Land-Cover Change; with GRID/UNITAR regarding training and education; and with NASA (Master Directory) and NOAA on GEDD.

6. Contact person

Mr. Ludovic Andres, address see above

**HYDROLOGICAL INFORMATION
REFERRAL SERVICE**

**Ref. No. 2 50180
INFOHYDRO**

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E-Mail/Telex: N/A

1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

INFOHYDRO was established to disseminate information on several fields including:

1. national and international, governmental and non-governmental organizations, institutions, and agencies dealing with hydrology and their activities;
2. principal river and lake basins of the world;
3. networks of national hydrological observing stations and related information about size, number of stations, duration of records, etc.; and
4. national hydrological data bases and their activities related to the collection, processing and archiving of data.

3. Data and Information Management

INFOHYDRO does not collect or manage actual hydrological data. It was designed to facilitate the prompt dissemination of continually updated hydrological information. The information for this INFOHYDRO is collected by means of questionnaires and published information available through the UN system. Updating and revision of the information is conducted by the contributors themselves.

As a computerized service, INFOHYDRO is expecting to develop into an on-line service, which will be made available to members and other users.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

INFOHYDRO cooperates primarily with WMO Member Countries in completing and verifying the updated information. In future, emphasis will be placed on collecting information through WMO channels, such as WMO experts' reports, mission statements, the WMO Commission for Hydrology, working groups on hydrology and WMO regional associations.

6. Contact person

No name supplied.

**INTERNATIONAL ENVIRONMENTAL
INFORMATION SYSTEM**

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Ref. No. 2 15680
INFOTERRA



UNEP

1. Type of Programme

United Nations; Global Environmental Information Exchange Network

2. Programme Objectives

INFOTERRA was established by UNEP in 1972 in order to identify and aid in the exchange sources of environmental information and expertise. It was established as a decentralized world-wide network of information storage and dissemination facilities. These are primarily independent **National Focal Centres (NFCs)** whose activities are coordinated by the INFOTERRA Programme Activity Centre. Currently, approximately 166 countries have designated NFCs within their borders. In addition, INFOTERRA has contracted approximately 34 institutions, including IRPTC and the IUCN's Environmental Law Centre (ELC, see ELIS entry), to act as **Special Sectoral Sources**. These would respond to queries related to their specific areas of expertise. In order to facilitate regular demands for information **Regional Service Centres** have been established in Australia, India, Morocco, Chile, Austria, USA, Venezuela and Cairo.

3. Data and Information Management

The type of data being managed by INFOTERRA is extremely broad. Consequently, management procedures and quality considerations will vary from dataset to dataset, and from storage centre to centre. Information, however, is made readily available through variety of means. These include regular publications such as International Directory of Sources and the World Directory of Environmental Expertise.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

INFOTERRA cooperates extensively with other institutions in the area of information exchange. This is seen in its extensive network of NFCs and Regional Service Centres. It also cooperates with the UN Information Systems Coordination Committee (ISCC), the successor of the Advisory Committee for the Coordination of Information Systems (ACCIS) (see ISCC entry).

6. Contact person

Ms. Linda Spencer, Acting Director, address see above

**INTERNATIONAL ENVIRONMENTAL AND
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**Ref. No. 2 50190
INTERAISE**

IIED

**INTERNATIONAL
INSTITUTE FOR
ENVIRONMENT AND
DEVELOPMENT**

1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

INTERAISE commenced in May 1990 as a joint effort between the International Institute for Environment and Development (IIED), the World Conservation Union (IUCN) and the World Resources Institute (WRI). The first phase of the project's goals included the identification and location of key national environmental and natural resource assessment documents and the dissemination of this information to those who need it in the development aid community as well as developing nations. In the second phase of the project, INTERAISE seeks to contribute towards institutional capacity building by delivering available information and strengthening institutional links within developing countries.

3. Data and Information Management

To make the information which it has collected useful, INTERAISE has established several services including:

1. a biannual Directory of environmental and natural resource assessments based on a computerized database and published as a printed bibliography and companion diskette.
2. libraries holding hard copies of national environmental studies as IIED, IUCN, WRI as well as at the offices of the Australian International Development Assistance Bureau (AIDAB);
3. an information service to facilitate the processing of requests for information and referrals concerning resource documents (documents

are supplied free to bona fide requests from developing countries where possible);

4. development of regional directories of key environmental and natural resource documents. The first focuses on Central America and will be followed by Southern Africa.

4. Affiliated Monitoring Programme

INTERAISE itself is not involved in monitoring activities, but the three sponsoring organizations are. IIED, for example, focuses on environmental and developmental issues in developing nations, including forest and land use, energy, urban development, economic policies and desertification. It has projects world-wide, with particular focus on African and Latin American countries.

5. Cooperation

INTERAISE is a result of cooperation between IIED, IUCN and WRI with support from such institutions as the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), the Dutch Foreign Ministry, USAID, the Swiss Directorate for Development Cooperation and Humanitarian Aid, AIDAB, DANIDA as well as the Development Assistance Committee (DAC) of the OECD.

6. Contact person

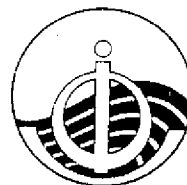
Ms. Dilys Roe, Environmental Planning Group, address see above

**INTERNATIONAL OCEANOGRAPHIC DATA
EXCHANGE SYSTEM**

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Ref. No. 2 50200
IODE



1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

IODE was established by IOC in 1961 to provide data related to a better understanding of the oceans and their applications. IODE is actively supporting global ocean research programmes. These help to expand the global marine database and improve the dissemination of marine data for applications in science, industry and education.

The IODE system is designed as a global service oriented network. Currently, it incorporates nearly 50 National Oceanographic Data Centres (NODCs) which are responsible for data collection, management and exchange at the national level; 14 Responsible National Oceanographic Data Centres (RNODCs) which have been specialized on given functions; and World Data Centres (WDCs) established by ICSU for the final archiving of oceanographic data.

IODE is coordinated through the IOC's Committee on International Oceanographic Data and Information Exchange. This committee also coordinates IOC's activities relating to the management of marine information (see ASFIS entry).

3. Data and Information Management

The IODE System is oriented toward disseminating oceanographic data. It aims to aid users in finding and applying marine data and information worldwide. Access is available to millions of measurements and observations. The

data results from more than 10,000 research expeditions by ships from over 70 countries and is archived in more than 2,000 databases.

The IODE System operates on the basis of voluntary contributions of data to the IODE data centres network. Users can approach data centres of the system with requests for data and/or information or advice regarding data or information management. Data are intended to be easily accessible and quality controlled. To simplify the exchange of ocean data sets, a system for handling geo-referenced data, called GF3, was developed. This system includes a well documented data format and a large library of software utility routines. Subsets of GF3 have been defined for widely used data types.

Work has also begun on the development of the OCEAN PC software package for oceanographic data processing and exchange on microcomputers. The system will include the capability to process diverse data types including marine biology, marine chemistry, pollution and coastal zone data, and will provide good facilities for the exchange of data monitoring information, data inventories and actual data sets.

One of the IODE's key activities is the development of Data Monitoring Systems which include dissemination of information on National Oceanographic Programmes (research cruise schedules), oceanographic observations collected by research cruises and on sources and availability of oceanographic data sets (MEDI). The Marine Environmental Data Information Referral System (MEDI) is an automated, systematic method for recording and archiving information about marine environmental data files that exist in international and national centres. A MEDI catalogue is available containing full descriptions of all registered data holdings.

In collaboration with IGOSS, IODE is implementing a **Global Temperature-Salinity Pilot Project (GTSP)** to build a continuously updated database of ocean temperature and salinity combining historical and near-real-time observations and subject to careful scientific quality control. GTSP will provide products and services from this database.

4. Affiliated Monitoring Programme

see GIPME monitoring programme entry

5. Cooperation

Cooperation between IODE activities and those of other international ocean science programmes are emphasised. Communications, for example, are maintained with programmes including WMO World Climate Research Programme's TOGA and WOCE projects, ICSU's International Geosphere-

Biosphere Programme (IGBP) and its Joint Global Ocean Flux Study (JGOFS), as well as with several national oceanographic institutions.

6. Contact person

Mr. Iouri Oliounine, Programme Manager, address see above

**INTERNATIONAL REGISTER OF
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Ref. No. 2 19620

IRPTC



UNEP

1. Type of Programme

United Nations; Data and Information Management; Harmonization

2. Programme Objectives

In 1993, UNEP created a sub-programme area called Toxic Chemicals and Waste Management in response to the recommendation of the 1992 United Nations Conference of Environment and Development (UNCED). The mission of this sub-programme is to provide guidance, information and tools for the environmentally sound management of chemicals for sustainable development, and thereby help increase capacities of nations to assess and manage risks posed by chemical and to adopt risk reduction activities as appropriate.

The International Register of Potentially Toxic Chemical (IRPTC) is the major component of this sub-programme which aims to:

- further enhance an information clearing house, i.e. data collection, validation, and compilation in data bases, and dissemination and exchange of these data through regional and national networks;
- promote the development and application of methodologies relevant at national and sub-regional level for assessing health and environmental hazards and risks;
- promote the development and application of methodologies and tools for the implementation of effective national chemical management systems, ensuring safer and cleaner production, handling, use and disposal of chemical.

The strategy is building upon the initial objectives established for IRPTC when it was founded in 1976.

IRPTC is functional through a network of national and international organizations, industries and external contractors, and national correspondents. To date, IRPTC has correspondents in 116 countries.

3. Data and Information Management

To facilitate access to existing data necessary to assess health and environmental risks posed by chemicals (as well as actual and potential exposures to them), IRPTC is functioning as an information clearing house.

To provide this information (to governments) which is essential for developing and enhancing the chemical management capabilities of countries, IRPTC has developed several tools, among which is a data bank on chemicals. Dissemination of these tools and training in the use of these tools are secured through a sub-programme element called 'capacity building for chemicals and waste management'.

The data bank on chemicals, operated by IRPTC, has a series of files on all aspects of a chemical that are deemed important to conducting a hazard assessment, including a Waste Management File and a Legal File. The Legal File contains summary information on regulations and recommendations for controlling chemicals in 13 countries and six international organizations.

The Legal File is available through on-line networks from ECDIN (the Environmental Chemicals Data and Information Network of the European Union) through EURONET, TELEPAK and TYMNET.

Currently the IRPTC data bank contains about 112,000 records for over 7,035 chemicals. Approximately half of these records belong to the Legal File. Data profiles, consisting of 17 descriptive attributes have been established for about 700 chemicals.

The Personal Computer version of the data bank is being disseminated for an administrative fee of US \$100.00. It contains 9 diskettes and a Users Manual. The PC version runs under MS DOS 3.31 up to MS DOS 6. Hardware requirement: IBM compatible PC with 80 Mb hard disk space and 640 Kb RAM.

IRPTC provides a Query Response Service to answer questions from governments, environmental and health institutes, industry and individuals world-wide.

4. Affiliated Monitoring Programme

IRPTC collects monitoring data concerning humans and the environment which is stored in file 6.2 of its main data bank. IRPTC plans to participate with the Industry and Environment Programme Activity Centre (IE/PAC) of UNEP in the establishment of a Toxic Release Inventory.

5. Cooperation

IRPTC cooperates with other departments of UNEP such as the Environmental Law programme, the Industry and Environment Office, the INFOTERRA programme or the Environmental Health programme on issues dealing with chemicals management.

IRPTC cooperates with the International Programme on Chemical Safety (IPCS) in the assessment of risks of chemicals through activities consisting in data collection, data dissemination, and methodologies for this assessment.

IRPTC also cooperates with international organizations such as ILO, OECD, EU, UNITAR and with several national institutions (e.g. in Germany, Japan, Netherlands, Switzerland) for data collection and training in chemicals legislation.

6. Contact person

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f

INFORMATION RETRIEVAL SERVICE

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Ref. No. 2 51540

IRS



1. Type of Programme

Intergovernmental; Data and Information Management

2. Programme Objectives

The European Space Agency Information Retrieval Service, ESA-IRS, is an on-line host providing information to the aerospace, scientific, technical, industrial and academic community in the ESA member states. It is part of the European Space Agency and is run by national centres in 12 European countries.

3. Data and Information Management

ESA-IRS contains a broad collection of databases and databanks covering sectoral information on, for example, aerospace, science and technology, earth observation, remote sensing, engineering, energy, and environment. It can set up connections to other relevant remote host computers through a high-level telecommunications protocol. For users' convenience, ESA-IRS offers several on-line search features and services to facilitate information retrieval, e.g. for downloading ESA-IRS files, information update service, cross-file scanning etc.

Hardware requirements for using ESA-IRS is a PC with a modem linked to a telephone line.

Several international databases, including LABORDOC from the International Labour Office (ILO), NASA, ESA PID (ESRIN) etc. are available through ESA-IRS.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

N/A

6. Contact person

Mr. Marino Saksida, Head, address see above

**INFORMATION SYSTEMS COORDINATION
COMMITTEE**

Ref. No. 2 34811
ISCC

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1. Type of Programme

United Nations; Coordination

2. Programme Objectives

Information Systems Coordination Committee (ISCC) reports to the Administrative Committee on Coordination (ACC) through its Organizational Committee. ISCC has as members United Nations system organizations participating in ACC, represented by individuals who have a comprehensive understanding of information management issues and related technologies. It works extensively with electronic means and is supported by a small Secretariat.

3. Data and Information Management

The ISCC, the successor of the Advisory Committee for the Coordination of Information Systems (ACCIS), will undertake an evaluation of the following publications/databases which have been prepared by ACCIS, with the goal of identifying those that should be pursued and those that could be discontinued.

1. Directory of United Nations Databases and Information Services (DUNDIS), which provides information on 872 computerized databases and information services managed by 39 UN bodies and organizations;
2. Directory of United Nations Serial Publications, which contains bibliographic and ordering information on approximately 4,000 serial publications produced within the UN system;
3. Register of development Activities of the United Nations System, published annually from 1988, consists of descriptive and financial

information on all activities funded or executed by organizations of the UN system in support of economic and social development; and the

4. ACCIS Guide to United Nations Information Sources on the Environment, produced in collaboration with the Programme Activity Centre of the International Environmental Information System (INFOTERRA) of UNEP (see INFOTERRA entry), is a comprehensive guide to a wide range of sources on the environment which are available within the UN system.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

ISCC is a coordinating body and works directly with all participating United Nations organizations.

6. Contact person

Ms. Céline F. Walker, address see above

**INFORMATION UNIT ON CLIMATE
CHANGE**

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Ref. No. 2 19080
IUCC



1. Type of Programme

United Nations; Information Management

2. Programme Objectives

The Information Unit on Climate Change (IUCC) was established by the United Nations Environment Programme (UNEP) in 1991 with support from the governments of Switzerland and Luxembourg and the Canton of Geneva. The objective of IUCC is to disseminate the results of climate change research. A major activity is the publication of fact sheets which are written by leading experts. They aim to support decision-makers by clarifying some of the complex issues involved in climate change and providing the information necessary to develop effective response strategies.

3. Data and Information Management

IUCC publishes fact sheets on research in the fields of atmospheric science, climatology, geography, economics, ecology, international law and sociology for decision-makers in government and business. Some of the sheets in this diverse collection contain scientific or historical fact, while others present scenarios of possible climate change impacts or arguments that have been made in support of particular response policies. IUCC also publishes a newsletter, and the Climate Change Convention in booklet form. It conducts media campaigns for the Convention and the Intergovernmental Panel on Climate Change (IPCC).

The fact sheets are published in-house and updated regularly.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

IUCC cooperates with the secretariats of the Climate Change Convention and IPCC.

6. Contact person

Mr. Alain Clerc, Director IUCC, address see above

**MONITORING AND ASSESSMENT
RESEARCH CENTRE**

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Ref. No. 2 23160
MARC



1. Type of Programme

United Nations; Monitoring and Assessment; Data and Information Management

2. Programme Objectives

MARC was established in 1975 on the recommendation of ICSU to help international and intergovernmental organizations address global environmental issues in the wake of the 1972 Stockholm Conference. Much of its work is conducted in cooperative programmes, primarily with UNEP and WHO, but also with a wide range of governments, regional organizations and NGO's. MARC focuses on a number of environmental information and management activities which include:

1. compiling, storing, processing and reporting environmental data and related information;
2. preparing issue-specific/sectoral assessments on environmental quality health and development;
3. preparing research reports, of which 43 have been published to date, on specific aspects of environmental monitoring and assessment; and
4. training and capacity building in developing countries.

The latter activity comprises two elements; training workshops in developing countries (approximately one each year) which support countries in developing national environmental monitoring, assessment and management infrastructure and capability; the second element is a visiting scientist scheme whereby scientists from a developing country spend a period of time at MARC working cooperatively on environmental monitoring, assessment, management or SOE reporting relevant to their country's needs.,

3. Data and Information Management

MARC takes the lead role in the production of UNEP's *Environmental Data Report (EDR)*, a biennially published environmental data compendium which is the cornerstone of UNEP's State of the Environment reporting activities. Four reports have been published to date, in 1987, 1989, 1991 and most recently in 1993. The data report series includes summaries of extracts of UNEP's main data bases and data activities including, for example, data from the GEMS projects.

The compilation and publication of global environmental data as the UNEP EDR series is facilitated by the use of a computerized data base. This data base resource is currently being developed into a primary source of global environmental data and related information (i.e., value-added data), focusing initially on time series data to support indicator development.

MARC is developing a metadata base system for the compilation of information on the use and development of biomarkers as indicators of exposure to and effects of environmental contamination in wildlife.

4. Affiliated Monitoring Programme

N/A


5. Cooperation

MARC is formally designated as a UNEP-GEMS Assessment Centre and as a WHO Collaborating Centre for Environmental Monitoring and Assessment and, as such, is involved in research and assessment activities on behalf of both organizations.

For the purposes of producing the UNEP EDR series, MARC cooperates with the World Resources Institute (WRI) and the UK Department of the Environment (UK DoE) as major partners, and also with a wide range of national and other statistical and environmental organizations.

6. Contact person

Mr. John Jackson, Acting Deputy Director

REGIONAL RESEARCH NETWORK FOR THE MEDITERRANEAN BASIN AND SUBTROPICAL AFRICA	Ref. No. 2 51030 MEDIAS
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1. Type of Programme

International non-governmental; Coordination, Data and Information Management

2. Programme Objectives

The MEDIAS regional research Network will develop, support and promote research, conservation, training, modelling and data management activities on global environmental change studies, as well as interactions with regional development problems. This includes all the climate, biosphere, hydrosphere and geosphere components over the MEDIAS zone which covers the Mediterranean Basin and Subtropical Africa.

MEDIAS is conducted within the framework of the START initiative (Global Change System for Analysis, Research and Training of the International Geosphere-Biosphere Programme (IGBP), the World Climate Programme (WCRP) and the Human Dimensions Programme (HDP) (see individual entries).

3. Data and Information Management

MEDIAS is developing an information catalogue to describe the data set holdings of the scientific research community which focus on multidisciplinary sciences and address global environmental research.

The MEDIAS database will be integrated in the 'Master Directory', an international database of information about the earth and space sciences developed by the National Space Science Data Center at the NASA Goddard Space Flight Center (GSFC), USA.

MEDIAS' plans also include the development and distribution of data sets of regional interest (e.g. Mediterranean oceanographic database, HAPEX-Sahel experiment databank, etc.) in close collaboration with expert laboratories in the region.

4. Affiliated Monitoring Programme
see START entry

5. Cooperation

MEDIAS' activities are collaborative by nature. A quarterly newsletter is distributed in French and English to a mailing list of more than 1000 scientists and institutions in the region. Projects are developed in a multilateral cooperation framework, involving partners from France and other European countries, Maghreb, East and West Africa, and international organizations.

International MEDIAS Schools are being held in African countries (Niger, 1993; Nairobi, Kenya, 1995) in cooperation with ACMAD (African Center of Meteorological Applications to Development), START, UNITAR, UNEP, SSO, ENRICH (European Network for Research in Global Change), etc.

A permanent secretariat for MEDIAS is settled in Toulouse, France. MEDIS-France also provides an interim secretariat for the START MEDCOM (Planning Committee for the Mediterranean).

6. Contact person

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Ref. No. 2 51040
NETT



1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

NETT is a European information tool for environmental matters taking account of legal and technological aspects. It is a non-profit international association established with the support of the European Commission (EC). It is aimed at industries (in particular environmental industries), research centres and consultancies, public authorities and administration.

3. Data and Information Management

NETT has developed an on-line network **DATANETT** which allows its members rapid access to legal, technological, scientific, commercial and financial information on environmental matters. **DATANETT** offers four main facilities:

- own database with list of members and activities, description of technological processes and general information on environmental matters,
- selected databases from hosts around the world relating to a) environment; b) legislation and Europe,
- external databases with a search system tool,
- E-mail.

NETT offers services for compiling and supplying information that is not available on-line, and provides a forum for the exchange of information through expert meetings etc.

4. Affiliated Monitoring Programme

N/A


5. Cooperation

N/A

6. Contact person

Mr. A.J. Fairclough, President, address see above

Mr. M. Annez de Taboada, Secretary General, address see above

OZONACTION	Ref. No. 2 51470 OZONACTION
UNEP IE/PAC 39-43, QUAI ANDRÉ CITROËN F-75739 PARIS CEDEX 15 FRANCE	
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1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

The Multilateral Fund for the Implementation of the Montreal Protocol was established to provide financial and technical assistance to developing countries that are Party to the Montreal Protocol. As one of the Fund's implementing agencies, UNEP is responsible for conducting research, data gathering, and providing a clearinghouse function. UNEP IE/PAC's OzonAction Programme is this clearinghouse activity, whose purpose is to assist capacity-building in developing countries for the expeditious phase out of ozone depleting substances (ODS). This is accomplished through information exchange, training/networking, and country programmes.

In addition to the **On-line OzonAction Information Clearinghouse (OAIC)** described below, the OzonAction programme offers the following services:

- **OzonAction Newsletter:** This quarterly newsletter reports on the initiatives undertaken by countries and organizations that are implementing the Montreal Protocol. The OzonAction newsletter contains the latest news from governments and industry regarding the phase-out of the controlled ODS', as well as technology updates.
- **Other ODS-Reduction Documents:** OzonAction will publish specific technical and policy documents and brochures in response to specific information needs within industry and government.
- **Regional Workshops:** A series of regional workshops is designed to provide government and industry decision-makers with basic information on ODS control policies and strategies. Additionally,

- these workshops provide participants with the latest information about replacement technologies and products relating to the controlled substances.
- **Regional Training Courses:** Based on a "train the trainer" approach, these sectorial courses impart the latest technical information and skills required to phase out ODS' (e.g. service and maintenance practices, and recovery/recycling for refrigeration sector).
 - **National Activities:** The OzonAction Programme will sponsor information campaigns at the national level to help raising the consciousness of the general public about the threat posed by the controlled ODS'. OzonAction will also be cooperating with UNDP to address specific technological issues within specific countries.
 - **Documentation/Training Manuals:** The OzonAction Programme will additionally publish technical papers, workshop proceedings, and training manuals.
 - **Country Programmes:** The OzonAction Programme is conducting a series of country programmes for developing nations that have low rates of consumption for the controlled substances. The purpose of these programmes is to establish a baseline survey on the use of the controlled substances in these countries and to draw up policy strategies for their replacement and control. The data developed under this effort will establish a basis for other phase-out projects.

3. Data and Information Management

The information exchange element of the OzonAction Programme aims to transfer information concerning policy and technical options for the phase-out of the controlled ODS to developing countries.

The OzonAction Programme maintains an on-line **OzonAction Information Clearinghouse (OAIC)**. Operating alongside the UNEP IE/PAC's ICPIC (see entry), this on-line information exchange system contains data on industrial use sectors having to phase out the controlled ODS': aerosols, sterilants, and miscellaneous uses, foams, halons, refrigeration, air conditioning, and heat pumps, solvents, coatings, and adhesives. The on-line OAIC contains:

- descriptions of alternative technologies;
- a database of ODS-reduction products and services;
- summaries of national, corporate and NGO phase-out activities;
- a calendar of conferences, events and workshops;
- an international directory of contacts;
- abstracts of technical, scientific and programmatic documents;
- a message center; and
- news bulletins.

The OAIC provides a global communication mechanism for people and organizations interested in exchanging information on the phase-out of controlled ODS'. The OAIC is designed to be a 'pointer' system that provided users with assistance on where to go with more specific information requests.

The on-line OAIC is accessible by anyone with a personal computer, a modem, communication software and access to a telephone line. There is no cost to use the electronic system, other than the telephone call needed for connection. The system is accessible through the SprintNet™ data service and numerous national packet switching networks, all of which can reduce the telephone charges to that of a local call. For those developing countries that prefer not to use an on-line system, the OzonAction Programme has developed a diskette version of the OAIC, which contains many of the features of the on-line system but with the convenience of a self-contained diskette database. The OAIC diskette version is being disseminated on a regular basis to national ozone units (i.e. government ODS officers) in developing countries who are responsible for their nation's ODS phase-out policy. The name of these government contacts can be provided by UNEP IE/PAC.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

The Multilateral Fund and its implementing agencies (UNEP, UNIDO, UNDP, World Bank) were created by the Parties to the Montreal Protocol, which in February 1994 numbered 132 developing and developed countries. Close cooperation exists between UNEP and the other implementing agencies, as well as with many of the Parties to the Protocol.

Additionally, close cooperation exists between UNEP and, among others:

- UNEP Technical and Economic Assessment Panel;
- UNEP Technical Options Committees;
- Swedish International Development Authority;
- United States Environment Protection Agency (US EPA);
- Industry Cooperative for Ozone Layer Protection; and
- International Institute for Refrigeration.

6. Contact person

Mr. Rajendra Shende, Coordinator, address, telephone number and fax number see shaded box above

REFERRAL DATABASE ON ENERGY AND ENVIRONMENT

Ref. No. 2 51030
REED

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AUSTRIA**

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1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

UNIDO's Industrial and Technological Information Bank (INTIB) developed the Referral Database on Energy and Environment (REED). The database allows the recording of all types of environmental information which is relevant to technological and industrial decision-making, including sources and accessing of information on specific topics. REED became fully operational in April 1991.

In establishing REED as the main institutional 'memory' of UNIDO for environmental and energy matters, the prime intention was to meet the needs of the widest possible public. A number of institutional channels already exist, notably the Energy and Environment Information System (EEIS) programme as well as the networking programmes of INTIB, which serve a global user community.

3. Data and Information Management

REED is an information resources management application developed for decentralized data collection from both internal and external network centres. It is a standardized, multi-purpose, relational database.

REED is constantly updated and added to by in-house and external computer network members.

A selection of entries in the REED database is published in book form as the 'Industry and Environment. A Guide to Sources of Information' (available from Verlag Dr. Grüb Nachf., Ölbergweg 8, D-79283 Bollschweil/Germany, Tel.: +49 7633 70, Fax: +49 7633 82129).

4. Affiliated Monitoring Programme

N/A

5. Cooperation

Close cooperation especially for information gathering, exists with the World Federation of Engineering Organizations (WFEO) which has long been active in the field of environmental information, with UNEP INFOTERRA, and UNEP IE/PAC, and with Materials Information which provides access to a large body of commercial information.

6. Contact person

Mr. Peter N. Pembleton, Industrial Information Section, UNIDO, address see above

SUSTAINABLE DEVELOPMENT NETWORK

Ref. No. 2 51060
SDN

UNITED NATIONS DEVELOPMENT PROGRAMME
SUSTAINABLE DEVELOPMENT NETWORK
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USA



undp / poud

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1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

The Sustainable Development Network (SDN), a UNDP initiative, was launched in 1990 to make information on sustainable development readily available to decision makers responsible for planning sustainable development strategies. The Network operates world-wide. By the end of 1994 more than 20 national or regional SDNs will be operational and studies are ongoing in many other countries in Africa, Asia, the Arab States, Europe and Latin America. SDN's aim is to provide connectivity between users and suppliers of information pertaining to sustainable development.

SDNs facilitate access to the global communications network and knowledge base. In addition, they foster informed dialogue and communications to encourage and empower the people on whom development depends, and those most affected, to become more active participants in the development process.

3. Data and Information Management

SDNs combine face-to-face meetings, electronic and other means of communication to link servers and users of information on sustainable development. They facilitate access to e-mail and electronic conferencing systems as well as to computerized resources. They encourage the use and adoption of these technologies, or of locally appropriate adaptations such as bulletin board systems. The specific strategy adopted depends on the local situation. Networks rely on a Coordinator or National Director who manages the network and provides leadership. Training and workshops are provided.

4. Affiliated Monitoring Programme

Any organization concerned with sustainable human development.

5. Cooperation

SDN has been in close contact with many other organizations that have projects related to sustainable development and/or communications networks.

Within the UN system, SDN will collaborate with Earthwatch, the Global Environment Facility (GEF), the Sustainable Development Commission and other UN organizations and agencies which have initiated the establishment of specialized databases and relevant networks.

SDN works or seeks work with the Earth Council; the International Development Research Center (IDRC) in Canada; The World Conservation Monitoring Centre (WCMC); The Consortium for International Earth Science Information Network (CIESIN); The International Cooperative on Ozone Layer Protection (ICOLP); The International Council of Scientific Unions (ICSU); The International Chamber of Commerce (ICC); The Association for Progressive Communications (APC); GEONET; The Telecommunications Cooperative Network (TCN); The Business Council for Sustainable Development; NGONET, an initiative of various NGOs to help share information on environment, economy and the human dimensions of development; UNEP INFOTERRA; The Pan African Development Information System (PADIS); the Rockefeller LEAD project; the Internet Society; the Centre for Agriculture and Bioscience International (CAB) and many others.

6. Contact person

Mr. Chuck Lankester, Director, address see above,

**TERRESTRIAL ECOSYSTEM MONITORING
SITES DATABASE**

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Ref. No. 2 51000
TEM SITES



1. Type of Programme

United Nations; Data and Information Management

2. Programme Objectives

The Terrestrial Ecosystem Monitoring Sites Database (TEM SITES DATABASE) is a reference register of sites where terrestrial ecosystem monitoring is carried out.

The overall objective for the database is to provide information for assessing global coverage of long-term terrestrial ecosystem monitoring activities, to promote the review of ongoing monitoring activities, to provide an information base for the establishment of terrestrial ecosystem monitoring networks and programmes, and to allow better coordination of ongoing terrestrial monitoring and assessment activities.

3. Data and Information Management

At present the TEM SITES DATABASE holds information on more than 80 sites, mainly located in North America, Europe and Asia. A TEM site is defined as a *terrestrial ecological reference area with a co-located monitoring station*.

The database is maintained and updated by UNEP GEMS/PAC, in collaboration with the Scientific Secretariat for the GTOS Planning Group at WSL (Swiss Federal Institute for Forest, Snow and Landscape Research), Birmensdorf, Switzerland.

The information in the database is gathered by means of questionnaires sent to participants. The questionnaire is available in English, French, Spanish, Chinese and Russian. Database entries are subsequently returned to sites for verification. The topics available in the database are:

- contact persons
- site affiliation
- supervising institution
- participation in national/international programmes
- data storage facilities
- geographical description of the site including: location, climate, hydrology, orography, pedology, geology and vegetation cover
- details on the monitoring programme carried out at the site

4. Affiliated Monitoring Programme

Affiliated monitoring programmes implemented at the TEM sites concern the basic properties of the main environmental compartments, i.e. air, biota, soil and water, and are mainly sponsored by the respective countries. These sites form, in many cases, part of national or international programmes. Some are coordinated by international agencies like UNESCO, the World Meteorological Organization (WMO), and the Economic Commission for Europe of the United Nations (UN/ECE) etc.

5. Cooperation

N/A

6. Contact person

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**WORLD CONSERVATION MONITORING
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Ref. No. 2 22530
WCMC



WORLD CONSERVATION
MONITORING CENTRE

1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

WCMC was established in 1983 as the IUCN Conservation Monitoring Centre (CMC). In 1988, the Centre was re-launched as a joint venture between IUCN, UNEP and WWF-International.

The Centre's main objective is to support international programmes for conservation and sustainable development by providing reliable scientific data on the world's biological diversity.

3. Data and Information Management

To provide this information service, WCMC has five data management units:

1. **Threatened Plants Unit (TPU):** Currently holds records for some 52,000 plant taxa, of which 20,000 are considered threatened. An additional 12,000 records for 5,000 threatened plant taxa are being cultivated by the IUCN Botanic Gardens Conservation Secretariat.
2. **Species Conservation Monitoring Unit (SCMU):** This database holds records for 18,700 animal species along with 70,000 associated distribution records.
3. **Habitats Data Unit (HDU):** This database manages extensive files on habitats of conservation concern, and critical sites for the conservation of biological diversity within these habitats. The main

focus is on tropical forests, with extensive GIS files of forest distribution, wetlands and coral reefs.

4. Protected Areas Data Unit (PADU): PADU holds records on approximately 18,000 national parks and protected areas. It also contains overviews of the species and habitats to be found as well as the effectiveness of management efforts. (see ENVIS entry)

5. Wildlife Trade Monitoring Unit (WTMU): WTMU holds data on some 2 million trade transactions carried out under CITES (The Convention on International Trade in Endangered Species of Wild Fauna and Flora). Moreover, it also contains a further 600,000 data sets on the ivory trade.

WCMC is now embarking on a five-year development plan, 1990-95, to restructure its operations and to upgrade its information management capabilities. Parts of this programme necessitates the transfer from the obsolete Wang computer system to a new UNIX/Ingres network, based on the principles of open system architecture. These plans are set out in the **WCMC Computer Systems Strategy**. The new structure will provide a relational database management system, linking data on species, habitats and areas. The data will be geo-referenced and linked to digitized GIS files, using ARC/Info, so that mapped outputs on biodiversity can be integrated with other biogeographic and ecological datasets. A library of GIS files covering species, habitats and protected areas is being developed, so that WCMC can develop as part of the GRID network providing compatible biodiversity data files.

4. Affiliated Monitoring Programme

WCMC is developing its monitoring capability through programmes of fixed interval data recording using standardized methodologies and terminologies, particularly through the use of GIS to monitor the loss of tropical forests.

5. Cooperation

The primary theme of the five-year plan is the development of information networks for the two-way exchange of data. WCMC is, therefore, seeking the cooperation of other data management agencies to set up such networks, including the establishment of conservation data centres within developing countries, with WCMC acting as the central repository for the storage and dissemination of biodiversity data. The Centre is, therefore, actively involved in the preparation of standard taxonomies and classification systems for data transfer formats.

WCMC has greatly diversified its project activities. It now provides an information service to a broad spectrum of users ranging from The World Bank, bilateral development agencies, government agencies and NGOs to individual scientists, journalists and the general public. It charges for 'added-value' services on an ability-to-pay basis, but encourages the free flow of raw data between sources and users.

6. Contact person

No name supplied.

**WORLD CLIMATE PROGRAMME
WORLD CLIMATE DATA AND
MONITORING PROGRAMME**

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Ref. No. 2 50210
WCP
WCDMP

1. Type of Programme

United Nations; Data and Information Assessment

2. Programme Objectives

The WCDMP is one of four components of the WCP, which also includes the World Climate Research Programme (WCRP), the World Climate Impact Assessment and Response Strategies Programme (WCIRP), and the World Climate Applications and Services Programme (WCASP). It was initiated to promote the improved collection, digitization, quality control, storage, retrieval and use of climate related information. These aspects of climatic data management are focused on both international and national activities.

3. Data and Information Management

In order to facilitate the storage, management and retrieval of climate related data, the WCDMP has developed primarily two data base projects:

1. **INFOCLIMA (World Climate Data Information Referral Service):** INFOCLIMA is intended to provide information on the nature and accessibility of climatic information world-wide. It is available in catalogue form and on diskette.
2. **CLICOM (Climate computing):** CLICOM is the WMO's system for the management of climatic data. Data entry, quality control, archiving, inventories, and station histories are all managed by the CLICOM system. In addition, it provides access to world-wide climate data and information sources and can be used in conjunction with INFOCLIMA.

In the third Long-term Plan adopted by the WMO Congress in 1991, other projects (in addition to INFOCLIMA and CLICOM) relate to databases: one aims at developing global and regional databases for both research and applications; and the other deals with climate, change, and detection. The Climate System Monitoring (CSM) project was initiated in 1984 to provide meteorological services and other national and international organizations consolidated data and data analysis on the state of the climate system and diagnostic insights into significant climatic anomalies.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

For more information see WCRP and WCP entries.

6. Contact person

Mr. P. Scholefield, Chief, WCDMP division, WCP Department of the WMO Secretariat, address see above

WORLD DATA CENTRES

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Ref. No. 2 50220

WDC



1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

The WDCs were originally established in 1957 to store information from ICSU's 1957 International Geophysical Year. An ICSU-WDC Panel is responsible for coordinating the activities of the individual data centres. Currently, 42 WDCs are active collecting, archiving, and disseminating data which encompass most facets of the global environment. WDCs are generally co-located with national data centres and are funded by the respective nation. The USA (designated WDC-A) sponsors twelve centres, while the Russian Federation (WDC-B) operates two and 20 other WDCs (WDC-C) are located in Japan, India, Switzerland, France, Belgium, Czech Republic, and the UK. A WDC-D has been established in China, with nine centres.

3. Data and Information Management

Data are acquired from various sources and are managed according to internationally recommended procedures. Information can be obtained from these centres generally for a cost.

Given advancing computer technology, the ICSU WDC Panel is developing a revised workplan for the Centres. In particular, emphasis is being placed on the improved electronic exchange of datasets. A study is also being undertaken to assess the benefits of making larger data sets available on CD-ROM.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

The WDCs store much information from various sources. Among others, they store data for the UNESCO IOC's International Oceanographic Data Exchange (IODE) system (see IODE entry).

6. Contact person

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**WORLD INVENTORY OF SOIL EMISSION
POTENTIALS**

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Ref. No. 2 51070

WISE



ISRIC

1. Type of Programme

International non-governmental; Data and Information Management

2. Programme Objectives

The World Inventory of Soil Emission Potentials (WISE) is a three-year programme initiated in 1991 by the International Soil Reference and Information Centre (ISRIC), sponsored by the Netherlands National Research programme on Global Air Pollution and Climate Change. The objective of WISE is to arrive at a geographic quantification of the soil conditions and processes which regulate the emission of greenhouse gases, especially methane, from soils.

3. Data and Information Management

The programme objective will be achieved by compilation of a global soil database with a resolution of 1/2° longitude by 1/2° latitude. Information on the geographical distribution of soils is from the updated 1:5 M digital FAO/UNESCO Soil Map of the World and soil profile data will be drawn from the major soil data holders, ISRIC, FAO, and the USDA-SCS, supplemented by contributions from national soil survey and profiles contained in reports held in ISRIC library. The database will contain in excess of 3,000 soil profiles.

4. Affiliated Monitoring Programme

N/A

5. Cooperation

The WISE soil database has been adopted by the International Geosphere-Biosphere Programme Data Information Service (IGBP-DIS) as a starting point for its project to compile a world soil database. Eventually, the WISE data will be transferred to a SOTER (see GLASOD SOTER entry) type database with a resolution of 1:5 million. Initially, the WISE project will use the database for determination of the area of soils having conditions potentially suitable for methane production in an attempt to arrive at a more accurate figure for potential methane production from the world's soil.

Other applications can be foreseen in modelling soil interactions with other greenhouse gases. Soil moisture and crop yield estimations would benefit from more accurate soil information. The vulnerability of soils to loss of solutes, dispersed pollution, and the movement of pesticides could be modelled with the WISE database as input information.

6. Contact person

Mr. N.H. Batjes, Mr. E. M. Bridges, address see above

Harmonization and Standardization Activities

**ASSOCIATION FRANÇAISE DE
NORMALISATION**

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Ref. No. 3 36021
AFNOR

1. Type of Activity

Governmental; Standardization

2. Activity Objectives

AFNOR is engaged in preparing environment related standards in most fields of the environment. In particular AFNOR is involved in monitoring air, water, and soil quality.

As the French member to ISO and CEN, AFNOR is extensively participating in the preparation of international standards. Bilaterally, it has cooperated with DIN on matters of air and water quality and with the Dutch Standardization Organization (NNT) on soil quality.

3. Type of Standards

AFNOR engages in laboratory research and measuring itself. With regards to air pollution, AFNOR uses its facilities to engage in research on ambient air, carbon dioxide analysis, emission controls, gas analysis methods, suspended particles and the work place atmosphere.

4. Contact person

No name supplied.

AMERICAN SOCIETY FOR TESTING AND MATERIALS

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Ref. No. 3 24490
ASTM



1. Type of Activity

Governmental; Standardization

2. Activity Objectives

ASTM was organized in 1898 as a voluntary standards development system. Currently, approximately 33,000 qualified ASTM members, from around the world, submit technical research or testing results. These are published annually in 68 volumes of 8,500 standards.

3. Type of Standards

ASTM has several Committees which work in fields environmentally related, including:

1. D18 on Soil and Rock;
2. D19 on Water;
3. D22 on Sampling and Analysis of the Atmosphere;
4. D34 on Waste Disposal;
5. E35 on Pesticides; and
6. E47 on Biological Effects and Environment Fate.

These Committees are also involved in determining reference materials, providing cross media standards and working other associated fields. The Committee D18, for example, is conducting a series of Symposia on the Geotechnics of Waste Fills, Mapping and Geographical Information Systems (GIS) and Agriculture Analysis in Environmental Studies.

To provide standards on an on-line basis, ASTM and the Society of Automotive Engineers (SAE) developed Standards Search. Standards Search provides

details on 13,000 standards, testing methods, specifications, recommended practices and information reports for engineering materials.

- 4. Contact person**
No name supplied.

BRITISH STANDARDS INSTITUTION

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Ref. No. 3 21440
BSI



1. Type of Activity

Governmental; Standardization

2. Activity Objectives

BSI was established with the purpose of supporting British industry in its drive to improve and maintain the quality of British goods. BSI offers services including the development of standards, testing materials, quality assurance and technical assistance to exporters. To facilitate these objectives, BSI offers an on-line service, **Standardline**, which gives information on 10,000 British, French, German, European and international standards.

Within Europe, BSI is making an effort to support the European Commission (EC) in its move to technical harmonization, recognizing this as a key step to achieving a Common Market.

3. Type of Standards

BSI produces a large number of standards on measurement techniques and practices for environmental measurement. Environmental media included in BSI's work are air; fresh, ground and marine waters; soil; food; biological matrices; indoor pollution; as well as noise pollution. In preparing standards, BSI cooperates with other organizations within the framework of ISO. In the past, BSI has written standards with such organizations as DIN on air and water quality, NNI on soil quality and the Danish Standards Organization (DS) on acoustics.

In producing measurements and standards, BSI aims to address such issues as pollutant control monitoring, early warning systems, the development and control of reference materials as well as identifying sources of pollution.

4. Contact person

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**EUROPEAN COMMITTEE FOR
STANDARDIZATION**

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N/A

Ref. No. 3 50230
CEN



1. Type of Activity

Intergovernmental; Standardization

2. Activity Objectives

CEN is one of the three organizations responsible for voluntary standardization in the European Union. Development of standards related to electrotechnology and telecommunications is entrusted to CENELEC (The European Committee for Electrotechnical Standardization) and ETSI (The European Telecommunications Standards Institute) respectively. It has only recently become specifically involved in environment related activities. CEN has an agreement for technical cooperation with its global counterpart, the International Organization for Standardization (ISO). Whereas the adoption of ISO standards is optional for most of the countries who are members of ISO, in Europe (the countries of the Union and EFTA) the national standards bodies are obliged to adopt European Standards and withdraw conflicting national standards. However, nobody is obliged to use European Standards.

CEN's main sectors of activity are: information technology; biology and biotechnology; quality, certification, testing; transport and packaging; food; materials (including ECISS); chemistry; and linked to European technical legislation: mechanical engineering; building and civil engineering; health technology; environment; health and safety at the workplace; gas and other energies; and consumer goods, sports, leisure.

3. Type of Standards

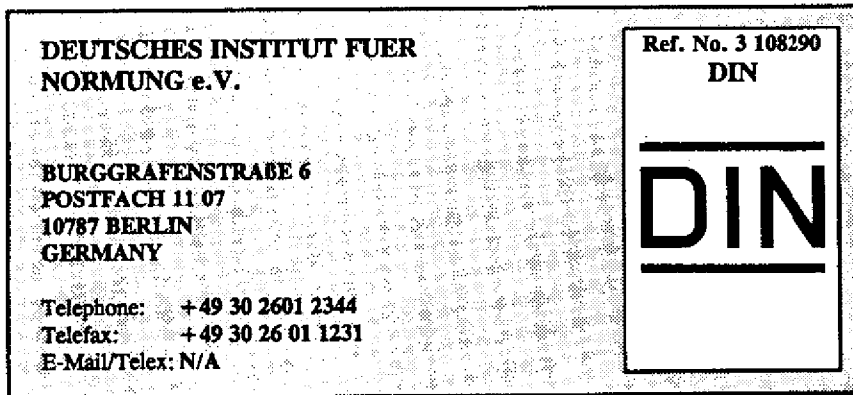
The standards prepared are technical specifications ensuring compatibility between products, appropriate levels for their safety, quality or efficiency and

the test methods needed to establish conformity to these specifications. Standards are prepared in all the fields mentioned above. A specific programme of activities related to environmental standardization has been developing in recent years. This programme comprises direct standardization tasks related to environmental measurement methods; measurement methods for environmental properties of chemical substances and chemical products; pollution control methods and equipment; environmental management tools; and methods for the evaluation of environmental effects of products; and indirect standardization tasks to facilitate and support progress in environmental standardization within the general CEN standardization system, such as: the development of recommendations and a guidance document for non-environmental orientated committees for dealing with environmental subjects; initiation of environmental activities by non-environmental orientated committees when needed (e.g. measurement methods for noise from an environmental point of view by the Task Committee (TC) 211); and monitoring of the compatibility of existing standards with generally accepted environmental policy and monitoring of the progress of the work on environmental standardization.

CEN cooperates with a wide variety of organizations (more than 125 European organizations have liaison status) and has close links with its global counterpart, ISO. In particular for the programme on environmental standardization contacts will be established with ISO, MTP (former BCR), JRC, CEC Directorate General XI, EFTA, OECD and industry, consumers and trade unions.

4. Contact person

Mr. Stewart Sanson, Head of Information, address see above



1. Type of Activity

Governmental; Standardization

2. Activity Objectives

DIN is extensively involved in developing standards which have environmental relevance. Currently some 26 **Technical Groups** are involved in standards development within DIN.

To collect, manage and disseminate information related to its activities, DIN established DITR (**Deutsches Informationszentrum für Technische Regeln**) information system. DITR is a database containing internationally relevant standards, technical regulations and guidelines. Information is available on-line with FIZ-technique as its Host and DSO as retrieval language. Documents are also available on magnetic tape, floppy disk, and CD-ROM. Currently, over 41,000 documents are stored at DITR which are updated monthly. The service is available in German, although many documents have been translated into English and/or French.

Information on DIN's activities is not only available through DITR, but DIN publishes its environment related norms and activities, for example, directly.

3. Type of Standards

DIN's Technical Groups are involved in a wide variety of activities. These include construction, household appliances, agriculture and related products,

medicine, water quality, textiles, plastics, chemicals such as cleaners and solvents, etc. In many cases, their ties to the environment are by way of environmental health related activities.

4. Contact person

No name supplied.

**ENVIRONMENT AGENCY
GOVERNMENT OF JAPAN**

Ref. No. 3 38150

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1. Type of Activity

Governmental; Monitoring and Assessment; Standardization

2. Activity Objectives

The Environment Agency is responsible for the overall promotion of environmental protection with a view to ensuring a healthy and civilized life for the people of Japan. Consequently, it has a very broad based programme including monitoring, research and assessment work, national and international political issues, and setting standards for environmental protection.

Monitoring activities are focused on air, noise, water, chemical pollution, and Natural Environment. The related environmental laws are published in separate volumes, in collaboration with the Air Quality Bureau and Air Pollution Control Division in matters of air pollution and noise; the Water Quality Board in matters of water pollution; the Environmental Health Department, Office of Health Studies in matters of toxic chemicals, and the Nature Conservation Bureau, Office of Natural Environmental Survey.

3. Type of Standards

The Environment Agency is not only involved in research efforts, but it also establishes a number of standards. These include:

1. ambient air quality standards for substances such as sulphur dioxide, carbon monoxide, suspended particulate matter, nitrogen dioxide, and photochemical oxidants;
2. environmental quality standards for noise from such sources as roadside areas, aircraft, and the Shinkansen Superexpress Railway;

3. water quality standards related to human health such as levels of cadmium, cyanide, organic phosphorus, lead, chromium (hexavalent), arsenic, total mercury, alkyl mercury, and PCBs;
4. environmental quality standards for soil pollution such as cadmium, total cyanide, organic phosphorus, lead, hexavalent chromium, arsenic, total mercury, alkyl mercury, PCBs, copper, dichloro methane, tetrachloro methane, 1,2-dichloro ethane, trichloro ethylene, cis-1,2-dichloro ethylene, 1,1,1-trichloro ethane, 1,1,2 trichloro ethane, trichloro ethylene, tetrachloro ethylene, 1,2-dichloro propene, tiaram, simazine, thiobencarbon, benzene, selenium;
5. national emission standards for substances related to human health; and
6. national effluent standards for substances potentially harmful to humans.



Internationally, cooperation is pursued in the development and implementation of pollution controls and standards. In particular, pollution control projects have been developed in places including air pollution control projects in Mexico City and Shanghai as well as a water pollution control project at Lake Itacarai in Paraguay.

On global environmental monitoring, the Center for Global Environmental Research (CGER) (see entry), a research organization of the Environment Agency of Japan, coordinates some projects such as monitoring of ozone layer with a lidar. CGER also takes responsibility as a reference laboratory of the GEMS/Water programme (see GEMS/Water entry).

As part of the Ministry of International Trade and Industry, the National Research Laboratory of Metrology (NRLM) also develops and improves standards in the form of Japan Industrial Standards (JIS). It focuses on establishing analytical methods of pollutants, and standard gas and liquid which are used in the calibration of measuring instruments. NRLM is active internationally in that it is a member of the International Organization of Legal Metrology (ILMO) and also cooperates with various standardization organizations.

4. Contact person

No name supplied.

EUROPEAN REFERENCE LABORATORY OF AIR POLLUTION	Ref. No. 3 14990 ERLAP
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1. Type of Activity

Intergovernmental; Harmonization

2. Activity Objectives

The European Reference Laboratory of Air Pollution is a development and upgrade of the Central Laboratory of Air Pollution (CL). ERLAP has been set up at the request of the General Directorate XI of the European Commission (EC) in order to provide scientific and technical support for the preparation and implementation of air quality directives in the European Union (EU), and to assist the EC services in any commitments taken in matters of air pollution (e.g. participation in international monitoring programmes). The support offered by ERLAP is directed towards programmes working in the area of:

- Harmonization of sampling, analysis and calibration methods for the implementation of current and future EC air quality directives;
- Improvement of sampling, analysis and calibration methods in order to adapt them to scientific and technical progress;
- Development, validation and comparison of new measurement techniques;
- Organization of quality assurance/quality control programmes at laboratory and monitoring station levels;
- Organization of pilot studies on the distribution of air pollutants in urban areas for the design of monitoring networks in agreement with the requirements of the directives;
- Application of modelling techniques as a tool for assessing ambient air pollution levels and designing emission reduction strategies;

- Organization of workshops and training courses, publication of instruction manuals, recommended procedures and guidelines for air pollution monitoring;
- Participation to international air monitoring programmes, in particular with the operation, at Ispra site, of an air pollution monitoring station in the framework of the EMEP programme.

ERLAP contributes to the Environment Research Programme of the European Commission (EC) (see separate entry) and is part of the Joint Research Centre (JRC), Environment Institute, located in Ispra, Italy. ERLAP is equipped with the following tools:

- a calibration bench for the execution of interlaboratory comparison exercises;
- a specialized laboratory for the preparation and use of reference calibration standards;
- an EMEP station operating advanced monitoring techniques also for non-conventional pollutants;
- three mobile laboratories for the execution of harmonization programmes; and
- advanced non-conventional techniques such as DOAS, correlation spectrometers, passive samplers coupled with chromatographs, etc.

3. Type of Standards

CL does not provide written standards but offers technical support to programmes as described above.

ERLAP participates to the elaboration of Air Quality Directives in collaboration with the European Commission and is active in international standardization bodies (ISO, CEN) on air quality measurements.

4. Contact person

Mr. F. Geiss, Director of ERLAP, address see above, Tel.: +39 332 789 834

Mr. M. Payrissat, Harmonization Programmes, address see above,

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HARMONIZATION OF ENVIRONMENTAL MEASUREMENT

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1. Type of Activity

United Nations; Harmonization

2. Activity Objectives

The HEM centre was established in 1989 by UNEP with financial support from the German Ministry of the Environment (BMU) as part of the Global Environment Monitoring System (GEMS). The initiative to establish HEM was taken by the Economic Summit in Venice 1987. This initiative was based on the work of the Secretariat of the Environment Experts of the Economic Summit (EEES).

Currently, HEM is concentrating on the harmonization of environmental monitoring and research programmes to promote the improved collection and management of data, and thereby to enhance the quality and compatibility of information on the state of the environment world-wide.

Activities are focused on three main areas:

1. **Harmonization of ongoing and planned programmes and projects:** a central source of information (meta-data) as a basis for avoiding replication, promoting cooperation and ensuring comparability and compatibility of final results;
2. **Harmonization of Taxonomies:** the problems of matching different classification schemes; and
3. **Harmonization of Data:** the problem of the consistency and comparability of measurement systems, data quality, data management systems and data formats.


3. Type of Standards

1. HEM is creating a meta-database (HEMIS) which will contain information about:
 - ongoing and planned environmental programmes/ projects;
 - important existing databases with environmental information;
 - the creation of environmental statistics and data; and
 - environmental reference materials.
2. Together with WCMC and IGBP-GCTE, HEM is developing a new strategy for the development of an improved scheme for vegetation land cover classification.
3. HEM is addressing data quality issues in collaboration with ISO, ICSU, GEMS/AIR, IAEA and WHO. Amongst other projects HEM is:
 - developing a series of methodology review hand books for the collection of air quality data with emphasis on quality assurance aspects; and
 - creating a database and directory of environmental reference materials.

HEM has established cooperative efforts with activities such as ICSU's IGBP, CODATA, SCOPE, with ISO/REMCO, IAEA, and UNESCO's MAB.

4. Contact person

Dr. Hartmut Keune, Director, address see above

INSTITUTE FOR REFERENCE MATERIALS AND MEASUREMENTS	Ref. No. 3 25971 IRMM
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1. Type of Activity

Intergovernmental; Harmonization

2. Activity Objectives

The Institute's activities are devoted to the promotion of European standards and norms and the preparation of reference material applicable to both nuclear and non-nuclear fields of research, on request and in collaboration with research bodies of Member States of the European Union (EU).

IRMM has regular cooperation and consultation with other scientific establishments. The Institute runs the Regular European Interlaboratory Measurement and Evaluation Programme (REIMEP), for the purpose of quality control, and is involved in the Interlaboratory Measurement Evaluation Programme (IMEP). Strong ties exist between the IRMM and MTP (formerly Community Bureau of Reference (BCR)) and it cooperates with various international and national agencies, e.g. the International Atomic Energy Agency (IAEA), the Euratom Working Group on Neutron Dosimetry (EWGRD), the Studie Centrum voor Kernergie/Centre d'Etudes Nucleaires (SCK/CEN).

3. Type of Standards

IRMM aims to promote European standards and norms to harmonize measurements and analyses in nuclear and non-nuclear research.

4. Contact person

Mr. Werner Mueller, address see above

Mr. Herbert H. Hansen, Scientific Liaison Office, address see above

**INTERNATIONAL ORGANIZATION FOR
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Ref. No. 3 19340
ISO



1. Type of Activity

Intergovernmental; Standardization

2. Activity Objectives

ISO is a world-wide federation of national standards bodies from some 100 countries. The scope of ISO covers standardizations in all field except for electrical and electronic engineering which are the responsibility of the *International Electrotechnical Commission (IEC)*. The results of ISO technical work are published as International Standards; at the end of 1993 more than 9000 standards had been published, and are listed in the ISO Catalogue.

ISO's technical work is carried out through **Technical Committees (TCs)**. Currently, it has TCs working in fields including:

1. Air Quality;
2. Water Quality;
3. Soil Quality;
4. Environmental Management

ISO/TC207 on Environmental Management (see entry) has not yet published any International Standards. Many standards have, however, been written for air pollution, including work-place air, ambient air, stationary source emissions, water pollution and soil pollution.

To promote and develop **Certified Reference Materials**, ISO initiated the **Committee on Reference Materials (REMCO)**, see entry).

3. Type of Standards

ISO is active in many fields related to the environment. It has developed International Standards for such environment-related topics as: acoustics; air quality; building construction; chemistry; ergonomics; fertilizers; fire protection; mining; nuclear energy; pesticides; petroleum products; protective clothing; natural gas; soil and water quality.

4. Contact person

Mr. Klaus-G. Lingner, Technical Group Manager, Planning and Technical Coordination; address see above, Tel.: +44 22 749 02 75

**INTERNATIONAL STANDARDIZATION
ORGANIZATION - TECHNICAL
COMMITTEE 207**

**ISO TC 207 SECRETARIAT
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Ref. No. 3 51080
ISO TC 207



1. Type of Activity

Intergovernmental; Standardization

2. Activity Objectives

The Technical Committee (TC) 207 on 'Environmental Management' was officially awarded to the Standards Council of Canada (SCC) on January 25, 1993 by the International Standardization Organization (ISO) Technical Board (TB). The Canadian Standards Association (CSA) has been appointed by the SCC to administer the Secretariat for this technical committee, known as ISO/TC 207.

ISO TC 207 is responsible for carrying out the activities of the former Strategic Advisory Group on the Environment (SAGE) related to industrial mobilization. These responsibilities include making industry aware and interested in environmental protection.

TC 207 consists of six subcommittees (SC) and one working group (WG), similar to the structure of the former SAGE with its six sub-groups. The subcommittees and their host countries are:

SC1: Environmental Management Systems will aid business in setting environmental policy as well as related methods and strategies.
United Kingdom (British Standards Institution (BSI))

SC2: Environmental Auditing aims to develop guidelines on the general principles of environmental auditing, the auditing of an Environmental Management System, the qualification for

environmental auditors and to develop working definitions for environmental reviews and environmental assessment.

The Netherlands (Nederlands Normalisatie-Instituut (NNI))

SC3: Environmental Labelling aims to develop guidelines in the field of environmental labelling, including first party practices (self-declaration/claims), and guiding principles for third-party certification programmes (private and government).

Australia (Standards Association of Australia (SAA))

SC4: Environmental Performance Evaluation will develop guidelines to provide business with methods for measuring the environmental impacts of their products and related processes.

United States of America (American National Standards Institute (ANSI))

SC5: Life Cycle Analysis will develop guidelines on life cycle assessment as a tool for environmental management of product and service systems. It encompasses the assessment of impacts on the environment from the extraction of raw materials to the final disposal of waste.

France (Association Francaise de Normalisation (AFNOR))

SC6: Terms and Definitions will develop a comprehensive international standard on terms and definitions within Environmental Management.

Norway (Norges Standardiseringsforbund (NSF))

WG1: Environmental Aspects in Product Standards

Germany (Deutsches Institut fuer Normung (DIN))

3. Type of Standards

Consensus

4. Contact person

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**MEASUREMENTS AND TESTING
PROGRAMME**

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Ref. No. 3 30701

MTP



1. Type of Activity

Intergovernmental; Harmonization

2. Activity Objectives

The 'Measurements and Testing Programme' of the European Commission is developed from the Bureau of Reference Programme (BCR) which ended in 1992. MTP is a service provided by the European Commission (EC) to fund research and development projects related to measurement and testing. MTP's main objective is to improve the ability to measure, and to improve the comparability of measurements, in support of the European economy (trade, industry, justice, etc.) or of the needs of society (quality of life, health, safety, environment, justice, etc.).

3. Type of Standards

The programme does not produce written standards, but does fund research needed either for the development of written standards or for the development of written standards or for their successful implementation; produce certified reference materials; and provide support to the comparability and quality of measurements in environmental monitoring programmes.

4. Contact person

Dr. D. Gould, Programme Manager, address see above

COMMITTEE ON REFERENCE MATERIALS

Ref. No. 3 32581

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**1. Type of Activity**

Intergovernmental; Harmonization

2. Activity Objectives

REMCO is ISO's committee on reference materials, reporting to the ISO Technical Management Board. It was established in 1975 at the recommendation of an international seminar on Certified Reference Material (CRM). The aim of the Committee is to carry out and encourage a broad international effort for harmonization and promotion of CRMs and their applications, in addition to its basic activities within ISO. Further objectives are to establish definitions, categories, levels and classification of reference materials for use by ISO; to determine the structure of related forms of reference materials; to formulate criteria to be applied for choice of sources for mention in ISO documents (includes legal aspects); to prepare guidelines for technical committees for making reference to reference materials in ISO documents; to propose, as far as necessary, action to be taken on reference materials required for ISO work; and to deal with matters within its competence concerning other international organizations and to advise the Technical Management Board on action to be taken.

3. Type of Standards

To address its objectives, REMCO has organized four task groups and distributed the work among them.


- The terms of reference of the **Hierarchy Task Force** is to coordinate future revisions of ISO Guide 30 with future revisions of the VIM vocabulary, so that both documents will be in harmony; to consider

definitions, categories, levels and classifications of reference materials, and recommend actions for REMCO deliberation; to collect information on views concerning the definition of CRM producers with a special emphasis on traceability; and intercomparison of CRMs.

- The terms of reference of the **Calibration Task Group** is to study mathematical, including statistical, models of calibration using CRMs, and to draft appropriate guidance to CRM users for inclusion in ISO guides; to develop mathematical models that will assist CRM producers set certified levels when certification data arise from multiple methods, multiple laboratories, method-dependent analyses, or combinations of these sources; to collect and disseminate databases of available CRMs and inproduction (including planned) CRMs; to collect documentation on calibration of instruments and methods by RMs; to draft ISO Guide 32 on the use of CRM for calibration of instruments on the basis of an ILAC document; and to revise ISO Guide 33, *Uses of Certified Reference Materials* and ISO Guide 35, *Certification of Reference Materials - General and Statistical Principles*.
- The terms of reference of the **Promotion Task Group** is to provide liaison with ISO and IEC technical committees (TCs), international organizations, institutions, agencies and CRM users to identify their needs for CRMs and convey them to producers; to inform TCs of CRM availability and encourage mention of CRMs in standard, as appropriate; to help organize workshops, seminars and demonstrations, partly in cooperation with DEVCO, to train potential users; to assist REMCO study future needs in connection with CRMs and prepare relevant propositions to the ISO Technical Management Board; and to assist development and dissemination of COMAR to advance the promotion of reference materials.
- The terms of reference of the **Accreditation Task Group** is to assess the need for the accreditation of RM producers; to collect, assess and analyse viewpoints and documentation concerning the accreditation of RM producers; to provide liaison with appropriate national and international organizations concerned with accreditation of RM producers; to produce a draft ISO guide on the requirements for accrediting RM producers; to coordinate future revisions of the resultant ISO guide; to establish programmes for conformity assessment including CRM producer's laboratory assessment and product certification; to develop an internationally recognized system for the traceability of chemical measurements; and to draw up rules for accreditation of RM producers in order to ensure full traceability.

4. Contact person

**Mr. Michael Parkany, Senior Technical Officer, Planning and Technical
Coordination, address see above**

SOUTH AFRICAN BUREAU OF STANDARDS	Ref. No. 3 17990 SABS
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1. Type of Activity

National; Standardization

2. Activity Objectives

The mission of the South African Bureau of Standards (SABS) is to contribute, by promoting quality and standardization, towards the strengthening of the economy of South Africa and towards enhancing the quality of life of all its people.

In carrying out its mission, the SABS offers the following products:

Standards: Standards are prepared and updated in collaboration with interest groups, and South Africa's interests are served and protected through cooperation with international standards organizations such as the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).

SABS Mark Scheme: The Bureau administers the Mark Scheme, which applies to products for which national mark specifications exist, with SABS certification marks serving as testimonials that the product complies with the specification, and that the supplier maintains an efficient and appropriate quality system.

SABS Listing Scheme: The Listing Scheme offers an independent testimonial to the state of a suppliers' quality system. Other Accreditation and Certification Schemes are also operated.

Quality Promotion: A greater national awareness of quality is promoted, e.g. by actively supporting the activities of the South African Quality Institute (SAQI), and providing a home for the Design Institute.

Further products offered include: consignment inspection; tests and inspection, compulsory standards (administered on behalf of the State); and quality promotion.

SABS maintains a standard information centre which a central source of information regarding standards that holds approximately 500,000 standards of the standardization bodies of approximately 60 countries, plus those of ISO and IEC.

3. Type of Standards

Standard methods used to determine the nature, purity or composition, dimensions and performance of an article, are studied by the Bureau with the aim of improving those that do not consistently yield quality results. The types of standards include: voluntary specifications, codes of practice, compulsory specifications, recommended practices, coordinating specifications, and rationalized user specifications.

4. Contact person

Ms.Leta E. Labuschagne, Head, Standards Information, address see above

**ASSOC. PER L'UNIFICAZIONE NEL
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FEDERATA ALL'UNI**

**Ref. No. 3 47620
UNICHIM**

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1. Type of Activity

National; Standardization

2. Activity Objectives

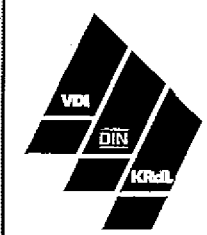
UNICHIM is a non-profit organization which, among other things, sets environment related standards and standard methodologies. Moreover, in many cases UNICHIM collects and manages datasets. Work is published in the form of manuals; available on request.

3. Type of Standards

UNICHIM concentrates its efforts on issues related to water quality, human workplace exposure, ambient air pollution and emissions of pollutants into the atmosphere. In terms of water quality, emphasis is placed on the determination and assessment of pollutants in waste waters and waters for human use. The workplace exposure effort is centred around determining pollutants of all kinds in the work environment. At the same time atmospheric pollution is being addressed from the sides of ambient air pollution and emissions.

4. Contact person

No name supplied.

<p>COMMISSION ON AIR POLLUTION PREVENTION</p> <p>POSTFACH 10 11 39 D- 40002 DUESSELDORF GERMANY</p> <p>Telephone: +49 211 6214 532 Telefax: +49 211 6214 157 E-Mail/Telex: N/A / 8586525 VDI</p>	<p>Ref. No. 3 9370 VDI/DIN KRdL</p>  <p>The logo consists of three overlapping triangles. The top triangle is labeled 'VDI', the middle one 'DIN', and the bottom one 'KRdL'.</p>
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1. Type of Activity

National Standardization Commission; The commission holds the Secretariats of ISO/TC 146 'Air quality' and of CEN/TC 264 'Air quality'.

2. Activity Objectives

The Commission on Air Pollution Prevention was formed through a merger of the German Association of Engineers' (VDI) Commission on Air Pollution Prevention and the German Institute for Standardization's (DIN) Committee on Air Pollution Prevention. The Commission's mandate is to establish scientific and technical guidelines that will address the problem of existing air pollution and the means to prevent it. The Commission concentrates on preparing standards and norms as well as describing methods and procedures for collecting, evaluating and applying research and monitoring results.

3. Type of Standards

Although, the Commission is not involved in any direct measurements, its work addresses such compounds as SO₂, SO₃, NO_x, TNO, NO₂, ozone, peroxides, fluorine compounds, CO, T metals, metalloids, and various organic compounds. Monitoring and sampling procedures and methods are being standardized in guidelines and standards. This will support the development of further guidelines for the development of mathematical models which describe the relationship between emissions and immissions, for example. Results are published under the auspices of the Commission.

4. Contact person

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ANNEX I

MONITORING PROGRAMMES VS. PROBLEM AREAS

<u>Problem Area</u>	I	II	III	IV	V	VI	VII	VIII	Others	Cross-Media ¹	Integrated ²
<u>Monitoring Programmes</u>											
ACSAD			x			x			Agricultural Studies		
AMAP	x	x				x	x	x	Arctic Ecosystems	x	x
AMCEN			x	x		x					x
CGER	x										
CONPACSE							x				
CORAL REEF	x						x				
DIVERSITAS								x	Biodiversity Studies		
EARTH OBSERVATION	x	x		x			x			x	
EARTHWATCH	x	x	x	x	x	x	x	x	Umbrella Programme	x	x
EC-JRC		x	x	x	x	x	x	x		x	
EEA		x				x					
EMAP			x		x	x	x	x	Ecol. Resource Studies	x	
EMEP		x									
ENV. PROGR.		x				x		x			x
DANUBE RIVER											
EOP		x		x			x			x	
EUREKA	x	x			x	x	x		Umbrella Programme		
EUROTRAC		x							Modelling/Techn. Dev.		
GAW	x	x		x					Umbrella Programme		
GAW BAPMoN		x									

I: Climate Change; II: Atmosphere; III: Desertification; IV: Tropical Deforestation; V: Middle-Latitude Forest Damages; VI: Freshwater; VII: Marine; VIII: Human Health

Problem Area Monitoring Programmes	I	II	III	IV	V	VI	VII	VIII	Others	Cross- Media ¹	Integrated ²
GAW GO ₃ OS	x	x									
GCOS	x	x							Umbrella Programme		x
GEENET								x			
GEMS	x	x	x	x	x	x	x	x	Umbrella Programme	x	x
GEMS/AIR		x									
GEMS/Food								x			
GEMS/HEAL								x			
GEMS/Water						x					
GERMON		x						x			
GIPME							x				
GLOSS							x				
GNIP		x									
GOOS	x	x					x		Umbrella Programme		x
GTOS			x	x	x	x		x	Umbrella Programme		x
HDP								x			x
ICIMOD									Mountain Development Impact Studies	x	
ICPs		x				x					x
IGBP	x	x	x	x	x	x	x	x	Umbrella Programme	x	x
IGOSS	x						x				x
IHP						x			Education/Training		
IIASA	x	x	x			x		x	Modelling/System Stud.	x	x

I: Climate Change; II: Atmosphere; III: Desertification; IV: Tropical Deforestation; V: Middle-Latitude Forest Damages;
VI: Freshwater; VII: Marine; VIII: Human Health

Problem Area Monitoring Programmes	I	II	III	IV	V	VI	VII	VIII	Others	Cross- Media ¹	Integrated ²
IJC						x			Ecosystem Studies		
IM		x			x	x			Econ. Studies/Emissions		x
IPCC	x								Chemical Hazards		x
IPCS								x	Plant Genetic Resources		
IPGRI											
ISLSCP	x		x		x						x
ISY	x	x			x		x				
ITSU		x					x		Seismological Studies		
IWRB						x			Waterfowl/Wetland Res.		
MAB		x	x	x	x	x	x	x	Ecological Studies		x
MEKONG COMMITTEE						x		x	Training		
MUSSEL WATCH		x					x		Impact Studies		
OCA/PAC							x				
OECD Env. Progr.									State of the Environment Report		
SCOPE								x	Human-induced Impacts		x
SPREP POL							x				
SSO			x								
START									Research/Training		

I: Climate Change; II: Atmosphere; III: Desertification; IV: Tropical Deforestation; V: Middle-Latitude Forest Damages;
VI: Freshwater; VII: Marine; VIII: Human Health

Problem Area Monitoring Programmes	I	II	III	IV	V	VI	VII	VIII	Others	Cross- Media ¹	Integrated ²
UNIDO Env. Progr.									Energy-related Studies		
WCP	X	X							Umbrella Programme		X
WCP Water	X	X				X					
WCRP	X	X					X				X
WGCCD	X										X
WGMS	X								Glacial Studies		
WWW	X	X				X		X			

I: Climate Change; II: Atmosphere; III: Desertification; IV: Tropical Deforestation; V: Middle-Latitude Forest Damages;
VI: Freshwater; VII: Marine; VIII: Human Health

¹ **Cross-Media Monitoring:** For the purpose of this Survey, cross-media monitoring is taken to occur when several living and non-living environmental variables or indicators are monitored at the same site.

² **Integrated Monitoring:** "Integrated Monitoring is defined as the repeated measurement of a range of related environmental variables or indicators in the living and non-living compartments of the environment, and the investigation of the transfer of substances or energy from one compartment to another. Monitoring becomes truly integrated when the measurements or different variables in different compartments are coordinated in time and space to provide a comprehensive picture of the system under study." (As quoted by Wiersma, 1990)

ANNEX II

MONITORING PROGRAMMES VS. MAJOR SPONSORING ORGANIZATIONS

Organization Monitoring Programmes	EC	ESA	FAO	IAEA	ICSU	OECD	UN ECE	UNEP	UNESCO	WHO	WMO	Nat.	OTHERS
ACSAD													Arab League
AMAP													Arctic Countries
AMCEN								x					OAU, UN ECA
CGER								x			J		
CONPACSE				x				x	x				
CORAL REEF								x	x		x		
DIVERSITAS					x				x				
EARTH OBSERVATION		x											
EARTHWATCH								x					
EC-JRC	x												
EEA	x												
EMAP												USA	
EMEP							x	x			x		
Env. Progr. DANUBE RIVER	x							x				NL	UNDP, USAID, WB
EOP	x	x											
EUREKA	x												
EUROTRAC	x												
GAW													
GAW BAPMoN													x
GAW GO ₁ OS													x

Organization Monitoring Programmes	EC	ESA	FAO	IAEA	ICSU	OECD	UN ECE	UNEP	UNESCO	WHO	WMO	Nat.	OTHERS
GCOS					x			x	x		x		
GEENET										x			
GEMS								x					
GEMS/AIR								x		x			
GEMS/Food								x					
GEMS/HEAL			x					x		x			
GEMS/Water								x	x	x	x		NWRI
GERMON								x		x			
GIPME								x	x				
GLOSS									x				
GNIP								x			x		
GOOS								x	x		x		
GTOS								x	x		x		
HDP													ISSC, IFIAS
ICIMOD												Nepal	
ICPs	x						x	x					
IGBP								x	x				UNDP
IGOSS									x				
IHP									x				
IIASA													Governments, IFIAS

Organization Monitoring Programmes	EC	ESA	FAO	IAEA	ICSU	OECD	UN ECE	UNEP	UNESCO	WHO	WMO	Nat.	OTHERS
LIC													USA, Canada
IM							x						Nordic Countries
IPCC								x			x		
IPCS								x		x			ILO
IPGRI													
ISLSCP					x			x			x		IAMAP
ISY		x			x								IAF
ITSU									x				
IWRB													
MAB									x				
MEKONG COMMITTEE													UNDP, ESCAP
MUSSEL													
WATCH													
OCA/PAC												USA	NOAA
OECD Env. Programme						x		x					
SCOPE					x								
SPREP POL													S. Pacific Isl. Nat.
SSO									x				
START					x				x		x		ISSC

<u>Organization Monitoring Programmes</u>	EC	ESA	FAO	IAEA	ICSU	OECD	UN ECE	UNEP	UNESCO	WHO	WMO	Nat.	OTHERS
UNIDO Env. Programme													UNIDO
WCP								x			x		
WCP Water											x		
WCRP					x				x		x		
WGCCD											x		
WGMS								x			x		ISCI/IAHS
WWW											x		

ANNEX III

DATA AND INFORMATION PROGRAMMES VS. MAJOR SPONSORING ORGANIZATIONS

Organization Data & Informa. Programme	EC	ESA	FAO	IAEA	ICSU	OECD	UN ECE	UNEP	UNESCO	WHO	WMO	Nat.	OTHERS
ACSAD													Arab League
ASFIS		x							x				DOALOS
BALTIC													HELCOM
CDIAC												USA	
CEDAR												A	ISEP
CEOS													Nat. and Internat. Agencies
CERCO	x												Nat. Mapping Agencies
CIESIN													
CC:INFO								x					UNFCCC
CODATA					x								
CORINE													EC Council of Ministers
DESIS													DC/PAC
ECCN								x					EU
EDC													Nordic Council
EIS							x						WB
ELIS													IUCN
ENVIS													WB
EOSDIS												USA	
EROS												USA	
FRIEND													NGO

Organization Data & Inform. Programme	EC	ESA	FAO	IAEA	ICSU	OECD	UN ECE	UNEP	UNESCO	WHO	WMO	Nat.	OTHERS
GDPP													IGU
GED		x			x			x					US EPA, NOAA
GER												UK	
GLASOD													ISRIC
SOTER													
GNIP				x				x			x		
GPCC											x		
GRDC					x				x		x		BMFT
GRID								x					
ICPIC								x					
IGBP-DIS					x								
INFOHYDRO											x		
INFOTERRA								x					
INTERAISE													IUCN, IIED, WRI
IODE									x				
IRPTC								x					
IRS		x											
ISCC													UN
IUCC								x					
MARC								x					
MEDIAS					x								
NETT	x												

Organization Data & Inform. Programme	EC	ESA	FAO	IAEA	ICSU	OECD	UN ECE	UNEP	UNESCO	WHO	WMO	Nat.	OTHERS
OZONACTION								x					
REED													UNIDO
SDN													UNDP
TEM SITES								x					
WCMC								x					IUCN, WWF
WCP/WCDMP								x			x		
WDC					x								
WISE													ISRIC

ANNEX IV

ACRONYMS, ABBREVIATIONS AND REFERENCE INDEX

Acronym	Full Name	Page*
ACA	Advanced Computer Applications	101
ACC	Administrative Committee on Coordination	251
ACCIS	Advisory Committee for the Coordination of Information Systems	237, 251
ACMAD	African Centre of Meteorological Applications for Development	17, 145, 257
ACP states	African, Caribbean and Pacific group of States	43
ACSAD	Arab Centre for the Studies of Arid Zones and Dry Lands	13, 145, 171
ACSYS	Arctic Climate System Study	93, 159
ACWIND	Activities on Wind Effect and Techniques to Wind Erosion Control (Database)	195
AEDD	USGS Arctic Environmental Data Directory	15
AFNOR	Association Française de la Normalisation	283, 303
AFTES	Africa Technical Department Environmentally Sustainable Development Division	201
AGRHYMET	Regional Training Centre for Agrometeorology and Operational Hydrology and their Applications (Niamey, Niger)	145
AIDAB	Australian International Development Assistance Bureau	239
AIT	Asian Institute of Technology	229
ALPTRAC	High Alpine Aerosol and Snow Chemistry Study (EUROTRAC)	49
AMAP	Arctic Monitoring and Assessment Programme	15
AMCEN	African Ministerial Conference on the Environment	17, 195
AMHY	FRIEND initiative in the Mediterranean Region	213
ANSI	American National Standards Institute	303
APC	Association for Progressive Communications	267
AQC	Assurance quality control	69
ASE	Air-Sea Exchange (EUROTRAC)	49
ASEAN	Association of South-East Asian Nations	25
ASF	Alaska Synthetic Aperture Radar Facility	207
ASFA	Bibliographic Data Base-Aquatic Sciences and Fisheries Abstracts	173
ASFIS	Aquatic Sciences and Fisheries Information System	173, 241
ASTM	American Society for Testing and Materials	283
AVHRR	Advanced Very High Resolution Radiometer	43, 145, 207, 211
BAHC	Biospheric Aspects of the Hydrological Cycle (IGBP)	93
BALTIC	Baltic Marine Environment Bibliography	175

* The page numbers underlined indicate where the full entry of the programme/ organization/ project/ database can be found. All other page numbers are for cross-referencing.

BAPMoN	Background Air Pollution Monitoring Network	15, 39, 51, 53, 55
BCR	Community Bureau of Reference	289, 299, 305
BFG	German Federal Institute of Hydrology	227
BGR	Bundesanstalt fuer Geowissenschaften und Rohstoffe	145
BIATEX	Biosphere-Atmosphere Exchange of Pollutants (EUROTRAC)	49
BIWIND	Worldwide Documentation on Wind Erosion Control (DESI)	195
BLS	Basic Linked System Model	101
BMFT	German Federal Ministry of Research and Technology	227
BMU	German Ministry of the Environment	297
BP	Blue Plan	139
BRGM	Bureau francais des Recherches Geologiques et Minières	145
BSI	British Standards Institution	287, 303
CAB	Centre for Agriculture and Bioscience International	267
CARICOM	Caribbean Community	25
CC:INFO	Information Exchange System on Country Activities on Climate Change (UNFCCC)	177
CCC	Chemical Coordinating Centre	39
CCC	Coordinating Collaborating Centre	71
CCRS	Canada Center for Remote Sensing	229
CDDIS	NASA Crustal Dynamics Data Information System	207
CDIAC	Carbon Dioxide Information Analysis Center	179
CDMS	Cryospheric Data Management System	207
CDRC	CIESIN Data and Research Center	207
CEDAR	Central European Environmental Data Request Facility	181
CEN	European Committee for Standardization	185, 283, 289, 295, 315
CENELEC	European Committee for Electronical Standardization	289
CEOS	Committee on Earth Observation Satellites	93, 147, 183, 207
CEPPOL	Caribbean Regional Environment Programme	73
CERCO	Comité Européen des Responsables de la Cartographie Officiell	185
CGER	Center for Global Environmental Research	21, 293
CGIAR	Consultative Group on International Agricultural Research	87, 115
CIEH	Comité Interafricain d'Etudes Hydrauliques	145
CIESIN	Consortium for International Earth Science Information Network	147, 189, 207, 267
CIS	Commonwealth of Independent States	125
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	271
CL	Central Laboratory of Air Pollution	33, 295
CLICOM	Climate Computing	163, 275

CLIMEX	Climate Impact Assessment Expert System	101
CLIVAR	Programme on Climate Variability and Predictability	93, 159
CMC	Conservation Monitoring Centre	271
CMCP	Protected Areas Sub-Module	205
CMEA	Council for Mutual Economic Assistance	53
CMP	Climate Modelling Programme	93
CNES	Centre national d'études spatiales (France)	119, 257
CO₂DB	Inventory of Carbon Dioxide Mitigation Measures (Database)	101
CODATA	Committee on Data for Science and Technology	191, 297
COMAR	Coastal Marine Programme	127, 307
CONFACSE	Coordinated Programme on Marine Pollution Monitoring and Control in the South-East Pacific	23
CORINE	Coordination of Information on the Environment	35, 43, 193, 215
COSPAR	Committee on Space Research	117, 119
CPPS	Permanent Commission on the South Pacific	23, 79
CRM	Certified Reference Material	307
CSA	Canadian Standards Association	303
CSD	Coopération Suisse pour le Développement (UNDP)	151
CSIRO	Commonwealth Scientific and Industrial Research Organization	43
CSM	Climate System Monitoring	275
CU	University of Colorado	207
CZCS	Coastal Zone Colour Scanner	43
DAAC	Distributed Active Archive Center	207, 211
DAC	Development Assistance Committee	239
DANIDA	Danish International Development Agency	239
DARE	Data Rescue Project (WCDP)	163
DBCP	Data Buoy Cooperation Panel	79
DC/PAC	Desertification Control/Programme Activity Centre (UNEP)	195
DELI	Desertification Library (database)	195
DEPRO	UNEP Desertification Control Projects (database)	195
DESI	Desertification Information System	195
DEVCO	Committee on Development (ISO)	307
DIMDI	Deutsches Institut fuer Medizinische Dokumentation und Information	175
DIN	Deutsches Institut fuer Normung e.V. (German Institute for Standardization)	283, 287, 291, 303, 315
DIOR	Directory of Organizations Dealing with Desertification Control and Dryland Development (DESI)	195
DIS	Data and Information Systems	147, 233
DITR	Deutsches Informationszentrum für Technische Regeln	291
DIVERSITAS	DIVERSITAS Programme	27
DKRZ	Deutsches Klimarechenzentrum	197

DOALOS	Division for Ocean Affairs and the Law of the Sea (UN)	173
DS	Danish Standards Organization	287
DSO	A retrieval language	291
DUNDIS	Directory of United Nations Databases and Information Services	251
EARS	Environment Assessment and Reporting Support System	101
EARSEC	European Airborne Remote Sensing Capabilities Earth Observation Programme	43
EARTHNET	EARTHNET Programme (ESA)	29, 43
EARTHWATCH	EARTHWATCH Programme	31, 79
EC	European Commission	29, 33, 35, 39, 41, 43, 47, 49, 89, 117, 119, 131, 137, 183, 185, 191, 259, 287, 289, 295, 305
ECA	Economic Commission for Africa (UN)	17
ECCN	European Climate Computer Network	197
ECDIN	Environmental Chemicals Data and Information Network (EU)	245
ECE	Economic Commission for Europe (UN)	15, 39, 69, 89, 109, 199, 231, 269
ECHO	European Commission Host Organization	47
ECISS	European Committee for Iron and Steel Standardization	289
EDC	Environmental Data Centre	15, 89, 109, 199
EDR	Environmental Data Report	255
EEA	European Environment Agency	33, 35, 49, 185, 193
EEES	Environment Experts of the Economic Summit	297
EEION	European Environment Information and Observation Network	35
EEIS	Energy and Environment Information System	151, 265
EEOP	European Earth Observation Panel	43
EFTA	European Free Trade Association	35, 289
EIS	Environmental Information System Network for Sub-Saharan Africa	201
ELC	Environmental Law Centre (IUCN)	205, 237
ELIS	Environmental Law Information System	203, 205, 237
EMAP	Environmental Monitoring and Assessment Programme	37
EMCI	Environmental Legislation Sub-Module	205
EMEP	Cooperative Programme for the Monitoring and Evaluation of Long Range Air Pollutants in Europe	15, 33, 39, 49, 51, 53, 89, 295

ENRICH	European Network for Research in Global Change	257
ENVIS	Environmental Information System	205, 271
ENVOS	Environmental Operations and Strategy Division	205
EO-ICWG	Earth Observations International Coordination Working Group	207
EOP	Earth Observation Programmes (ESA)	43
EOS	Earth Observing System	189, 207, 211
EOSDIS	Earth Observing System Data and Information System	207, 211
EPOCH	European Programme for Climatology and Natural Hazards	33
EPSAT	Estimating Pluriometry from Satellite	145
ERB	European Network of Experimental and Representative Basins	213
ERDAS	Earth Resources Data Analysis System	87
ERLAP	European Reference Laboratory of Air Pollution	33, 295
EROS	US Geological Survey Earth Resources Observation Systems	207, 211
EROS EDC	Earth Resources Observation Systems Environmental Data Center	207, 211, 229
ESA	European Space Agency	29, 33, 35, 43, 119, 183, 249
ESCAP	Economic and Social Committee for Asia and the Pacific (UN)	131
ESF	European Science Foundation	43
ESRI	Environmental Systems Research Institute Inc.	217
ESRIN	European Space Research Institute (ESA)	29, 43, 249
ESSC	European Space Science Committee	43
ESTEC	European Space Research and Technology Centre (ESA)	29
ETF	European Transfer Format	185
ETH	Swiss Federal Institute of Technology	165
ETSI	European Telecommunications Standards Institute	289
EU	European Union	33, 35, 47, 181, 193, 203, 245, 293, 299
EUMAC	European Modelling of Tropospheric Constituents (EUROTAC)	49
EUMETSAT	European Meteorological Satellite Organization	29
EUREKA	European Research Coordinating Agency	43, 47, 49
EUROCARE	EUREKA project for the preservation of historic monuments	47
EUROENVIRON	EUREKA project for the use of environmental technologies	47
EUROGI	European Association for Geographic Information	185
EUROMAB	International Cooperation of the Man and the Biosphere Programmes of Europe and North America	127

EUOMAR	European Project on Marine Research and Technology	43, 47, 193
EUROSTAT	European Statistical Office	35, 137, 185
EUROTRAC	European Experiment on Transport and Transformation of Environmentally Relevant Trace Constituents in the Troposphere over Europe	47, 49, 193
EWGRD	Euratom Working Group on Neutron Dosimetry	299
FAGS	Federation of Astronomical and Geophysical Data Analysis Services	165
FAN	Food and Agriculture Network	101
FAO	Food and Agriculture Organization (UN)	13, 61, 65, 81, 115, 127, 139, 145, 155, 157, 173, 183, 217, 221, 279, 287
FAP	World Agriculture, Environment and Land Use	101
FRIEND	Flow Regimes from International Experimental and Network Data	213
GAIM	Global Analysis, Interpretation and Modelling (IGBP)	93
GARP	Global Atmospheric Research Programme	227
GAW	Global Atmosphere Watch (WMO)	51, 53, 55, 57
GBDP	Global Baseline Data Project	163
GCDIS	Global Change Data and Information System	207
GCE	Ground-based Cloud Experiments (EUROTRAC)	49
GCM	General Circulation Models	77, 93, 117
GCOS	Global Climate Observing System	31, 52, 75, 79, 81, 93, 147, 163, 183, 225
GCRP	Global Change Research Programme	179
GCTE	Global Change and Terrestrial Ecosystems (IGBP)	93, 297
GDPP	Global Database Planning Project	215
GED	Global Ecosystems Database	217
GEDD	Global Environmental Data Directory	233
GEENET	Global Environmental Epidemiology Network	59
GEEP	Groups of Experts for Effects (biological) of Pollutants	73
GEF	Global Environment Facility	267
GELNET	Global Environmental Library Network	59
GEMS	Global Environment Monitoring System	17, 31, 51, 53, 55, 61, 63, 67, 69, 71, 77, 79, 81, 89, 143, 165, 201, 223, 229, 255, 269, 297
GEMS/AIR	GEMS Urban Air Quality Monitoring Project	31, 61, 63, 297

GEMS/FOOD	GEMS Food Contamination Monitoring Project	31, 61, 65
GEMS/HEAL	GEMS Human Exposure Assessment Location Project	31, 61, 67
GEMS/WATER	GEMS Assessment of Freshwater Quality	31, 61, 69, 293
GEMSI	Groups of Experts for Methods, Standards, and Intercalibration	73
GENMIS	Generation of European Emissions (EUROTRAC)	49
GER	Global Environmental Research (UK)	219
GERMON	Global Environmental Radiation Monitoring Network	61, 71
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Pollution	139
GESREM	Groups of Experts for Standards and Reference Materials	73
GETNET	Global Environmental Technology Network (WHO)	59
GEWEX	Global Energy and Water Cycle Experiment	93, 117, 159, 225
GHG	Greenhouse gases	101
GIPME	Global Investigation of Pollution in the Marine Environment	73, 79, 241
GIS	Geographical Information Systems	85, 87, 99, 101, 131, 193, 199, 215, 229, 271, 285
GIST	Global Information System Test (ISY)	119
GLASOD	Global Assessment of Soil Degradation	221, 233, 279
GLIS	Global Land Information System	207, 211
GLISP	Great Lakes International Surveillance Plan	105
GLOMAC	Global Modelling of Atmospheric Chemistry (EUROTRAC)	49
GLOSS	Global Sea Level Observing System	57, 75, 79
GNIP	Global Network Isotopes in Precipitation	77, 223
GO₃OS	Global Ozone Observing System (WMO)	51, 55
GOOS	Global Ocean Observing System	31, 75, 79, 81, 147, 183
GPPC	Global Precipitation Climatology Centre	225, 227
GPCP	Global Precipitation Climatology Project	159, 225
GPS	Global Positioning System	75
GRDC	Global Run-off Data Centre	69, 225, 227
GRID	Global Resource Information Database	17, 21, 31, 61, 87, 165, 193, 199, 211, 213, 217, 221, 229, 233, 271
GSF	Gesellschaft fuer Umwelt und Gesundheit (Research Centre for Environment and Health)	297
GSFC	Goddard Space Flight Center	207, 257
GSP	Global Positioning System	75

GSV	Global Student Village	189
GTOS	Global Terrestrial Observing System	31, 81, 93, 127, 147, 269
GTS	Global Telecommunications System	57, 97, 167, 225
GTSP	Global Temperature-Salinity Pilot Project	241
GTZ	Gesellschaft fuer Technische Zusammenarbeit	145, 239
Guam EPA	Environment Protection Agency of Guam	143
HALIPP	Heterogeneous and Liquid Phase Processes (EUROTRAC)	49
HDP	Human Dimensions of Global Environmental Change Programme	85, 93, 147, 257
HELCOM	Helsinki Commission	175
HEM	Harmonization of Environmental Measurement Office (UNEP)	61, 63, 227
HEMIS	HEM Information System	297
HHS	Human and Health Services (US)	207
HMDB	Hydrologic and Meteorologist Database	131
HRGCP	Human Response to Global Change Programme	85
HRPT	High Resolution Picture Transmission	43
IACGEC	Inter-Agency Committee on Global Environmental Change	219
IAEA	International Atomic Energy Agency	23, 71, 73, 77, 79, 139, 223, 297, 299
IAF	International Astronautical Federation	119
IAH	International Association of Hydrologists	99
IAHR	International Association of Hydrological Research	99
IAHS	International Association of Hydrological Sciences	99, 157, 165
IAI	Inter-American Institute for Global Change Research	147
IAMAP	International Association of Meteorology and Atmospheric Physics	55, 117
IAPSO	International Association for the Physical Sciences of the Ocean	75, 123
IARC	International Agency for Research on Cancer	65, 115
IARE	Institut des aménagements régionaux et de l'environnement	145
IASC	International Arctic Science Committee	15
IASSO	International Association of the Sahara and Sahel Observatory	145
IBPGR	International Board for Plant Genetic Resources	115
ICA	International Cartographic Association	163, 185
ICC	International Chamber of Commerce	267
ICC	International Coordinating Council	127, 231
ICES	International Council for the Exploration of the Seas	15, 79, 193
ICG	International Coordination Group (IOC)	123
ICID	International Commission on Irrigation and Drainage	99

ICIMOD	International Centre for Integrated Mountain Development	87, 229
ICOLP	International Cooperative on Ozone Layer Protection	267
ICPIC	International Cleaner Production Information Clearinghouse	231, 261
ICPs	International Cooperative Programmes	39, 82, 109, 199
ICSI	International Commission on Snow and Ice	165
ICSU	International Council of Scientific Unions	27, 49, 57, 79, 81, 85, 93, 101, 117, 119, 123, 127, 141, 147, 155, 157, 159, 163, 165, 179, 183, 191, 215, 217, 227, 233, 241, 255, 267, 277, 297
IDNDR	International Decade for Natural Disaster Reduction (UN)	123
IDRC	International Development Research Center	267
IE/PAC	Industry and Environment/Programme Activity Centre (UNEP)	231, 245, 261, 265
IEC	Implementation and Effectiveness of International Environmental Commitments	101
IEC	International Electrotechnical Commission	301, 307, 311
IEOS	International Earth Observing System	207
IFTAS	International Federation of Institutes of Advanced Studies	85, 101, 127
IFS	International Federation of Surveyors	185
IGAC	International Global Atmospheric Chemistry Project (IGBP)	49, 51, 93
IGBP	International Geosphere-Biosphere Programme (ICSU)	27, 43, 49, 51, 57, 69, 79, 85, 93, 99, 101, 117, 127, 141, 147, 159, 183, 211, 215, 217, 233, 241, 257, 297
IGBP-DIS	Data and Information System for the International Geosphere-Biosphere Programme	93, 233, 279
IGCP	International Geological Correlation Programme	99, 127
IGOSS	Integrated Global Ocean Services System	57, 75, 79, 97, 123, 241
IGU	International Geographical Union	215, 233
IHD	International Hydrological Decade	99, 227

IHP	International Hydrological Programme	99, 127, 213
IASA	Environment Programme of the International Institute for Applied Systems Analysis	101, 127, 157, 193
IIED	Institute for Environmental and Development	239
IISE	Integrated System on the Environment	145
IJC	International Joint Commission	105
ILEC	International Lake Environment Committee	69
ILMO	International Organization of Legal Metrology	293
ILO	International Labour Organization	113, 245, 249
IM	Integrated Monitoring (Nordic Council)	15, 51, 109
IMAP	Intergovernmental Meeting of the Action Plan (CONPACSE)	23
IMC	Interim Mekong Committee	131
IMEP	Interlaboratory Measurement Evaluation Programme	299
IMO	International Maritime Organization	73, 79, 139, 231
IMP	International Pilot Programme on International Monitoring (UN ECE)	89, 199
IND	Regional Material Balance Approaches to Long-term Environment Policy Planning	101
INFOCLIMA	World Climate Data Information Referral Service	163, 275
INFOHYDRO	Hydrological Information Referral Service	235
INFOTERRA	International Environmental Information System (UNEP)	21, 31, 181, 237, 245, 251, 265, 267
INPE	Instituto de Pesquisas Espaciais, Brasil	229
INTERAISE	International Environmental and Natural Resource Assessment Information Service	239
INTIB	Industrial and Technological Information Bank (UNIDO)	151, 265
IOC	Intergovernmental Oceanographic Commission (UNESCO)	23, 25, 57, 73, 75, 79, 93, 97, 123, 127, 139, 147, 155, 159, 163, 173, 183, 233, 241, 277
IODE	International Oceanographic Data Exchange System	73, 79, 97, 241, 277
IP	Image Processing	229
IPCC	Intergovernmental Panel on Climate Change	21, 93, 101, 111, 155, 253
IPCS	International Programme on Chemical Safety	113, 245
IPGRI	International Plant Genetic Resources Institute	115
IRIS	International Review of Environment Information Systems (OECD)	137
IRMM	Institute for Reference Materials and Measurements	299

IRPTC	International Register of Potentially Toxic Chemicals (UNEP)	31, 113, 237, 245
IRS	Information Retrieval Service (ESA)	249
ISCC	Information Systems Coordination Committee	237, 251
ISCCP	International Satellite Cloud Climatology Project	159
ISEP	International Society for Environmental Protection	181
ISLSCP	International Satellite Land Surface Climatology Project	117, 159
ISO	International Standardization Organization	175, 283, 287, 289, 295, 297, 301, 303, 307, 311
ISO TC 205	International Standardization Organization - Technical Committee 205	301, 303
ISRIC	International Soil Reference and Information Centre	221, 279
ISS	International Scientific Secretariat (@Fraunhofer Institute for Atmospheric Environmental Research)	49
ISSC	International Social Sciences Council	85, 93, 147
ISSS	International Society of Soil Science	221, 233
ISY	International Space Year	29, 33, 43, 117, 119, 211
ITIC	International Tsunami Information Centre	123
ITSU	Tsunami Warning System in the Pacific	123
IUBS	International Union of Biological Sciences	27, 127, 141
IUCC	Information Unit on Climate Change (UNEP)	253
IUCN	World Conservation Union	25, 125, 127, 193, 203, 237, 239, 271
IUFRO	International Union of Forestry Research	127
IUGG	International Union of Geodesy and Geophysics	123
IWRA	International Water Resources Association	99
IWRB	International Waterfowl and Wetlands Research Bureau	125
JETDLAG	Joint European Development of Turnable Diode Laser Absorption Spectroscopy for Measurement of Atmospheric Trace Gases (EUROTRAC)	49
JGOFS	Joint Global Ocean Flux Study (IGBP)	43, 79, 93, 241
JIS	Japan Industrial Standards	293
JPL	Jet Propulsion Laboratory	207
JPO	Joint Planning Office	57
JRC	Joint Research Centre (EC)	29, 33, 35, 39, 119, 289, 295
JSTC	Joint Scientific and Technical Committee	57
KEYS	Desertification Thesaurus (DESI)	195
KRaL	Kommission zur Reinhaltung der Luft (Commission on Air Pollution Prevention) (VDI/DIN)	315

LACTOZ	Laboratory Studies of Chemistry Related Tropospheric Ozone (EUROTRAC)	49
LaRC	Langley Research Center	207
LASFLEUR	EUREKA project	47
LASOTER	Soils and Terrain Digital Database for Latin America	221
LI	Liaison Institutions	71
LME's	Large Marine Ecosystems	79
LOICZ	Land-Ocean Interactions in the Coastal Zone (IGBP)	93
LUCC	Land-Use/Cover Change (IGBP)	93
MAB	Man and the Biosphere Programme (UNESCO)	99, 127, 139, 141, 297
MAFF	Ministry of Agriculture, Fisheries and Food (UK)	65
MAIL	Desertification Mailing List (DESI)	195
MAP	Mediterranean Action Plan	139, 193
MARC	Monitoring and Assessment Research Centre	61, 63, 67, 255
MARPOLMON	Marine Pollution Monitoring System (IOC)	73, 79
MAST	Marine Science and Technology Programme	43
MBDB	Mekong Bibliographic Database	131
MEDCOM	Planning Committee for the Mediterranean (START)	257
MEDI	Marine Environmental Data Information Referral System	241
MEDIAS	Regional Research Network for the Mediterranean Basin and Subtropic Africa	257
MEDPOL	Programme on Monitoring and Modelling of Pollution of the Mediterranean Sea Through Atmosphere (UNEP, IAEA)	139
MEGRIN	Multi-purpose European Ground Related Information Network	185
MEKONG COMMITTEE	Interim Committee for Coordination of Investigations of The Lower Mekong Basin	131
MEMAC-ROPME	Main Emergency Mutual Aid Centre of the Regional Organization for the Protection of the Marine Environment	139
MENRIS	Mountain Environment and Natural Resources' Information System	87
MERIS	Medium Resolution Imaging Spectrometer	43
METEOSAT	Meteorological Satellite	29
MS-ACCESS	Software Microsoft ACCESS	177
MSC	Meteorological Synthesizing Centres	39
MSEDB	Mekong Secretariat Socio-Economic Database	131
MSFC	Marshall Space Flight Center	207
MTP	Measurements and Testing Programme	289, 299, 305
MTPE	Mission to Planet Earth	117, 119, 207
MUSSEL WATCH	Mussel Watch Programme	135

NASA	National Aeronautics and Space Administration (USA)	43, 55, 117, 119, 183, 207, 211, 229, 233, 249, 257
NASDA	National Space Development Agency (Japan)	183
NASOTER	Soils and Terrain Digital Database for USA and Canada	221
NBWE	Finnish National Board of Waters and the Environment	199
NCDS	NASA Climate Data System	207
NEAPs	National Environment Action Plans (EIS)	201
NETT	Network for Environmental Technology Transfer	259
NFA	National Food Administration (Sweden)	65
NFCs	National Focal Centres	199, 237
NGDC	National Geophysical Data Center (US)	217
NGONET	Initiative of non-governmental organizations for information sharing	267
NIES	National Institute for Environmental Studies (Japan)	21, 229
NILU	Norwegian Institute for Air Research	15, 39
NIST	National Institute of Standards and Technology (US)	135
NIVA	Norwegian Institute for Water Research	69, 89
NNI	Nederlands Normalisatie-Instituut (Dutch Standardization Organization)	283, 287, 303
NOAA	National Oceanic and Atmospheric Administration (USA)	37, 43, 51, 119, 135, 145, 159, 183, 207, 211, 217, 233
NODCs	National Oceanographic Data Centres (IOC)	241
NODS	NASA Ocean Data System	207
NRLM	National Research Laboratory of Metrology (Japan)	293
NS&T	National Status and Trends Programme (US)	135
NSF	National Science Foundation (US)	207
NSF	Norges Standardiseringsforbund (Norway)	303
NWRI	National Water Research Institute (Canada)	69
OAIC	On-line OzonAction Information Clearinghouse	261
OAU	Organization of African Unity	17
OCA/PAC	Oceans and Coastal Areas/Programme Activity Centre (UNEP)	23, 25, 69, 139
OCA/PAC	Regional Seas Programme (UNEP)	139; 143
OCEAN	Ocean Colour European Archive Network	43
OCTOPUS	Ocean Colour Techniques for Observation, Processing and Utilization Systems	43
ODS	Ozone Depleting Substances	261
OECD	OECD Environment Committee	137
OECD	Organization for Economic and Cooperation and Development	35, 41, 137, 191, 193, 231, 239, 245, 289

OEEPE	European Organization for Experimental Photogrammetric Research	185
OLA	Office of Legal Affairs (DOALOS/UN)	173
OMEX	Ocean Margin Exchange Experiment	79
OPS	Oficina Panamericana de la Salud	23
ORNL	Oak Ridge National Laboratory	179, 207
OSI	Open Systems Interconnect	189
OSLR	Ocean Science and Living Resources	79
OSPARCOM	Oslo and Paris Commission	193
OTWS	Operation Tsunami Warning System	123
OZONACTION	OzonAction Programme	261
PADIS	Pan African Development Information System	267
PAGES	Past Global Changes (IGBP)	93
PAP	Priority Actions Programme	139
PCU	Programme Coordination Unit	41
PD	Project directory	15
PID	Prototype International Directory (ESA)	249
PLDS	NASA Pilot Land Data System	207
POEM	Polar Orbit Earth Observation Missions	29
POP	Population, Development and Environment Interactions	101
PROCOM	UN Compendium on Dryland Development and Desertification Control Projects (DESI)	195
PSFG	Permanent Service on the Fluctuations of Glaciers	165
PSMSL	Permanent Service for Mean Sea Level	75
PTWC	Pacific Tsunami Warning Centre	123
Q/R	Query/Response Database	195
QA	Quality assurance	15, 53
RAC	Regional Activity Centre	139
RAD	Radiation Safety of the Biosphere	101
RAINS	Regional Acidification Information and Simulation System	101
RAP	Remedial Action Plan	105
RCC	Regional Coordinating Centres	71
RCU	Regional Coordination Unit	17
REC	Regional Environmental Center for Central and Eastern Europe	181
REED	Referral Database on Energy and Environment	265
REIMEP	Regular European Interlaboratory Measurement and Evaluation Programme	299
REMCO	Committee on Reference Materials (ISO)	297, 301, 307
REMPEC	Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (OCA/PAC)	139
REWIND	Network of Researchers and Institutions Dealing with Wind Erosion (DESI)	195
RM	Reference Material	307

RNODCs	Responsible National Oceanographic Data Centres (IOC)	241
ROA	Regional Office for Africa (UNEP)	17
ROPME	Regional Organization for the Protection of the Marine Environment (OCA/PAC)	139
ROSE	Report on the State of the Environment (OECD)	137
ROSELT	Réseau d'Observatoires de Surveillance Ecologique à Long Terme	145
RRC	Regional Research Centre	147
RRN	Regional Research Network	147
RRS	Regional Research Site	147
SAA	Standards Association of Australia	303
SABS	South African Bureau of Standards	311
SAC	Scientific Advisory Committee	53, 71
SAE	Society of Automotive Engineers	285
SAFISY	Space Agency Forum for ISY	119, 233
SAGE	Strategic Advisory Group on the Environment	303
SAQI	South African Quality Institute	311
SAR	Synthetic Aperture Radar	43, 207
SCC	Standards Council of Canada	303
SCK/CEN	Studie Centrum voor Kernergie/Centre d'Etudes Nucleaires	299
SCOPE	Scientific Committee on Problems of the Environment (ICSU)	27, 101, 127, 141, 297
SDGC	Space Data for Global Change (ISY)	119
SDN	Sustainable Development Network (UNDP)	31, 267
SE	South-East	23
SeaWIFS	Sea-viewing Wide Field Sensor	43
SEPCF	South-east Pacific Action Plan	139
SGOMSEC	Scientific Group on Methodologies for the Safety Evaluation of Chemicals	141
SIDA	Swedish International Development Authority	131
SIREN	System of Information on Resources and the Environment (OECD)	137
SMI	Small and Medium-scale Industries	151
SOE	State of the Environment	255
SOTER	World Soils and Terrain Digital Database	221, 233, 279
SPA	Specially Protected Areas	139
SPARC	Stratospheric Processes and their Role in Climate	93, 159
SPREP	South Pacific Regional Environment Programme	139, 229
SPREP POL	South Pacific Regional Environment Programme Marine Pollution Programme	23, 25, 143
SRB	Surface Radiation Budget Project	159
SSO	Sahara and Sahel Observatory	145, 257
STAIRS	Storage and Information Retrieval System	205
START	Global Change System for Analysis, Research and Training (IGBP)	85, 93, 147, 257

STEP	Science and Technology for Environmental Protection (EC)	33
SWCC	Second World Climate Conference	57, 155
SWEAP	SOTER Water Erosion Assessment Programme	221
TAMSAT	Tropical Application of Meteorology Using Satellite	145
TAP	Transboundary Air Pollution	101
TCC	Technical Coordinating Centre	67
TCN	Telecommunications Cooperative Network	267
TCP/IP	Transmission Control Protocol/Internetworking Protocol	181
TEM SITES	Terrestrial Ecosystem Monitoring Sites Database	269
TESLAS	Tropospheric Environmental Studies by Laser Sounding (EUROTRAC)	49
TGDDIS	Trace Gas Dynamics Data Information System	207
TOGA	Tropical Oceans and Global Atmosphere	75, 79, 93, 241
TOPAS	Tropospheric Optical Absorption Spectroscopy (EUROTRAC)	49
TOR	Tropospheric Ozone Research (EUROTRAC)	49
TOVS	(Television Infrared Observing Satellite) TIROS Operational Vertical Sounder	207
TRACT	Transport of Pollutants over Complex Terrain (EUROTRAC)	49
TREES	Tropical Ecosystem Environment Observations by Satellite (EC)	43
UAF	University of Alaska-Fairbanks	207
UK DoE	UK Department of the Environment	255
UN	United Nations	31, 39, 53, 61, 63, 69, 79, 85, 89, 93, 109, 111, 115, 119, 139, 151, 173, 181, 195, 199, 229, 231, 233, 235, 237, 251, 267, 269
UNCED	United Nations Conference on Environment and Development	61, 87, 127, 151, 245
UNCHS	United Nations Centre for Human Settlements	127
UNDP	United Nations Development Programme	31, 93, 127, 131, 139, 151, 155, 261, 267

UNEP	United Nations Environment Programme	13, 17, 21, 23, 25, 31, 39, 53, 55, 57, 61, 63, 65, 67, 69, 71, 73, 77, 79, 81, 87, 89, 93, 101, 111, 113, 117, 127, 137, 139, 141, 143, 151, 155, 157, 163, 165, 173, 177, 181, 183, 191, 193, 195, 199, 201, 211, 213, 217, 221, 223, 229, 231, 233, 237, 245, 251, 253, 255, 257, 261, 265, 267, 269, 271, 297
UNESCO	United Nations Educational, Scientific and Cultural Organization	13, 17, 27, 61, 69, 73, 75, 79, 81, 85, 87, 93, 97, 99, 123, 127, 139, 141, 145, 147, 157, 163, 165, 173, 183, 191, 213, 227, 233, 241, 269, 279, 297
UNFCCC	United Nations Framework Convention on Climate Change (Climate Change Secretariat)	111, 155, 177
UNICHIM	Chemical Industry Association for Standards (Italy)	313
UNIDO	UNIDO Environment Programme	151
UNIDO	United Nations Industrial Development Organization	139, 151, 231, 261, 265
UNITAR	United Nations Institute for Training and Research	145, 201, 217, 233, 245, 257
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation	71
UNSCTD	United Nations Conference on Science and Technology for Development	231
UNSTAT	United Nations Statistical Office	127
US DOA	United States Department of Agriculture	37, 207
US DOC	United States Department of Commerce	37

US DOD	United States Department of Defense	207
US DOE	United States Department of Energy	179, 207
US DOI	United States Department of Interior	37, 207
US EPA	United States Environmental Protection Agency	37, 63, 67, 69, 207, 217, 231, 261
USAID	United States Agency for International Development	239
USDA-SCS	United States Department of Agriculture-Soil Conservation Service	279
USGCRP	United States Global Change Research Program	207
USGS	United States Geological Survey	15, 43, 207, 211
VAW	Swiss Federal Institute of Technology	165
VDI	Verein Deutscher Ingenieure (German Association of Engineers)	315
VDI/DIN	VDI Commission on Air Pollution Prevention	315
VKI	Danish Water Quality Institute	69
VLBI	Very Long Baseline Interferometry	75
WACAF	West and Central African Action Plan	139
WAIS	Wide Area Information Service	189
WASWC	World Association of Soil and Water Conservation	221
WAT	Environmental Impacts on Water Resources	101
WB	World Bank	127, 137, 151, 201, 205, 261
WCASP	World Climate Applications and Services Programme	155, 275
WCDMP	World Climate Data and Monitoring Programme	155, 163, 275
WCIRP	World Climate Impact Assessment and Response Strategies	155, 275
WCMC	World Conservation Monitoring Centre	61, 127, 205, 267, 271, 297
WCP	World Climate Programme	57, 101, 155, 157, 159, 227, 275
WCP/WATER	World Climate Programme/Water	157
WCRP	World Climate Research Programme	43, 57, 75, 79, 93, 97, 117, 147, 155, 159, 183, 225, 257, 275
WDC	World Data Center (ICSU)	57, 179, 225, 233, 241, 277
WDC-A	World Data Center-A (Glaciology)	123, 165, 179, 217, 277
WDCGG	World Data Centre for Greenhouse Gases	51
WDEES	World Digital Database for Environment Sciences	233
WEC	World Energy Council	101
WFEO	World Federation of Engineering Organizations	265

WGCCD	Working Group on Climate Change Detection	163
WGI	World Glacial Inventory	165
WGMS	World Glacier Monitoring Service	165
WHO	World Health Organization	59, 61, 63, 65, 67, 69, 71, 113, 139, 141, 155, 191, 255, 297
WISE	World Inventory of Soil Emission Potentials	279
WMO	World Meteorological Organization	13, 25, 39, 51, 53, 55, 57, 61, 69, 77, 79, 81, 93, 97, 101, 111, 117, 139, 147, 155, 157, 159, 163, 165, 167, 183, 193, 213, 223, 225, 227, 233, 235, 241, 269, 275
WOCE	World Ocean Circulation Experiment	75, 79, 93, 159, 241
WODC	World Ozone Data Centre	51, 55
WQMN	Water Quality Monitoring Network	131
WRI	World Resources Institute	239, 255
WSL	Eidgenoessische Forschungsanstalt fuer Wald, Schnee und Landschaft (Swiss Federal Institute for Forest, Snow and Landscape Research)	269
WWF	World-wide Fund for Nature	125, 271
WWW	World Weather Watch (WMO)	57, 79, 97, 167, 225
ZADI	Centre for Agricultural Documentation and Information (Germany)	115

ANNEX V

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