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## Editorial

### Global change, climate change: a need for clarification?

Around the '80s, acid deposition were the magic words to justify most of the environmental research activities and, more important, to get them funded.

Around the '90s, acid deposition almost disappeared (but I assure you that it is still there!) and global change and climate change became the magic words, very often being used interchangeably, as synonyms.

Due to the *many* contradictory interpretations of the *many* existing uncertainties in climate change, although the Working Group I of the Intergovernmental Panel on Climate Change (IPCC) recently concluded that "nevertheless balance of evidence suggests that there is a discernible human influence on global climate", there is now the tendency to consider climate change as being out of fashion. Hence, research managers and policy makers, extrapolating, conclude that global change is also no more worth of consideration.

However, climate change is just one facet of global change to which atmosphere, biosphere and oceans contribute. Global change requires, among other things, the understanding of atmospheric chemical and physical processes which influence the bio-geochemical cycles which then trigger phenomena such as acidification, eutrophication, tropospheric/stratospheric ozone variation, climate variability etc. The latter are, in turn, conditioning the functioning of terrestrial and marine ecosystems (e.g. affecting water and agriculture resources), which, with their feedback, can then play a role on the global change and close the circuit.

It must be clearly stated that the factors which contribute to the atmospheric part of global change (different type of emissions, their chemical and photochemical transformations, aerosol formation, ozone formation/depletion processes, variation of the oxidation capacity of the atmosphere etc.) are worth studying just because the magnitude of the effects they can induce, including those on climate change, is not known.

For instance, tropospheric ozone, which is part of the global change issue, has impacts which can be more or less important at local, regional or global scale as it affects the tropospheric oxidation capacity, it has adverse effects on human health, on vegetation and on soil microbes, it intercepts part of the increased UV radiation and it is, in the upper troposphere, a powerful greenhouse gas.

A similar situation occurs for aerosols because of their role, quantitatively highly uncertain, on regional and global climate and because of their alleged effect on human health in industrial and rural areas.

To consider all these problems as being part of the global change issue is one of the most important achievements of research today. It emphasizes that these problems are closely linked, they have then to be tackled accordingly. Surely not by selecting them following current fashions.

Running the risk of being obvious, from time to time it is necessary to repeat that research means improving the understanding of short and long-term phenomena in which our life is embedded and that, in particular, the long term ones cannot be understood and solved without passing through lengthy, continuous conflicting processes. Hence the need to persist on problems and to assure a continuity which is the mainstay for good science.

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# Programme News

## Air Pollution

### JRC-Ispra Research Activities

#### Atmospheric Processes

Changes in atmospheric composition pose one of the largest threats to the stability of the environment. Small changes in the releases of some gases can have unexpectedly large and lasting global effects. This is of particular concern where the changes are due to the activities of man. An understanding of how anthropogenic emissions are perturbing the natural biogeochemical cycles however, requires an understanding of both the natural cycles and the processes by which the anthropogenic emissions perturb them. It is within this context that the Atmospheric Processes Unit of EI studies the complex atmospheric physico-chemical processes of both the natural and anthropogenic contributions to tropospheric ozone formation and the formation and behaviour of atmospheric aerosols. The activities of the Unit are focused on aspects of these studies that are relevant to Europe, as understanding them is a key element in environmental policy decision making.

#### Tropospheric Ozone

Within Europe, the Mediterranean basin is the most important source region for tropospheric ozone, and has significant emissions of both natural and anthropogenic precursor species. It is the focus for a number of collaborative shared cost action projects that the Unit either co-ordinates or participates in. The emphasis is on the investigation of the role of biogenic volatile organic compounds (VOCs) in tropospheric ozone formation, with the goals of deriving emissions data, and reaction pathways for the principal VOCs, that are applicable for the entire Mediterranean area.

One focus of this research theme is the BEMA project (**Biogenic Emissions from the Mediterranean Area**), which is part of the Environment and Climate 1994-98 Shared-Cost Action (SCA) programme, and is a collaboration between 17 European Laboratories, coordinated by the Unit. BEMA has been divided into two phases: During the first phase, 1994-1995, field campaigns were carried out at a nature reserve at Castelporziano near Rome (Italy), a semi-natural shrubby woodland site near Montpellier (France), and a citrus orchard site at Burriana near Valencia (Spain), to evaluate both qualitatively and quantitatively the natural emission fluxes under different physiological, meteorological and soil conditions.

The results from the 1993-94 campaigns at Castelporziano are due to be published in a special issue of the Atmospheric Environment journal in 1996. Key findings from this first phase of BEMA are that:

- highly reactive oxygenated terpenoids are among the main compounds emitted by Mediterranean vegetation;
- the emissions have a marked seasonal cycle;
- current parameterizations of the emission models do not reproduce the observed emissions from common Mediterranean tree species.

The second phase of BEMA for 1996-1997, will focus on up-scaling the observational data to the entire Mediterranean area by combining plant species distribution data with emission fluxes. The emphasis will therefore be more on modelling studies, hence the consortium has been increased to 17 partners to bring in the relevant expertise.

Complementary laboratory studies aimed at identifying the reaction pathways of the principal VOCs are also carried out within BEMA and, within the framework of another SCA, BIOVOC (Degradation mechanisms for **Biogenic Volatile Organic Compounds**), which is also co-ordinated by the Unit. BIOVOC will combine laboratory work and model development. One of its main aims is to improve the understanding of the influence of biogenic VOCs on tropospheric ozone levels. Much of the experimental work within BIOVOC will use the new EUPHORE facility, constructed at the Centro de Estudios Ambientales del Mediterraneo (CEAM) Valencia, Spain in partnership with the Unit and four other European laboratories. Work on biogenic VOCs in 1995 has focused on determining product yields

for both the OH-radical and the O<sub>3</sub> initiated oxidation of isoprene and 2-methyl-3-butenol in air, enabling reaction schemes for the atmospheric oxidation of these biogenic species to be developed.

As a contribution to the PRICE-II SCA, a new instrument for field measurements of peroxy radicals, which play a central role on the oxidation capacity of the atmosphere along with ozone, has been developed in collaboration with the University of Bremen (Germany) and is now being tested.

#### Atmospheric Aerosols and Climate

As with the research focused on ozone, the unit is active in investigating both the natural aerosol cycles and the perturbation of these cycles by anthropogenic emissions of aerosols and their precursors. The objective of the research is to contribute to the assessment of the impact of the atmospheric aerosol burden on the radiation budget of the Earth, and to determine the extent to which this impact is perturbed by natural and anthropogenic influences. The activities thus encompass field observations of aerosol properties and management of a world database of such observations on behalf of WMO, modelling and laboratory studies of the physico-chemical process influencing the atmospheric aerosol burden.

A key focus for this theme is IGAC's second aerosol characterisation experiment ACE-2 which is co-ordinated by the Unit. ACE-2 is planned to take place in the Azores-Madeira-Canaries triangle during the summer of 1997. It has the aim of investigating the effects of anthropogenic pollution from Europe, Saharian desert dust and natural emissions from the sea (dimethylsulphide emissions) on the radiation balance and cloud systems over the NE Atlantic. A comprehensive series of physical and chemical atmospheric measurements from airborne, seaborne and land based platforms are scheduled, as well as complementary modelling activities for data interpretation.

Field observations of aerosol properties are carried in the ACE-2 area in order to provide long term records of gas and aerosol, properties over the North Atlantic. During 1995, a second pre-ACE-2 field measurement campaign was performed in Tenerife, building on that of the previous year, and earlier scientific cruises in the Atlantic. Automatic aerosol monitoring stations were also installed in Tenerife, Madeira, the Azores and Portugal.

Complementary laboratory and modelling studies, are investigating the reaction pathways of dimethylsulphide (DMS), in order to better understand the extent to which the atmospheric oxidation of DMS influences aerosol formation and growth in the marine atmosphere. The main pathways are as yet unclear, however, studies of the atmospheric oxidation of DMS have shown that dimethylsulphoxide (DMSO) and dimethylsulphone (DMSO<sub>2</sub>) are important reaction products. It was found that DMSO can be rapidly oxidised by gas phase reactions in the atmosphere and thus may contribute to the formation of new particles. DMSO<sub>2</sub>, on the other hand, is more likely to be removed by heterogeneous processes.

The modelling activities in the field of Aerosols and Climate project are also focused on the SCA SINDICATE (**Study of the INdirect and Direct Influences on Climate of Anthropogenic Trace gas Emissions**). A collection of models, ranging from O-D process models of aerosol dynamics (AERO2, IMAD) to 3-D models of the global atmosphere (MOGUNTIA, TM2), are used to study emissions and global transport of aerosols and to determine their effect on global climate. Within SINDICATE, emission inventories of the main aerosol components, both natural and anthropogenic, are being developed. In collaboration with the Institute for Remote Sensing Applications of the JRC, a first-time estimate of the seasonality of Black Carbon (BC) aerosol emissions from biomass burning, an important anthropogenic source, has been derived from AVHRR (**Advanced Very High Resolution Radiometer**) remote sensing observations.

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## Biogenic and Anthropogenic Contribution to Ambient Volatile Organic Carbon

This project aims at providing a general method for the assessment of biogenic and anthropogenic contribution to ambient VOC, based on radiocarbon ( $^{14}\text{C}$ ) determination. The  $^{14}\text{C}$  content of biogenic VOC equals  $^{14}\text{C}$  of contemporary carbon dioxide which is precisely known. Contrary, by far the most of the anthropogenic VOC sources are of fossil origins with zero  $^{14}\text{C}$ -content.

Air samples will be taken at locations in Italy, Portugal, Germany and the Netherlands during Summer and Winter, representing extremes in anthropogenic and biogenic emissions. The sites may be regarded characteristic for the Mediterranean area, the Iberian peninsula and NW Europe.

Initial studies show that:

- $^{14}\text{C}$ -levels can be determined by acceleration mass spectrometry at levels as low as 70  $\mu\text{g}$  of carbon. This makes the proposed work feasible.
- Oxygenated species (aldehydes/ketones) can be isolated from large ( $\geq 2 \text{ m}^3$ ) air volume by impregnated cartridges while sample integrity is preserved.

The main result of the project will be an improved understanding of biogenic and anthropogenic contribution to ambient non-methane hydrocarbons and carbonyls.

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## Indoor Pollution

The Indoor Pollution unit combines two tasks:

- the management and scientific secretariat of the European Collaborative Action *Indoor Air Quality and Its Impact on Man* (ECA), which implements a collaboration of scientists from fifteen European countries in the broad field of IAQ aimed at helping construct and maintain healthy and energy efficient buildings;
- research and analytical services in the field of indoor pollution by organic compounds, their sources and sinks. This activity is currently focused on:
  - development and validation of sampling/analysis methods for organic indoor pollutants;
  - identification and characterization of their sources and sinks;
  - characterization of devices for indoor pollution control.

### Progress of the ECA

Two reports have been finalized and published:

- Report nr. 15 *Radon in indoor air*, which replaces the 1st report in the ECA series (same title, published in 1988) by an updated and more comprehensive edition; and
- Report nr. 16 *Determination of VOCs emitted from indoor materials and products, 2nd interlaboratory comparison of small chamber measurements*. The latter contains the results of a validation experiment of VOC emission measurements in small test chambers, with the participation of 18 laboratories from Europe, USA and Australia. Though a progress has been achieved compared with the 1st intercomparison experiment (see Report nr. 13, issued in 1993), the agreement was not satisfactory and a research project has been started in order to improve the chamber method (see below VOCEM).  
Report nr. 17 *Indoor air quality and the use of energy in buildings* is in press and will be available in Spring 1996. This report provides key elements of a strategy by which designers, engineers and manufacturers will be able to reduce the risk of poor IAQ and the waste of energy.

Working Group 10 has issued a final draft on the Evaluation of VOC emissions from Building Products, the first edition of which is focused on solid flooring materials. The draft will be discussed by

the Steering Committee in June 1996 and, if approved, published as Report nr. 18. This is one of the most important outputs of the ECA, considering the present need of industry to have at hand an instrument to evaluate the potential effects on health and comfort of their products. The proposed evaluation, aiming at the voluntary characterization or labelling of products, includes five steps:

- a procedure for the determination of VOC emission factors in small test chambers;
- the definition of an exposure scenario (room volume, ventilation, type and amount of material, etc.);
- toxicological evaluation of the exposure deriving from the two previous steps;
- sensory evaluation of the emissions by a test panel;
- a scheme to use the estimated health and sensory effects for the classification or labelling of products. The report is scheduled to be available at the beginning of 1997.

### Research Activities

Work on VOC emission measurements, following the 2nd Interlaboratory comparison (see above), has resulted in the preparation of a Shared Cost Action proposal, submitted to the Standard, Measurement and Testing Programme of the EC, and named **VOCEM** (VOC Emission), which has been accepted. This project, carried on in collaboration with three other research institutes (CSTB-coordinator, TNO and VTT) and four industries (Byk-Chemie, Sommer, Tikkurila Oy and Vorwerk-Teppichwerke), aims at elucidating the causes for the variability in emission measurements and, consequently, finding the conditions for reasonably reproducible emission results. The output of the project, expected for mid 1998, will contribute to the definition of a CEN reference method.

For this project, a test assay has been set up for investigating the **dependence of VOC emission rates on the air velocity and turbulence** patterns near an emitting surface (boundary layer). The assay consists of a small test chamber with an insert where an approximately laminar flow is entrained across an emitting surface. The insert is equipped with a hot wire anemometer with which air velocity profiles above the emitting surface can be determined.

Studies in the Indoortron test chamber and in an apartment have highlighted the **contribution of cleaning products to human VOC exposure** and the important impact of sorption processes on it. The simulation of conditions which may occur in a household during cleaning activities has been used to characterize concentration-time profiles occurring during such activities and to compare them with "personal" air samples under different air circulation patterns. An interesting feature, observed in an apartment where a mixture of hydrophilic and lipophilic terpenic compounds was released, is the considerably higher adsorption of hydrophilic compounds on indoor surfaces.

**Adsorption-desorption experiments** of selected VOCs on different finishing materials have been continued to further investigate the "buffer" effect resulting from sorption on indoor surfaces which modifies VOC concentrations in indoor air.

The work for the development of an **automatic method for sampling and analysis of aldehydes** and ketones in air has led to a patent for which a licence is pending. The device allows unattended monitoring during one week of such important pollutants like aldehydes in indoor and outdoor air, with a detection limit of  $\leq 1 \mu\text{g m}^{-3}$  and an analysis frequency of up to 6 times per hour.

Organics in house dust have been investigated by the combination of supercritical fluid extraction (SFE) with gas chromatography (GC) and mass spectrometry (MS). Ten dust samples from different houses were extracted and analysed. The total number of identified compounds was over 150. The identity and the amounts of most compounds did not vary significantly between the houses. Tentative identification of sources points to consumer products and plasticizers as mostly contributing to the organic fraction of house dust.

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# JRC-Ispra Support Activities

## European Reference Laboratory of Air Pollution

The programme of ERLAP, established on behalf of the Directorate General for Environment, Nuclear Safety and Civil Protection (DG XI) includes the following work areas:

1. Harmonisation of current directives;
2. Preparatory work for future regulation;
3. Monitoring strategies;
4. Modelling urban air pollution;
5. New monitoring techniques;
6. International air monitoring programmes;
7. Punctual measuring campaigns;
8. Emission of pollutants from vehicles;
9. Dioxin and mercury emissions;
10. Incineration of dangerous waste.
11. Ozone in the alpine and prealpine region\*.

In 1995, main results have been obtained in work areas 1, 2, 5, 6, 11 and in relation with new activities (work areas 3, 4). Activities in relation with third party work (work area 7) are not included.

### 1. Harmonisation of current directives

#### SO<sub>2</sub> Directive: measurement of suspended particulate matter (SPM)

- a) For the standardisation work of SPM measurement methods with a size lower than 10 µm (PM10), the Commission (DG XI-B/3) has entrusted the European Committee for Standardisation (Technical Committee 264, Working Group 6) to develop and test in co-operation with ERLAP, a reference test procedure. This procedure, aiming at testing the equivalence of PM10 sampling heads with the reference measurement method of the Commission (WRAC or Wide Range Aerosol Classifier), has been applied in field conditions at 4 different sites (Cottbus in Germany, Ispra in Italy, Madrid in Spain and Ljuiden, in The Netherlands). During these exercises, completed in 1995, six different PM10 sampling heads were compared to the PM10 fraction measured with the WRAC. The results, within 10% reproducibility, will lead to the preparation of a draft CEN standard.
- b) An assessment of comparability of SPM measuring methods in appropriate urban monitoring sites has been organised by ERLAP in Madrid and Berlin. A third exercise, in co-operation with NETCEN, will be organised in a UK site. In these exercise (compliance test versus the gravimetric reference method), one of the sampling head is used to equip several PM10 particulate analysers working on different principles (gravimetry, light scattering, oscillating microbalance, beta attenuation).

#### NO<sub>2</sub> Directive: Quality Control/Quality Assurance Programmes

- a) The quality programme launched in 1994 for the quality control of routine measurements in European monitoring networks (QAP2), was completed in 1995 with the visit of the 36 stations scheduled in 1993. Performed by means of a mobile laboratory specially equipped with a prototype Test Atmosphere Generator (TAG) designed by ERLAP, the programme consisted in 3 quality-tests:
- the test of the routine measurements globally given by the station;
  - the test of the analyser readings (calibration, drift, etc);
  - the test of the sampling lines.

The measurements were carried out by means of two NO<sub>x</sub>-SO<sub>2</sub> reference monitors, sited in the mobile laboratory, measuring at different points of the station sampling lines. An air-SO<sub>2</sub>-NO test mixture generated by the TAG at a given concentration was first injected through the inlet of the station sampling collector. By means of two ozone injections, successive concentration levels of NO-NO<sub>2</sub> were then formed and finally measured, together

with SO<sub>2</sub>, by the station instruments and compared to the standard values measured by the ERLAP reference monitors.

The data collected from the 36 stations visited during 1994-95, confirm the first results on the relative influence of the station; sampling lines (see ERN N°15). On the basis of an inventory simultaneously carried out, the QA/QC programmes implemented in the different networks have also been discussed in relation with management and traceability of quality standards, actions of station calibration and maintenance (see also 3) and national quality assurance programmes.

- b) In the framework of the harmonisation of Directive 85/205/EEC, the European Commission has organised several interlaboratory exercises with the aim of testing the comparability of NO<sub>2</sub> calibration standards in laboratory conditions (QAP1). The results of these intercomparisons (related in preceding reports), showed some differences between the Saltzman method and other primary calibration methods.

In agreement with the ISO TC 146 "Nitrogen-oxides-Manual Methods" Working Group, and the German normalisation office VDI-DIN, it has been decided to organise an additional exercise. This was held at the Ispra Site (ERLAP Laboratory) from 11 to 15 September 1995, with the participation of the following expert laboratories:

- LUA and UMEG (D) for the Saltzman method;
- ERLAP (EC) and RIVM (NL) for the permeation method;
- ERLAP and UBA (D) for the implementation of the static volumetric method.

From this intercomparison, the Saltzman method corroborated values lower than 4% with respect to the permeation method and the static volumetric method.

#### O<sub>3</sub> Directive: Quality Assurance Programme

In the framework of the harmonisation programme of Directive 92/72/EEC on air pollution by O<sub>3</sub>, two interlaboratory exercises were programmed in 1994 with the scope to control the O<sub>3</sub> calibration procedures implemented in EU. They were addressed to laboratories responsible for Quality Assurance/Quality Control in the national air quality monitoring networks. Following a first exercise carried out in 1994, the second exercise, which took place in March 1995, included twelve laboratories from Austria, Belgium, Denmark, Ireland, Luxembourg, The Netherlands, Portugal and Sweden. Gas mixtures of O<sub>3</sub> with concentrations ranging from 10 to 400 µg/m<sup>3</sup> were generated and supplied to the participants for measurement.

As a first result, the comparison between the ERLAP primary standard values given by UV absorption (UV reference photometre), gas phase titration, and wet chemical methods showed an agreement within a maximum deviation of ± 2%.

The reproducibility of the results between participants was of the same order than this found in the 1st exercise. Excluding the lowest concentration level (5ppb), 23 of the 25 analysers showed an agreement within ± 3% of the standard value.

The effect of humidity on the analyser response was investigated by supplying standard mixtures with water vapour contents of 25%, 50%, 70% and 85% relative humidity. At 85% relative humidity, the decrease of instrument responses was of the order of 27% at 35 ppb O<sub>3</sub>, and only of the order of 5% at concentration level of 220 ppb. The lack of efficiency of the internal scrubber (caused by a bad maintenance) seemed to be a cause of water vapour interference.

### 2. Preparatory work for future regulation

#### O<sub>3</sub> Directive: VOC measurement techniques

Following the intercomparison exercises aiming at assessing the capability of the EU laboratories to measure VOCs in the atmosphere, ERLAP launched in 1995 the idea of an intercomparison of different VOC monitoring techniques to be carried out in a given site. The measurements, performed at Eltham's monitoring station (London) in co-operation with AEA Technology (NETCEN), included automatic gas chromatographs for C<sub>2</sub>-C<sub>10</sub>, BTX analysers and NMTH analysers. The ambient air measurements were also compared together with passive and active sampling and canisters. From the results obtained, still under evaluation, guidelines on VOC monitoring techniques are expected.

\* provisionally, on behalf of DG XII

### 3. Monitoring strategies

The inventory carried out in the framework of the quality control programme on routine measurements (see above NO<sub>2</sub> Directive) shows that automated devices for the control of the analyser calibrations equip less than 60% of the EU stations, by the fact that networks are confronted with problems of technical choice and cost investment. As part of these problems, an experimental study has been performed for 2 x 6 month periods with the aim of testing, in stations of the French ASPA and the German UMEG air monitoring networks, six different automatic calibration devices. Each device used different calibration standards (low concentration mixtures, dynamic dilution mixtures, gas phase titration, permeation) and were also tested according via the automatic data acquisition. The stability checks of the analysers, carried out with ASPA and UMEG transfer standards, were crosschecked by a quality programme implemented at ERLAP laboratory. The tests in each station were evaluated versus the quality of the analyser calibrations, the stability and reliability performances of the calibration devices and their investment and running costs in station.

Carried out by telemetry, the control of the analyser's reading with stable calibration devices set up in station, optimizes the manual interventions (calibrations, breakdowns) and guarantees the data comparability. Calibration devices based on the dynamic dilution procedure combined with the use of an ozone generator for the completion of a GPT cycle, seemed to be the most reliable design for the monitoring networks.

### 4. Modelling urban air pollution

#### Auto-Oil programme

Advanced modelling and computational facilities are available for the assessment of the current air quality in large European cities as well as for the forecast of future conditions. ERLAP has developed the ENVISOR methodology, which is a pioneer tool for the assessment of air quality in Europe up to the year 2010. This methodology is composed of several modules under a common platform for the evaluation of future scenarios and for strategic planning. Some features of the ENVISOR methodology are: assessment and classification of air quality at pan-European level, characterisation of episodes, construction of detailed emission inventories, use of a wide range of advanced modelling tools, unique assessment criteria for large-scale simulations, strategy for testing abatement decisions, evolution scenario for future conditions at European level, interrogation tools for data bases containing topographic and meteorological data, techniques for checking the robustness of emission data and for the dynamic real-time simulation of atmospheric conditions.

ERLAP has been the technical co-ordinator of the modelling activities in the Auto-Oil project. Under the frame of this project it has been responsible for the collection and the utilisation of the air-quality data, for the construction of detailed emission inventories and for the overall assessment of the modelling results for the cities of Athens, Cologne, the Hague, London, Lyon, Madrid and Milan.

### 5. New monitoring techniques

#### Development and validation of VOC diffusive samplers

The diffusive sampling technique for the measurement of BTX (benzene, toluene, xylene) was developed and validated both in laboratory and field conditions. Sampling rates for a commercial tube (Perkin-Elmer) with Chromosorb 106 as sorbent were experimentally determined in laboratory for benzene, toluene and xylenes, with sampling periods from one to four weeks. The back-diffusion and the decrease of the sampling rates with time have suggested that a stronger sorbent than Chromosorb 106 would be more appropriate. An alternative adsorbent (Carbopack-B) has been used in a campaign carried out in winter 1996 in Catania (Sicily). With Carbopack-B, a lower effect of the back diffusion has been observed and laboratory tests showed a lower decrease in sampling efficiency for benzene. In addition, lower blank values have been also obtained. New experiments are carrying out in order to set up the technique.

### 6. International air monitoring programmes

In the framework of the UN-ECE Convention on Long Range Transboundary Air Pollution the JRC is operating the EMEP station since 1985. The main objective of EMEP is to provide governments with information on the deposition and concentration of air pollutants and on the long-range transport of pollutants across national boundaries.

The results of the air pollution measurements are transmitted monthly to the Norwegian Institute for Air Research (NILU) for evaluation together with data from other EMEP stations.

### 7. Punctual measuring campaigns

In 1995, three reports on the Brussels air pollution campaign carried out 1993-94 were published. The other campaigns, in Sicily (Palermo, Catania, Messina) and France (Mulhouse), carried out in the framework of third party works, are not mentioned in the present ERN issue.

### 11. Ozone and photo-oxidants in the alpine and prealpine regions

The Working Group "Alpine Ozone Assessment", in collaboration with regional agencies and research organisations has been involved in the following actions: setting up a database from selected alpine stations, development of ozone monitoring and executing intercomparison measurements.

After a first exercise organised in May 1994, 12 laboratories from JRC, France, Switzerland, Slovenia, Italy and Germany, participated to the 2nd intercomparison exercise carried out at the JRC Ispra in May 1995. This intercomparison showed that 13 out of 16 different monitors measured the ozone concentrations in good agreement with the ERLAP standard values. Except of the lowest level (4 ppbv), for which the accuracy is largely influenced by the instrumental noise, all other values were within  $\pm 2\%$ , showing then an improvement comparatively to the 1st exercise, in which the values were within  $\pm 7\%$  of the standard value. Interferences of water vapour on the instrumental response have been observed for almost all the analysers, particularly at the lowest ozone level (35 ppbv).

### Miscellaneous

#### Standardisation activity

ERLAP participates to the standardisation of air pollution measurement methods in the framework of CEN (Technical Committee 264), ISO (Technical Committees 146 and 158) and VDI/DIN Working Groups.

#### Congress on Air Quality in European Cities

A Congress on Air Quality in European Cities was held in Brussels from 23 to 25 October 1995, under the auspices of DG XI-D3, DG XII-COST, the Institut Bruxellois pour la Gestion de l'Environnement (IBGE) and JRC/ISPRA (ERLAP).

The Congress constituted the main outcome of the air quality measuring campaigns performed by ERLAP in three European capitals (Paris, Madrid, Bruxelles, as seen in ERN Nr. 15) in collaboration with DG XI-D3. It further allowed ERLAP to present the JRC activities in relation with the development and validation of new air pollution monitoring techniques.

The organization of this Congress was dictated by the following reasons:

- the new approach of European legislation, as documented in the measures to be taken against air pollution emissions by motor vehicles (directive 94/12/EC), and in the duty to inform citizens on the levels of pollution, on its effects on health and on the measures to be taken when the thresholds are breached.
- the launching of new research activities dealing with questions related with urban air pollution.
- the growing need for co-operation and for exchange of ideas, as well as experience, between science, authorities and policy makers at different activity levels, on urban issues in particular.

The Congress has highlighted the different types of urban air pollution problems, has allowed representatives from cities and industry to present their actions and solutions, and to the scientific world to demonstrate the tools developed for the study and analysis of air quality. The Congress has been attended by 320 participants from 22 countries: European Union, Eastern European countries, South Africa, Australia and USA.

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## Biotechnology

### Biotechnology at the JRC

The face of biology drastically changed about twenty years ago, when a series of molecular cloning techniques allowed for carrying out previously unrealisable experiments. The most innovative aspect was that genetic sequences could be exchanged among unrelated species giving rise to completely new combinations of living organisms. The effect on the quality of biological research was enormous with innovations in medical, agricultural and biochemical research. Equally important was the industrial progress based on what became commonly described as "biotechnology". Similarly, major applications have been reported in the fields of human therapeutics and diagnostics, agriculture and environmental remediation.

The average annual growth rate of biotechnology product sales in the USA is estimated to be around 12% in the next decade, exceeding 10.000 millions of dollars in 1996. About 1.000 permits for field experiments involving genetically modified organisms have been issued since 1987.

In Europe the industrial interest in biotechnology has also expanded rapidly. EU Member States inform each other about experimental field trials on their territory, according to Article 9 of Directive 90/220/EEC on the deliberate release into the environment of genetically modified organisms (GMOs). The European Commission, that manages this circulation of information, has dealt with about 700 notifications so far. It should be pointed out that many of them involve multiple traits, multiple years, multiple sites or multiple organisms, rendering the actual number of experimental releases much higher.

The major concern of industry and investors at the moment is probably the harmonisation of the regulations on a trans-national scale in order to enlarge the potential market. On the other hand, regulatory bodies are confronted with incomplete scientific data and technical information which makes it difficult to fully establish the safety implications arising from the deliberate release of GMOs.

#### Commission's Regulatory Activity in Biotechnology.

The Commission's activity in Biotechnology involves various Directorates General, for instance DG III (responsible a/o. for overseeing the drafting of CEN standards for biotechnology), DG V (protection of workers), DG VI (agricultural applications), DG XI (environmental legislation) and DG XII (research). The Commission's activity in the field of Biotechnology is co-ordinated by the Biotechnology Co-ordination Committee (BCC) chaired by the Secretariat General.

#### JRC involvement

The objective of the work carried out by the Biotechnology and Environment sector of the Institute for Systems, Informatics and Safety (Joint Research Centre - Ispra) is to give scientific and technical support to DG XI in the implementation of Directive 90/220/EEC on the deliberate release into the environment of genetically modified organisms (GMOs) and of Directive 90/219/EEC on the contained use of genetically modified micro-organisms (GMMs).

The scientific/technical support to DG XI is developing along three main lines, namely:

- 1) Development, maintenance and operation of an electronic system (electronic or "E"-SNIF; see further) for input, exchange and interrogation of data concerning the experimental release under Part B of Directive 90/220/EEC;
- 2) Maintenance of a Community documentation centre on biotechnology safety and regulations (BIOSAFE), involving the development and maintenance of a World Wide Web site to promote transfer of information related to the sound development of biotechnology with respect to the environment;
- 3) Maintenance of a database - BIOMARS - for recording data related to eventual biotechnology accidents;

Additional tasks are the assistance to DG XI in the preparation of documents for the periodical meetings with the competent authorities of the Member States and with experts in the field of risk assessment.

#### 1) The SNIF (Summary Notification Information Format)

According to Article 9 of the Council Directive of 23 April 1990 on the deliberate release into the environment of genetically modified organisms (Directive 90/220/EEC), the Competent Authorities send to the Commission a summary of each notification received. The format of this summary (referred to as "SNIF") was established by the Commission in accordance with the procedure laid down in Article 21 of the Directive. It was adopted by the Member States in the Council Decision of 4 November 1991. This decision was amended in 1994 by subdividing SNIF into two parts, namely:

- Part 1 dealing with the release of genetically modified higher plants;
- Part 2 related to the release of any other type of genetically modified organism.

It is this first plant-specific format that has been transferred into an electronic version by the JRC Ispra. The application allows the Competent Authorities to key in all data elements pertaining to this format, to export the data at appropriate intervals to the Commission and to import notifications submitted by other Member States and distributed by the Commission. The JRC also supports the Commission in the management of the data flow, as well as in the data analysis.

#### 2) The Community Documentation Centre for Biotechnology Safety and Regulations - BIOSAFE

The Centre collects relevant information on safety issues and on regulatory aspects of biotechnology and it reviews the regulatory developments in the European Commission as well as in the Member States. Whereas documents on new legal developments occupy a special place in the documentation centre, great importance is also given to the background documents produced by or on behalf of the Commission and Member States. A section is also devoted to pertinent books and articles published in the field and to results of risk assessment carried out prior to field releases. Finally, appropriate applications of biotechnology inventions submitted to the European Patent Office or to the World Intellectual Property Organisation are being surveyed.

BIOSAFE produces, on an annual basis a bulletin with title and abstract of relevant publications. The bulletin is circulated to the Competent Authorities responsible for the implementation of the Biotechnology directives and to any other interested party, free of charge.

The mailing list of BIOSAFE contains at present about 1000 addresses. A project has been initiated that endeavours the electronic publication of the bulletin.

The internet is playing an important role today in the exchange of information about biotechnology. A WWW site at the Commission's Joint Research Centre Ispra is under development. The site will contain sources of published EU information and pointers to relevant biotechnology databases around the world.

It is intended for consultation by Competent Authorities, industrial operators and other interested parties.

For further information, please contact

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## Alpine Observatory

### The Environment Institute of the Joint Research Centre Provides Support to the Countries of the "Alpine Convention" in View of the Setting Up of an "Alpine Observation and Information System (AOIS)"

In November 1991, in Salzburg, the Countries bordering the Alps (Germany, Austria, Italy, Liechtenstein, Monaco, Switzerland, Slovenia) as well as the European Community have signed the "Alpine Convention", an intergovernmental agreement by force of which the above Countries engaged themselves to set up common policies for the protection and the durable development of the alpine massif.

In this perspective, the Convention foresaw, in particular, the development of "common or integrated programs of systematic observation" as well as "research and scientific evaluation" to be performed in cooperation.

For the above purpose and after some exploratory activities performed in 1993-94 by a group of experts, the "Conference of the Ministries of the Convention" on December 20th, 1994 decided the creation of the "Alpine Observation and Information System" (AOIS) currently named "Alpine Observatory" - and entrusted the working group "Observation of the Alps" (WG - OA) with the setting up of proposals for the organisation of the system and with the launching of some concrete actions for demonstration and exploratory purposes.

By the proposal of the Italian delegation, the Convention expressed the wish to see the JRC assuring a scientific, technical and administrative support to the WG-OA, this proposal having been favourably considered by the EU Commission. For the purpose, a task force was set up within the Environment Institute with the cooperation of the Institute for Space Application, both Institutes belonging to the JRC.

The WG-OA includes the representatives of the "Communication Centres" (CC), i.e. the institutions of the Countries of the Convention acting as national focal points for the activities of the WG and - as a network - constituting the backbone of the future AOIS.

Five pilot projects have been launched by the WG - OA, i. e.:

- 1 Set up of a database referred to any activity carried out in the alpine research;
- 2 Elaboration of a series of demographic indicators;
- 3 Thematic cartography of the above indicators;
- 4 Conceptual design of a catalogue of the sources of data referred to the Alps;
- 5 Set up of a telematic network based on Internet WWW, to serve as a mean for the work and for diffusing the output of the future Observatory as well as of the WG - OA since now.

The JRC has been entrusted with the coordination of the above projects apart from the project n° 4 which is coordinated by the Swiss CC.

Meanwhile, first proposals have been set down by the WG - OA concerning the organisation and the operation of the Observatory. On the basis of the progress report covering the activities performed up to February 15th 1996, The Conference of the Ministries of the Convention in the course of the meeting held in Brdo (Slovenia) on February 27, outlined the main lines of development of the above organisation, inviting, at the same time, the EU Commission to set up at the JRC the coordination unit. It was also decided that, on these grounds, the Observatory should be operative since January 1st 1997 and the WG - OA was requested to propose a program of activities for the Observatory covering the first two years, i. e. 1997-98. Thus, after four years of laborious preparative work, the creation of the Alps Observatory is a no-return process and the JRC is called to play a central role. As far as it concerns the programs and the budget, this new task of the JRC will be an integrative part of the institutional support provided to the General Directorate XI of the EU Commission.

Further information can be obtained from:

B. Henry, Environment Institute, EC-JRC Ispra  
I-21020 Ispra (VA), Italy - Tel. 789643 - Fax 789576

## European Union Financial Instruments for the Environment

EU financial instruments cover a diverse range of activities, such as, for example, institutional capacity-building in Central and Eastern Europe, toxic waste treatment on the Baltic Coast, agri-environmental initiatives in Spain, waste water treatment in Greece, protection of biotopes in Ireland, ... Actions for nuclear safety are not included in this review.

The instruments described hereafter are of various types with specific procedures: part is administrated by the Commission who manages the applications and part, such as the structural and cohesion funds, is administrated by the Member States.

### I. Structural and Cohesion Funds

These funds aim to strengthen economic and social cohesion and to help the poorer regions of the EC.

#### 1. Structural funds

The main characteristics of these funds (objectives, budget, eligibility, contact) are summarized in Table 1.

The rates of support amount to 50% of total cost for objectives 2 to 4 and 5b and 75% for interventions in aid of Objective 1.

The funds are administrated in the Member States through two principal channels: the Community Support Frameworks (CSFs) and the Community Initiative Programmes (CIPs) which are implemented through operational programmes. The measures contained in the operational programmes are translated into action through individual projects.

CSFs: are plans elaborated between the Commission, the Member States and the regions, identifying the priorities for Community funding and defining the level and duration of Community support. They are initiated by the Member States and represent around 90% of available monies

CIPs: are invitations from the Commission to the Member States to submit programmes for co-financing in areas which are of significant interest to the Union as a whole. Current CIPs with an environ-

mental component are: URBAN, LEADER II, PESCA, INTERREG II, REGIS II, ADAPT, RECHAR II, RESIDER II, RETEX, KONVER, SMES.

#### 2. Cohesion fund

The Fund applies to Member States with GDP lower than 90% of the Community average, namely, Greece, Spain, Ireland and Portugal.

The total budget for 1993-99 is 15 150 billion ECU.

Priority actions are transport (development of long-distance Trans-European transport infrastructure) and environment protection (typical projects include water supply infrastructure, waste water treatment, urban waste treatment, nature conservation).

Projects are presented by the national governments and scrutinized and approved by the Commission.

The rates of support are between 80% and 85% of public sector spending and can reach exceptionally 100% for studies.

For further information, please contact:

DG XVI Fax + 32 2 2950149, for structural and cohesion funds  
DG XVI/E Fax + 32 2 2961096, for cohesion funds.

### II. Sector-specific Financial Instruments

Table 3 summarizes the main characteristics of these instruments, including the services of the Commission to be contacted for further information.

### III. Programmes PHARE and TACIS

For information concerning the actions of technical assistance in the environmental field for Central and Eastern Europe (PHARE) and the States of the former Soviet Union (TACIS), please contact:

PHARE Operational Service, DG I/External Economic Relations,  
Fax + 32 2 2991777

TACIS Operational Service, DG I/External Economic Relations,  
Fax + 32 2 2310441

**Table 1: Structural Funds**

Structural Funds	Eligibility	Budget	1994-1999
	objective/region	MECU	Contact
<b>European Social Fund (ESF)</b> For the development of human resources and improvement of the workings of the labour market	Obj 1[specific regions] Obj 2[specific regions] Obj 3[whole community] Obj 4[whole community] Obj 5b[specific regions]	42 000 ca	DG V Fax +32 2 2969778
<b>European regional development Fund (ERDF)</b> For productive investment to permit the creation or maintenance of jobs, to develop infrastructure, notably trans-European networks in the areas of transport, telecommunications and energy and to support SMEs, taking into account the environmental protection.	Obj 1[specific regions] Obj 2[specific regions] Obj 5b[specific regions]	85 000 ca	DG XVI Fax +32 2 2950149
<b>European Agricultural Guidance and Guarantee Fund (EAGGF)</b> • <b>EAGGF Guidance Section</b> to promote rural development in the areas covered by obj.1 and 5b and the adjustment of agricultural structures in the framework of the reform of the common agricultural policy (Obj. 5a), including measures to preserve and improve the natural environment • <b>EAGGF Guarantee Section</b> to implement the Agri-environment Regulation	Obj 1[specific regions] Obj 5a[whole community] Obj 5b[specific regions]	21 000 ca  3 700 ca	DG VI/G5 Fax +32 2 2955964  DG VI/FI1 Fax+32 2 2959589
<b>Financial Instrument for Fisheries Guidance (FIFG)</b> to modernise and restructure fisheries, ensuring a rational and responsible exploitation of aquatic marine resources on a sustainable basis	Obj 5a[whole community]	2 700 ca	DG XIV Fax +32 2 2963033

**Objective 1:** to promote the development and structural adjustment of regions whose development is lagging behind (GDP <75% of EU average)

**Objective 2:** to restructure regions, frontier regions or parts of regions seriously affected by industrial decline

**Objective 3:** to combat long-term unemployment and facilitate the integration into working life of young people and of persons threatened with exclusion from the labour market

**Objective 4:** to facilitate the adaptation of workers to industrial changes and to changes in production systems

**Objective 5:** to promote rural development by:  
 a) speeding up the adjustment of agricultural structures in the framework of the reform of the common agricultural policy, and aid to modernize and restructure fisheries  
 b) facilitating the development and structural adjustment of rural areas

**Table 2: Sector-specific Financial Instruments**

Instrument	Eligibility	Duration	Budget MECU	Rates of Support	Contact Fax
<b>1. ENVIRONMENT</b> <b>1.1 Life</b> for priority environmental actions in EC Countries and for technical assistance actions (T.A.) in third countries (Mediterranean region and Baltic Sea)	All "natural or legal" persons Applications are transmitted to the Commission by the Member States	1996-99	450	30-75% 100% (T.A. for third countries)	DG XI/B2 32 2 2969561
<b>1.2 Environmental Information and Awareness - raising Activities</b> For measures which identify the responsibilities and encourage the active participation in tackling environmental problems and in promoting dialogue and cooperation	Trade unions, regional and local authorities, environmental protection organizations, consumer groups	One year, renewed on an annual basis	5	20-50%	DG XI/A3 32 2 2969560
<b>1.3 European Environmental Organizations - Financial Support</b> For actions which promote, among the NGOs, the dissemination of information and the cooperation to raise environmental awareness	Representative European Organizations in the environmental field	One year, renewed on an annual basis	1	30% max. of operating budget	DG XI/A3 32 2 2969560
<b>1.4 Environmental Education</b> For actions to develop education as a tool for achieving environmental objectives	National, regional government, non-governmental organizations	One year, renewed on an annual basis	1	20-50%	DG XI/B4 32 2 2969560
<b>1.5 Civil Protection and Ecological Emergencies</b> For actions which promote Community cooperation in civil protection and for measures to prepare for and combat marine pollution caused by accidents	National, regional and local government organizations; national or private specialized training centres; private sector	One year, renewed on an annual basis	2.5	on a shared-cost basis, decided case-by-case	DG XI/C4 32 2 2990314
<b>1.6 Global Environment</b> For actions concerning: ozone layer, greenhouse effect, forest protection (particularly Tropical) protection of biodiversity, desertification, ...	Public or semi-public institutions, private or non-governmental organizations	One year, renewed on an annual basis	2.696	30-50% of total cost, max. of 80 000 ECU	DG XI/D4 32 2 2969557
<b>2. ENERGY</b> <b>2.1 Alternatives</b> For specific actions in the field of renewable energy	National, regional and local bodies	1993-97	40	30-100% depending on the action	DG XVII/C2 32 2 2955852
<b>2.2 Save II*</b> For specific actions to promote energy efficiency	National, regional and local bodies	96-2000	150	30-100% depending on the action	DG XVII/C2 32 2 2955852



Table 2: Continued

Instrument	Eligibility	Duration	Budget MECU	Rates of Support	Contact Fax
<b>3. SCIENCE, RESEARCH AND DEVELOPMENT:</b> <b>7th Environmental Research Programme</b> A. Research into the natural environment, environmental quality and global change B. Environmental technologies C. Space techniques applied to environmental monitoring and research	all legal entities carrying out R&D	1995-98	532	42-52% (A) 24-30% (B) 20-25% (C)	DG XII/D1 32 2 2963024
<b>4. THIRD COUNTRIES</b> <b>4.1. Environment in the Developing Countries** (DC)</b> For actions to protect the environment in DC through desertification control, anti-pollution measures, preservation of biodiversity, protection of the marine ecosystems, development of urban and rural environments. ACP countries: African, Caribbean and Pacific countries	governments of DC, NGOs, universities, research centres, international organizations, consultancy bureaux	not determined	20	up to 100%	For ALA**: DG I/K2 32 2 2990914  For ACP: DG VIII/A1 32 2 2992907
<b>4.2. Tropical Forests</b> For actions to promote the conservation and sustainable management of tropical forests	governments of DC, NGOs, international institutions, national organizations ,...	not determined	50	up to 100%	For ALA**: DG I/K2 32 2 2990914 For ACP: 32 2 2992901

\* to be adopted by the Council

\*\* ALA countries: Asian, Latin American and Mediterranean countries

## EC Legislation

The EU legislative procedure involves a number of EU institutions:

- the European Commission which proposes and administers laws and regulations,
- the European Parliament, which exercise advisory, supervisory and co-decision powers; formal opinions are delivered after debate and vote in the plenary session,
- the Economic and Social Committee, which is consulted on most legislative proposals (the Commission and the Council are not obliged to incorporate its view into final legislation),
- the Council of Ministers that is responsible for enacting legislation; the decisions are taken by unanimity or by qualified majority vote,
- the Court of Justice that interprets the law and controls the legality of the decisions.

The legal instruments involved are:

- the Regulations of general application, addressed to the governments of the Member States and, once approved, are directly applicable and binding in national law
- the Directives, which stipulate the results to be achieved, and the deadline, but leave the form and methods to Member States
- the Decisions by Council or Commission, which apply specifically to one or more Member States and are legally binding
- the Communications, usually set out a Commission action plan, which may include concrete proposals for legislation.

The legislative process consists of a Consultation procedure that was originally laid down by the Treaty of Rome. It requires only one reading in Parliament of a Commission proposal and a unanimous or majority vote in Council, depending on the legal basis of the proposed legislation. The Council can only take a decision after it has sought the opinions of the Parliament and the Economic and

Social Committee, but Council and Commission are not obliged to take these opinions into account.

The Cooperation procedure was introduced by the Single European Act and restated in Article 189c of the Maastricht Treaty. It features a qualified majority voting system and involves the European Parliament more closely than does simple consultation. Under the cooperation procedure, a Common Position may be reached by the Council after a first reading in Parliament. After a second reading in Parliament, the Council can reach a final agreement. Although neither the Commission or the Council is obliged to take the Parliament's views into account, failure to do so in the face of the Parliament's insistence can, in some cases, mean that the Council can only take a final decision by unanimity. Although the Parliament can propose amendments at both readings, it can only present at the second reading amendments that it had already proposed during the first, except where Common Position introduces substantially new material. Second-reading amendments can only be presented by the Parliament if they carry an absolute majority of the assembly.

The Co-decision procedure was introduced by Article 189b of the Maastricht Treaty. It extends and strengthens cooperation. It gives Parliament veto powers over a range of policy issues and thus a real participation in legislative decision making. Co-decision may include up to three readings should Parliament not accept the Council's Common Position. If Common Position is rejected, a Conciliation Committee, which includes the member of the Council and the Parliamentarians, is convened. If the issue remains unresolved after deliberation and negotiation within the Conciliation Committee, Parliament can veto the proposal.

Further information can be obtained from:

Documentation Center, EC DG XI  
200 rue de la Loi, B-1049 Brussels  
Fax +32-2-2969560

Pending proposals and expected initiatives

GENERAL PROVISIONS AND PROGRAMMES					
Commission proposals*					
Title	Date	Reference Documents	Contact	Parliament	Council
<b>Integrated pollution prevention and control (IPPC)<sup>PP</sup></b> (Directive)	9/93 5/95	COM (93) 423 & (95) 88 OJEC 311/93 & C 165/95	J. Vennekens, S. Brockett (DG XI)	1st reading 12/94 2nd reading 5/96	common position 11/95
<b>Environmental impact assessment of public and private sector projects<sup>PP</sup></b> (amendment of Directive 85/337/EEC)	3/94 1/96	COM (95) 720	C. Pleinevaux, K. Norris (DG XI)	1st reading 10/95	political agreement on common position 12/95
<b>Financial instrument for the environment (Life)<sup>PP</sup></b> (Community Programme)	5/95 1/96	COM (95) 135 & (96) 25 OJEC L 184/95	C. Pleinevaux (DG XI)	1st reading 11/95 2nd reading 6/95	common position 12/95
<b>Community action programme promoting non-governmental organisations primarily active in the field of environmental protection<sup>PP</sup></b> (Council Decision)	12/95	COM (95) 573	B. Sinnott (DG XI)	1st reading ?/96	
<b>Review of the European Community Programme of policy and action "Towards Sustainability"<sup>PP</sup></b> (EP and Council Decision)	1/96	COM (95) 647	R. Donkers (DG XI)	1st reading ?/96	
<b>Integrated management of coastal zones<sup>PP</sup></b> (Communication)	11/95	COM (95) 511	M. Cornaert (DG XI)	opinion 2/96	Council conclusions 12/95
<b>Environmental impact assessment of development policies and programmes<sup>eni</sup></b> (Directive)	6/96		C. Pleinevaux, K. Norris (DG XI)		
<b>Framework for voluntary environmental protection agreements with industry<sup>eni</sup></b> (Communication to be presented)	10/96		P. Dröll (DG XI)		
<b>Toxic/polluting emissions register<sup>eni</sup></b> (Regulation to be proposed)			L. Rubinacci (DG XI)		
<b>Implementation of Community environmental law<sup>eni</sup></b> (Communication to be presented)	10/96		G. Kremlis (DG XI)		
<b>Use of "green" levies and charges<sup>eni</sup></b> (Communication to be presented)	9/96		Bergman, C. Pirotte (DG XI)		
<b>Action plan combining the environment and tourism<sup>eni</sup></b> (Communication)			L. Sforza (DG XXIII)		
<b>Trade and Environment<sup>eni</sup></b> (Communication)	2/96	COM (96) 54	J. Garcia Burgues (DG XI)		

WATER					
Commission proposals*					
Title	Date	Reference Documents	Contact	Parliament	Council
<b>Drinking water<sup>PP</sup></b> (Directive)	88, 89, 95	OJEC C 300/89 & C 131/95	P. Gammeltoft, T. Simons (DG XI)	1st reading ?/96	discussed 10/95
<b>Quality of bathing waters<sup>PP</sup></b> (Directive)	3/94	COM (94) 36 OJEC C 112/94	I. Papadopoulos (DG XI)	1st reading ?/96	discussed 10/95
<b>Ecological quality of water<sup>PP</sup></b> (Directive)	7/94	COM (93) 680 OJEC C 222/94	P. Campbell (DG XI)	proposal likely to be withdrawn	discussed 10/95
<b>European Community water policy<sup>PP</sup></b> (Communication)	2/96	COM (96) 59	A. Olsen (DG XI)		
<b>Community water resources<sup>eni</sup></b> (Framework Directive to be proposed)	10/96		A. Olsen (DG XI)		
<b>Groundwater Action Programme<sup>eni</sup></b> (Communication to be presented)	7/96		A. Olsen, J.J. Risler (DG XI)		discussed 10/95

NATURE					
Commission proposals*					
Title/Content	Date	Reference Documents	Contact	Parliament	Council
<b>Prohibition of the use of leghold traps in the Community<sup>PP</sup></b> (Council Regulation amending Regulation 3254/91)		COM (95) 737	B. Julien (DG XI)		
<b>Keeping of wild animals in zoos<sup>PP</sup></b> (Council Recommendation)	12/95	COM (95) 619	B. Julien (DG XI)		

\* Pending proposals (pp), expected new initiative (eni)

AIR Commission proposals*					
Title	Date	Reference Documents	Contact	Parliament	Council
<b>Mutual exchange of information and data provided by networks and individual stations measuring pollution of the ambient air into the MS<sup>PP</sup></b> (Council Decision)	9/94 11/95	COM (94) 345 & (95) 468 OJEC C 281/94 & C 30/96	P. Hecq, K. Cameron (DG XI)	1st reading 6/95	common position 12/95
<b>Ambient air quality assessment and management<sup>PP</sup></b> (Directive)	7/94	COM (94) 109 OJEC C 216/94	P. Hecq, K. Cameron (DG XI)	1st reading 6/95 2nd reading 5/96	common position 11/95
<b>Emissions from light commercial vehicles<sup>PP</sup></b> (EP and Council Directive)	12/94	COM (94) 558 & (95) 540 OJEC C 19/96 & C 37/96	H. Henssler (DG III) F. Lamberts (DG XI)	1st reading 9/95 2nd reading 5/96	common position 12/95
<b>CO<sub>2</sub>/energy tax<sup>PP</sup></b> (Directive)	5/95	COM (95) 172	J. Delbeke (DG XI)	hearing on climate change 2/96	in discussion
<b>Emissions from engines in off-road mobile machinery<sup>PP</sup></b> (Directive)	9/95	COM (95) 350 OJEC C 328/95	F. Lamberts (DG XI)	1st reading 10/95	in discussion
<b>A Community strategy to reduce CO<sub>2</sub> emissions from passenger cars and improve fuel economy<sup>PP</sup></b> (Communication)	12/95	COM (95) 689	H. Arp (DG XI)		
<b>"Auto Oil" Programme<sup>PP</sup></b> (Communication)			M. Wenning (DG XI)		
<b>Emissions of certain pollutants into the air from large combustion plants<sup>eni</sup></b> (amending Directive to be proposed)	late 96		J-G Bartaire (DG XI)		
<b>Methane emissions<sup>eni</sup></b> (Communication to be presented)	7/96		D. Jedrezejczak (DG XI)		
<b>Action programme to combat acidification<sup>eni</sup></b> (Communication to be presented)	11/95		P. Murphy (DG XI)		discussed 12/95
<b>Sulphur content of certain liquid fuels<sup>eni</sup></b> (Framework Directive to be proposed)	9/96		P. Murphy, F. Godwin (DG XI)		
<b>Framework Directive on fuels<sup>eni</sup></b>	6/96		M. Wenning (DG XI)		
<b>Reduction of air pollution from motor vehicles ("ETAPE 2000")<sup>eni</sup></b> (Directive)	6/96		M. Wenning (DG XI)		
<b>NO<sub>x</sub> emissions from new aircraft<sup>eni</sup></b> (Directive to be proposed)	7/96	COM (94) 661	A. Rowland (DG XI)		
<b>Emissions from organic solvents from certain processes and industrial installations (VOC's)<sup>eni</sup></b> (Directive to be proposed)	10/96		S. Brockett (DG XI)		
NOISE					
<b>Aircraft noise<sup>eni</sup></b> (Directive to be proposed)	7/96		A. Rowland (DG XI)		

CHEMICALS, INDUSTRIAL RISKS, BIOTECHNOLOGY Commission proposals*					
Title	Date	Reference Documents	Contact	Parliament	Council
<b>Placing of biocidal products on the market<sup>PP</sup></b> (Directive)	7/93 7/95	COM (93) 351 & (95) 387 OJEC C 239/93	M. Bebois, G. Wilson (DG XI)	1st reading 6/96	discussed 12/95
<b>Eighth amendment of Directive 67/548/EEC<sup>PP</sup></b> (EP and Council Directive)	1/94	COM (95) 636	P. Brunko, J. Costa-David, E. Kreutzer (DG XI)	1st reading 2/96 2nd reading 5/96	common position 3/96
<b>Codification of legislation on the classification, packaging and labelling of dangerous substances<sup>PP</sup></b>	1/94	COM (93) 638 & (94) 103	P. Brunko, J. Costa-David, E. Kreutzer (DG XI)	1st reading 2/95	discussed 7/96
<b>COMAH: Control of Major Accident Hazards<sup>PP</sup></b> (amendment to the "Seveso Directive")	3/94	COM (94) 4 OJEC C 106/94	K. Krisor (DG XI)	1st reading 2/95	political agreement on common position 6/95
<b>Appointment and trading of an officer for the prevention of the risks inherent in the carriage of dangerous goods<sup>PP</sup></b> (Directive)	1991 1992	OJEC C 185/91 & C 233/92	B. Torkel (DG VII)	1st reading 6/92 2nd reading 1/96	common position 10/95
<b>Transport of dangerous goods by rail<sup>PP</sup></b> (Directive)	12/94	OJEC C 389/94	S. Prout (DG VII)	1st reading 7/95	common position 12/95
<b>Carriage of dangerous goods by sea (Stage II Directive reporting)<sup>PP</sup></b>	1/94 7/94	OJEC C 22/94 & C 193/94	K. Bolt (DG VII)		discussed 6/93, 3/94, 6/95
<b>Pentachlorophenol (PCP)<sup>eni</sup></b> (Directive)			Sundquist (DG III)		

\* Pending proposals (pp), expected new initiative (eni)

WASTE Commission proposals*					
Title/Content	Date	Reference Documents	Contact	Parliament	Council
Disposal of PCBs and PCTs <sup>PP</sup> (Directive)	12/88 11/91	COM (88) 559 & (91) 373 OJEC C 319/88 & C 299/91	A. Schäfer (DG XI)	1st reading 5,12/90 2nd reading 5/96	common position 11/95
Landfill of waste <sup>PP</sup> (Directive)	91 6/93	OJEC C 190/91 & C 212/93	A. Piavaux (DG XI)	opinion: 6/92, 10/93 1st reading 5/95 2nd reading 5/96	common position 10/95
Supervision and control of shipment of waste within, into and out of the EU <sup>PP</sup> (amendment to Regulation 259/93/EEC)	4/95	COM (95) 143 OJEC C 164/95	Y. Slingenber ( DG XI)	1st reading 1/96	discussed ?/96
Marking of packaging- recyclability <sup>eni</sup> (EP and Council Directive to be proposed)	6/96		S. Wegefald (DG XI)	to be adopted 12/96	to be adopted 12/96
Incineration of waste <sup>eni</sup> (Directive to be proposed)	1996		J-G Bartaire (DG XI)		
Contaminated land strategy <sup>eni</sup> (Measure to be proposed)			A. Piavaux (DG XI)		
Waste management strategy <sup>eni</sup> (Communication to be presented)	?/96		L. Kramer (DG XI)	opinion ?/96	discussed ?/96
Priority waste streams report <sup>eni</sup> (to be included in the Communication on waste)	?/96		E.F. Almeida Teixeira (DG XI)		
Used tyres <sup>eni</sup> (Directive to be proposed)			M. Wemaere (DG XI)		
End-of-life vehicles <sup>eni</sup> (Directive to be proposed)	?/96		K. von Kempis (DG XI)		
Health care waste <sup>eni</sup> (Directive to be proposed)	?/96		L. Kramer (DG XI)		
Electrical and electronic waste <sup>eni</sup> (Directive to be proposed)	?/96		E.F. Almeida Teixeira (DG XI)		
Construction and demolition waste <sup>eni</sup> (Directive to be proposed)	?/96		H. Holst (DG XI)		
Small quantities of hazardous waste in the domestic waste stream <sup>eni</sup> (Directive to be proposed)	?/96		A. Piavaux (DG XI)		

## Directory of Community Legislation in Force and Other Acts of the Community Institutions Concerning the Environment

### GENERAL PROVISIONS AND PROGRAMMES

#### 385 L 0337

85/337/EEC: Council Directive of 27 June 1985 on the assessment of the effect of certain public and private projects on the environment

OJ L 175 05.07.85 p.40

M by 294A0103(70) (OJ L 001 03.01.94 p. 494)

#### 391 L 0692

91/692/EEC: Council Directive of 23 December 1991 standardizing and rationalizing reports on the implementation of certain Directives relating to the environment

OJ L 377 31.12.91 p. 48

### POLLUTIONS AND NUISANCES

#### NUCLEAR SAFETY AND RADIOACTIVE WASTE

#### 359 L 0221

EAEC Council: Directives laying down the basic standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiations

OJ L 011 20.02.59 p. 221

M by 362L1633 (OJ L 057 09.07.62 p. 1633)

#### 376 L 0579

76/579/Euratom: Council Directive of 1 June 1976 laying down the revised basic safety standards for the health protection of the general public and workers against the dangers of ionizing radiation

OJ L 187 12.07.76 p. 1

M by 379L0343 (OJ L 083 03.04.79 p. 18)

#### 380 L 0836

80/836/Euratom: Council Directive of 15 July 1980 amending the Directives laying down the basic safety standards for the health protection of the general public and workers against the dangers of ionizing radiation

OJ L 246 17.09.80 p. 1

M by 384L0467 (OJ L 265 05.10.84 p. 4)

#### 389 L 0618

89/618/Euratom: Council Directive of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency

OJ L 357 07.12.89 p. 31

#### 390 L 0641

90/641/Euratom: Council Directive of 4 December 1990 on the operational protection of outside workers exposed to the risk of ionizing radiation during their activities in controlled areas

OJ L 349 13.12.90 p. 21

M by 194N

### WATER PROTECTION AND MANAGEMENT

#### 375 L 0440

75/440/EEC: Council Directive of 16th June 1975 Concerning the quality required of surface water intended for the abstraction of drinking water in the Member states

OJ L 194 25.07.75 p. 26

M by 294A0103(70) (OJ L 001 03.01.94 p. 494)

M by 379L0869 (OJ L 271 29.10.79 p. 44)

D by 390L0656 (OJ L 353 17.12.90 p. 59)

M by 391L0692 (OJ L 377 31.12.91 p. 48)

**376 L 0464**

76/464/EEC: Council Directive of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community  
OJ L 129 18.05.76 p. 23  
D by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**379 L 0869**

79/869/EEC: Council Directive of 9 October 1979 concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States  
OJ L 271 29.10.79 p. 44  
M by 185I  
M by 194N  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 381L0855 (OJ L 319 07.11.81 p. 44)  
D by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**379 L 0923**

79/923/EEC: Council Directive of 30 October 1979 on the quality required of shellfish waters  
OJ L 281 10.11.79 p. 47  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**380 L 0068**

80/68/EEC: Council Directive of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances  
OJ L 020 26.01.80 p. 43.  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
D by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**380 L 0778**

80/778/EEC: Council Directive of 15 July 1980 relating to the quality of water intended for human consumption  
OJ L 229 30.08.80 p. 43  
M by 185I  
M by 194N  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 381L0858 (OJ L 319 07.11.81 p. 19)  
D by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**382 L 0176**

82/176/EEC: Council Directive of 22 March 1982 on limit values and quality objectives for mercury discharges by the chlor-alkali electrolysis industry  
OJ L 081 27.03.82 p. 29  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
D by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**384 L 0491**

84/491/EEC: Council Directive of 9 October 1984 on limit values and quality objectives for discharges of hexachlorocyclohexane  
OJ L 274 17.10.84 p. 11  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
D by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**386 L 0280**

86/280/EEC: Council Directive of 12 June 1986 on limit values and quality objectives for discharges of certain dangerous substances included in List I of the Annex to Directive 76/464/EEC  
OJ L 181 04.07.86 p. 16  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 388L0347 (OJ L 158 25.06.88 p. 35)  
M by 390L0415 (OJ L 219 14.08.90 p. 49)  
D by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**390 L 0656**

90/656/EEC: Council Directive of 4 December 1990 on the transitional measures applicable in Germany with regard to certain Community provisions relating to the protection of the environment  
OJ L 353 17.12.90 p. 59  
M by 393L0080 (OJ L 256 14.10.93 p. 32)

**391 L 0271**

91/271/EEC: Council Directive of 21 May 1991 concerning urban waste-water treatment  
OJ L 135 30.05.91 p. 40  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
O by 393D0481 (OJ L 226 07.09.93 p. 23)

**391 L 0676**

91/676/EEC: Council Directive of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources  
OJ L 375 31.12.91 p. 1

**ATMOSPHERIC POLLUTION****370 L 0220**

70/220/EEC: Council Directive of 20 March 1970 on the approximation of the laws of the Member States relating to measures to be taken against air pollution by gases from positive-ignition engines of motor vehicles  
OJ L 076 06.04.70 p. 1  
E by 172b  
D by 194N  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 374L0290 (OJ L 159 15.06.74 p. 61)  
E by 377L0102 (OJ L 032 03.02.77 p. 32)  
M by 378L0665 (OJ L 223 15.08.78 p. 48)  
M by 383L0351 (OJ L 197 20.07.83 p. 1)  
M by 388L0076 (OJ L 036 09.02.88 p. 1)  
M by 388L0436 (OJ L 214 06.08.88 p. 1)  
M by 389L0458 (OJ L 226 03.08.89 p. 1)  
M by 389L0491 (OJ L 238 15.08.89 p. 43)  
M by 391L0441 (OJ L 242 30.08.91 p. 1)  
M by 393L0059 (OJ L 186 28.07.93 p. 21)  
M by 394L0012 (OJ L 100 19.04.94 p. 42)

**372 L 0306**

72/306/EEC: Council Directive of 2 August 1972 on the approximation of the laws of the Member States relating to the measures to be taken against the emission of pollutants from diesel engines for use in vehicles  
OJ L 190 20.08.72 p. 1  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 389L0491 (OJ L 238 15.08.89 p. 43)

**375 L 0716**

75/716/EEC: Council Directive of 24 November 1975 on the approximation of the laws of the Member States relating to the sulphur content of certain liquid fuels  
OJ L 307 27.11.75 p. 22  
D by 194N  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 390L0660 (OJ L 353 17.12.90 p. 79)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**380 L 0779**

80/779/EEC: Council Directive of 15 July 1980 on air quality limit values and guide values for sulphur dioxide and suspended particulates  
OJ L 229 30.08.80 p. 30  
M by 185I  
M by 194N  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 381L0857 (OJ L 319 07.11.81 p. 18)  
M by 389L0427 (OJ L 201 14.07.89 p. 53)  
M by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**382 L 0884**

82/884/EEC: Council Directive of 3 December 1982 on a limit value for lead in the air  
OJ L 378 31.12.82 p. 15  
M by 194N  
M by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**384 L 0360**

84/360/EEC: Council Directive of 28 June 1984 on the combating of air pollution from industrial plants  
OJ L 188 16.07.84 p. 20  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**385 L 0203**

85/203/EEC: Council Directive of 7 March 1985 on air quality standards for nitrogen dioxide  
OJ L 087 27.03.75 p. 1  
M by 194N  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**385 L 0210**

85/210/EEC: Council Directive of 20 March 1985 on the approximation of the laws of Member States concerning the lead content of petrol  
OJ L 096 03.04.85 p.25  
M by 194N  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 387L0416 (OJ L 225 13.08.87 p. 33)

**387 L 0217**

87/217/EEC: Council Directive of 19 March 1987 on the prevention and reduction of environmental pollution by asbestos  
OJ L 085 28.03.87 p. 40  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**388 L 0077**

88/77/EEC: Council Directive of 3 December 1987 on the approximation of the laws of Member States relating to the measures to be taken against the emission of gaseous pollutant from diesel engines for use in vehicles  
OJ L 036 09.02.88 p. 33  
M by 194N  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 294A0103(73) (OJ L 001 03.01.94 p. 572)  
M by 391L0542 (OJ L 295 25.10.91 p. 1)

**388 L 0609**

88/609/EEC: Council Directive of 24 November 1988 on the limitation of emissions of certain pollutants into the air from large combustion plants  
M by 194N  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 294A0103(73) (OJ L 001 03.01.94 p. 572)  
M by 390L0656 (OJ L 353 17.12.90 p.59)  
M by 394L066 (OJ L 337 24.12.94 p. 83)

**389 L 0369**

89/369/EEC: Council Directive of 8 June 1989 on the prevention of air pollution from new municipal waste incineration plants  
OJ L 163 14.06.89 p. 32  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)

**389 L 0429**

89/429/EEC: Council Directive of 21 June 1989 on the reduction of air pollution from existing municipal waste-incineration plants  
OJ L 203 15.07.79 p. 50  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)

**391 L 0441**

91/441/EEC: Council Directive of 26 June 1991 amending Directive 70/220/EEC on the approximation of the laws of the Member States relating to measures to be taken against air pollution by emissions from motor vehicles  
OJ L 242 30.08.91 p. 1

**393 L 0012**

Council Directive 93/12/EEC of 23 March 1993 relating to the sulphur content of certain liquid fuels  
OJ L 074 27.03.93 p. 81

**393 L 0076**

Council Directive 93/76/EEC of 13 September 1993 to limit carbon dioxide emissions by improving energy efficiency (SAVE)  
OJ L 237 22.09.93 p. 28

**394 L 0012**

Directive 94/12/EC of the European Parliament and the Council of 23 March 1994 relating to the measures to be taken against air pollution by emissions from motor vehicles and amending Directive 70/220/EEC  
OJ L 100 19.04.94 p. 42

**394 L 0063**

European Parliament and Council Directive 94/63/EC of 20 December on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations  
OJ L 365 31.12.94 p. 24

**PREVENTION OF NOISE POLLUTION****370 L 0157**

70/157/EEC: Council Directive of 6 February 1970 on the approximation of the laws of the Member States relating to the permissible sound level and the exhaust system of motor vehicles  
OJ L 042 23.02.70 p. 16  
M by 172B  
M by 185I  
M by 194N  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 294A0103(73) (OJ L 001 03.01.94 p. 572)  
M by 373L0350 (OJ L 321 22.11.73 p. 33)  
M by 381 L0334 (OJ L 131 18.05.81 p. 6)  
M by 384L0372 (OJ L 196 26.07.84 p. 47)  
M by 384L0424 (OJ L 238 06.09.84 p. 31)  
M by 389L0491 (OJ L 238 15.08.89 p. 43)  
M by 392L0097 (OJ L 371 19.12.92 p. 1)

**378 L 1015**

78/1015/EEC: Council Directive of 23 November 1978 on the approximation of the laws of the Member States on the permissible sound level and exhaust system of motorcycles  
OJ L 349 13.12.78 p. 21  
M by 179H  
C by 185I  
M by 194N  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 294A0103(73) (OJ L 001 03.01.94 p. 572)  
M by 387L0056 (OJ L 024 27.01.87 p. 42)  
M by 389L0235 (OJ L 098 11.04.89 p. 1)

**379 L 0113**

79/113/EEC: Council Directive of 19 December 1978 on the approximation of the laws of the Member States relating to the determination of the noise emission of construction plant and equipment  
OJ L 033 08.02.79 p. 15  
M by 179H  
M by 185I  
M by 194N  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 318L1051 (OJ L 376 30.12.81 p. 49)  
M by 385L0405 (OJ L 233 30.08.85 p. 9)

**380 L 0051**

80/51/EEC: Council Directive of 20 December 1979 on the limitation of noise emissions from subsonic aircraft  
OJ L 018 24.01.80 p. 26  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 383L0206 (OJ L 117 04.05.83 p. 15)

**384 L 0533**

84/533/EEC: Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of compressors  
OJ L 300 19.11.84 p. 123  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 385L0406 (OJ L 233 30.08.85 p. 11)

**384 L 0534**

84/534/EEC: Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of tower cranes  
OJ L 300 19.11.84 p. 130  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 387L0405 (OJ L 220 08.08.87 p. 60)

**384 L 0535**

84/535/EEC: Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of welding generators  
OJ L 300 19.11.84 p. 142  
M by 385L0407 (OJ L 233 30.08.85 p. 16)

**384 L 0536**

84/536/EEC: Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of power generators  
 OJ L 300 19.11.84 p. 149  
 M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
 M by 385L0408 (OJ L 233 30.08.85 p. 18)

**384 L 0537**

84/537/EEC: Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of powered hand-held concrete breakers and picks  
 OJ L 300 19.11.84 p. 156  
 M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
 M by 385L0409 (OJ L 233 30.08.85 p. 20)

**384 L 0538**

84/538/EEC: Council Directive of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of lawnmowers  
 OJ L 300 19.11.84 p. 171  
 M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
 M by 387L0252 (OJ L 117 05.05.87 p. 22)  
 M by 388L0180 (OJ L 081 26.03.88 p. 69)  
 M by 388L0181 (OJ L 081 26.03.88 p. 71)

**386 L 0594**

86/594/EEC: Council Directive of 1 December 1986 on airborne noise emitted by household appliances  
 OJ L 344 06.12.86 p. 24  
 M by 294A0103(52) (OJ L 001 03.01.94 p. 263)

**386 L 0622**

86/662/EEC: Council Directive of 22 December 1986 on the limitation of noise emitted by hydraulic excavators, rope-operated excavators, dozers, loaders and excavator-loaders  
 OJ L 384 31.12.86 p. 1  
 M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
 M by 389L0514 (OJ L 253 30.08.89 p. 35)

**389 L 0629**

89/629/EEC: Council Directive of 4 December 1989 on the limitation of noise emission from civil subsonic jet aeroplanes  
 OJ L 363 13.12.89 p. 27  
 M by 294A0103(52) (OJ L 001 03.01.94 p. 263)

**392 L 0014**

Council Directive 92/14/EEC of 2 March 1992 on the limitation of the operation of aeroplanes covered by Part II, Chapter 2, Volume 1 of Annex 16 to the Convention on International Civil Aviation, second edition (1988)  
 OJ L 076 23.03.92 p. 21

**392 L 0097**

Council Directive 92/97/EEC of 10 November 1992 amending Directive 70/157/EEC on the approximation of the laws of the Member States relating to the permissible sound level and the exhaust system of motor vehicles  
 OJ L 371 19.12.92 p. 1

**CHEMICALS, INDUSTRIAL RISK AND BIOTECHNOLOGY****367 L 0548**

67/548/EEC: Council Directive of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances  
 OJ L 196 16.08.67 p. 1  
 M by 369L0081 (OJ L 068 19.03.69 p. 1)  
 M by 370L0189 (OJ L 059 14.03.70 p. 33)  
 M by 371L0144 (OJ L 074 29.03.71 p. 15)  
 M by 373L0146 (OJ L 167 25.06.73 p. 1)  
 M by 375L0409 (OJ L 183 14.07.75 p. 22)  
 M by 376L0907 (OJ L 360 30.12.76 p. 1)  
 M by 379L0370 (OJ L 088 07.04.79 p. 1)  
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 M by 380L1189 (OJ L 366 31.12.80 p. 1)  
 M by 381L0957 (OJ L 351 07.12.81 p. 5)  
 M by 382L0232 (OJ L 106 21.04.82 p. 18)  
 M by 383L0467 (OJ L 257 16.09.83 p. 1)  
 M by 384L0449 (OJ L 251 19.09.84 p. 1)  
 M by 386L0431 (OJ L 247 01.09.86 p. 1)  
 M by 387L0302 (OJ L 133 30.05.88 p. 1)

M by 387L0432 (OJ L 239 21.08.87 p. 1)  
 M by 388L0490 (OJ L 259 19.09.88 p. 1)  
 M by 391L0325 (OJ L 180 08.07.91 p. 1)  
 M by 391L0326 (OJ L 180 08.07.91 p. 79)  
 M by 391L0410 (OJ L 228 17.08.91 p. 67)  
 M by 392L0032 (OJ L 154 05.06.92 p. 1)  
 M by 392L0069 (OJ L 383 29.12.92 p. 113)  
 M by 393L0021 (OJ L 110 04.05.91 p. 20)  
 M by 393L0072 (OJ L 258 16.10.93 p. 29)  
 M by 393L0101 (OJ L 013 15.01.94 p. 1)  
 M by 393L0105 (OJ L 294 30.11.93 p. 21)  
 M by 394L0069 (OJ L 381 31.12.94 p. 1)

**373 L 0404**

73/404/EEC: Council Directive of 22 November 1973 on the approximation of the laws of the Member States relating to detergents  
 OJ L 347 17.12.73 p. 51  
 M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
 C by 382L242 (OJ L 109 22.04.82 p. 1)  
 M by 386L0094 (OJ L 080 25.03.86 p. 51)

**373 L 0405**

73/405/EEC: Council Directive of 22 November 1973 on the approximation of the laws of the Member States relating to methods of testing the biodegradability of anionic surfactants  
 OJ L 347 17.12.73 p. 53  
 M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
 M by 382L243 (OJ L 109 22.04.82 p. 18)

**376 L 0769**

76/769/EEC: Council Directive of 27 July 1976 on the approximation of the laws, regulations and administrative provisions of Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations  
 OJ L 262 27.09.76 p. 201  
 M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
 M by 379L0663 (OJ L 197 03.08.79 p. 37)  
 M by 382L0806 (OJ L 339 01.12.82 p. 55)  
 M by 382L0828 (OJ L 350 10.12.82 p. 34)  
 M by 383L0806 (OJ L 147 06.06.83 p. 9)  
 M by 383L0478 (OJ L 263 24.09.83 p. 33)  
 M by 385L0467 (OJ L 269 11.10.85 p. 56)  
 M by 385L0610 (OJ L 375 31.12.85 p. 1)  
 M by 389L0677 (OJ L 398 30.12.89 p. 19)  
 M by 389L0678 (OJ L 398 30.12.89 p. 24)  
 M by 391L0157 (OJ L 078 26.03.91 p. 38)  
 M by 391L0173 (OJ L 085 05.04.91 p. 34)  
 M by 391L0338 (OJ L 186 12.07.91 p. 59)  
 M by 391L0339 (OJ L 186 12.07.91 p. 64)  
 M by 394L0027 (OJ L 188 22.07.94 p. 1)  
 M by 394L0048 (OJ L 331 21.12.94 p. 7)  
 M by 394L0060 (OJ L 365 31.12.94 p. 1)

**382 L 0501**

82/501/EEC: Council Directive of 24 June 1982 on the major-accident hazards of certain industrial activities  
 OJ L 230 05.08.82 p. 1  
 M by 185I  
 M by 194N  
 M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
 M by 387L0216 (OJ L 085 28.03.87 p. 36)  
 M by 388L0610 (OJ L 336 07.12.88 p. 14)  
 M by 390L0656 (OJ L 353 17.12.90 p. 59)  
 M by 391L0692 (OJ L 377 31.12.91 p. 48)

**382 L 0883**

82/883/EEC: Council Directive of 3 December 1982 on procedures for the surveillance and monitoring of environments concerned by waste from the titanium dioxide industry  
 OJ L 378 31.12.82 p. 1  
 M by 185I  
 M by 194N  
 M by 294A0103(70) (OJ L 001 03.01.94 p. 494)

**384 L 0156**

84/156/EEC: Council Directive of 8 March 1984 on limit values and quality objectives for mercury discharges by sectors other than chlor-alkali electrolysis industry  
 OJ L 074 17.03.84 p. 49  
 M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
 D by 390L0656 (OJ L 353 17.12.90 p. 59)  
 M by 391L0692 (OJ L 377 31.12.91 p. 48)

**387 L 0018**

87/18/EEC: Council Directive of 18 December 1986 on the harmonization of laws, regulations and administrative provisions relating to the application of the principles of good laboratory practice and the verification of their applications for tests on chemical substances  
OJ L 015 17.01.87 p. 29  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)

**388 L 0320**

88/320/EEC: Council Directive of 9 June 1988 on the inspection and verification of Good Laboratory Practice (GLP)  
OJ L 145 11.06.88 p. 35  
M by 294A0103(52) (OJ L 001 03.01.94 p. 263)  
M by 390L0018 (OJ L 011 13.01.90 p. 37)

**390 L 0018**

90/18/EEC: Commission Directive of 18 December 1989 adapting to technical progress the Annex to Council Directive 88/320/EEC on the inspection and verification of good laboratory practice (GLP)  
OJ L 011 13.01.90 p. 37

**390 L 0219**

90/219/EEC: Council Directive of 23 April 1990 on the deliberate release into the environment of genetically modified micro-organisms  
OJ L 117 08.05.90 p. 1  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 394L0051 (OJ L 297 18.11.94 p. 29)

**390 L 0220**

90/220/EEC: Council Directive of 23 April 1990 on the deliberate release into the Environment of genetically modified organisms  
OJ L 117 08.05.90 p. 15  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 394L0015 (OJ L 103 22.04.94 p. 20)

**390 L 0656**

90/656/EEC: Council Directive of 4 December 1990 on the transitional measures applicable in Germany with regard to certain Community provisions relating to the protection of the environment  
OJ L 353 17.12.90 p. 59  
M by 393L0080 (OJ L 256 14.10.93 p. 32)

**390 L 0660**

90/660/EEC: Council Directive of 4 December 1990 on the transitional measures applicable in Germany with regard to certain Community provisions relating to the protection of the environment, in connection with the internal market  
OJ L 353 17.12.90 p. 79

**391 L 0414**

91/414/EEC: Council Directive of 15 July 1991 concerning the placing of plant protection products on the market  
OJ L 230 19.08.91 p. 1  
M by 194N  
M by 392R3600 (OJ L 366 15.12.92 p. 10)  
M by 393L0071 (OJ L 221 31.08.93 p. 27)  
M by 394L0037 (OJ L 194 29.07.94 p. 65)  
M by 394L0043 (OJ L 227 01.09.94 p. 31)  
M by 394L0079 (OJ L 354 31.12.94 p. 16)

**391 L 0659**

91/659/EEC: Commission Directive of 3 December 1991 adapting to technical progress Annex I to Council Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to the restrictions on the marketing and use of certain dangerous substances and preparations (asbestos)  
OJ L 363 31.12.91 p. 36

**392 L 0112**

Council Directive 92/112/EEC of 15 December 1992 on procedures for harmonizing the programmes for the reduction and eventual elimination of pollution caused by waste from titanium dioxide industry  
OJ L 251 29.08.92 p. 13

**393 L 0067**

Commission Directive 93/67/EEC of July 1993 laying down the principles for assessment of risks to man and the environment of substances notified in accordance with Council Directive 67/548/EEC  
OJ L 277 10.11.93 p. 9

**393 L 0090**

Commission Directive 93/90/EEC of 29 October 1993 concerning the list of substances referred to in Article 13 (1) (5th indent) of Council Directive 67/548/EEC  
OJ L 277 10.11.93 p. 33

**394 L 0055**

Council Directive 94/55/EC of 21 November 1994 on the approximation of the laws of the Member States with regard to the transport of dangerous goods by road  
OJ L 319 12.12.94 p. 7

**SPACE, ENVIRONMENT AND NATURAL RESOURCES****CONSERVATION OF WILD FAUNA AND FLORA****378 L 0659**

78/659/EEC: Council Directive of 18 July 1978 on the quality of fresh waters needing protection or improvement in order to support fish life  
OJ L 222 14.08.78 p. 1  
M by 179H  
M by 185I  
M by 194N  
D by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**379 L 0409**

79/409/EEC: Council Directive of 2 April 1979 on the conservation of wild birds  
OJ L 103 25.04.79 p. 1  
M by 179H  
M by 185I  
M by 194N  
M by 381L0854 (OJ L 319 07.11.81 p. 3)  
M by 385L0411 (OJ L 233 30.08.85 p. 33)  
C by 386L0122 (OJ L 100 16.04.86 p. 22)  
D by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0244 (OJ L 115 08.05.91 p. 41)  
M by 394L0024 (OJ L 164 30.06.94 p. 9)

**383 L 0129**

83/129/EEC: Council Directive of 28 March 1983 concerning the importation into Member States of skins of certain seal pups and products derived therefrom  
OJ L 091 09.04.83 p. 30

**390 L 0656**

90/656/EEC: Council Directive of 4 December 1990 on the transitional measure applicable in Germany with regard to certain Community provisions relating to the protection of the environment  
OJ L 353 17.12.90 p. 59  
M by 393L0080 (OJ L 256 14.10.93 p. 32)

**392 L 0043**

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora  
OJ L 206 22.07.92 p. 7  
M by 194N

**WASTE MANAGEMENT AND CLEAN TECHNOLOGY****375 L 0439**

75/439/EEC: Council Directive of 16 June 1975 on the disposal of waste oils  
OJ L 194 25.07.75 p. 39  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 390L0656 (OJ L 353 17.12.90 p. 59)  
M by 391L0156 (OJ L 078 26.03.91 p. 32)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)

**375 L 0442**

75/442/EEC: Council Directive of 15 July 1975 on waste  
OJ L 194 25.07.75 p. 39  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 387L0101 (OJ L 042 12.02.87 p. 43)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)  
O by 394D0003 (OJ L 005 07.01.94 p. 15)

**376 L 0403**

76/403/EEC: Council Directive of 6 April 1976 on the disposal of polychlorinated biphenils and polychlorinated terphenils  
OJ L 108 26.04.76 p. 41  
M by 294A0103(70) (OJ L 001 03.01.94 p. 494)  
M by 391L0692 (OJ L 377 31.12.91 p. 48)



**378 L 0176**

78/176/EEC: Council Directive of 20 February 1978 on waste from the titanium dioxide industry

OJ L 054 25.02.78 p. 19

M by 294A0103(70) (OJ L 001 03.01.94 p. 494)

M by 382L0883 (OJ L 378 31.12.82 p. 1)

M by 383L0029 (OJ L 032 03.02.83 p. 28)

M by 391L0692 (OJ L 377 31.12.91 p. 48)

**378 L 0319**

78/319/EEC: Council Directive of 20 March 1978 on toxic and dangerous waste

OJ L 084 31.03.78 p. 43

M by 179H

M by 185I

M by 294A0103(70) (OJ L 001 03.01.94 p. 494)

M by 390L0656 (OJ L 353 17.12.90 p. 1)

M by 391L0689 (OJ L 377 31.12.91 p. 20)

M by 391L0692 (OJ L 377 31.12.91 p. 48)

**385 L 0339**

85/339/EEC: Council Directive of 27 June 1985 on containers of liquids for human consumption

OJ L 176 06.07.85 p. 18

M by 294A0103(52) (OJ L 001 03.01.94 p. 263)

M by 391L0692 (OJ L 377 31.12.91 p. 48)

M by 394L00062 (OJ L 365 31.12.94 p. 10)

**386 L 0278**

86/278/EEC: Council Directive of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture

OJ L 181 04.07.86 p. 6

M by 194N

M by 391L0692 (OJ L 377 31.12.91 p. 48)

**391 L 0157**

91/157/EEC: Council Directive of 18 March 1991 on batteries and accumulators containing certain dangerous substances

OJ L 078 26.03.91 p.38

M by 194N

M by 294A0103(52) (OJ L 001 03.01.94 p. 263)

M by 393L0062 (OJ L 264 23.10.93 p. 51)

**391 L 0689**

91/689/EEC: Council Directive of 12 December 1991 on hazardous waste

OJ L 377 31.12.91 p. 20

M by 394L0031 (OJ L 168 02.07.94 p. 28)

**394 L 0062**

European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste

OJ L 31.12.94 p. 10

**394 L 0067**

Council Directive 94/67/EC of 16 December 1994 on the incineration of hazardous waste

OJ L 365 31.12.94 p. 34

**PROTECTION OF ANIMALS****386 L 0609**

86/609/EEC: Council directive of 24 November 1986 on the approximation of laws, regulations and administrative provisions of the Member States regarding the protection of animals used for experimental and other scientific purposes

OJ L 358 18.12.86 p. 1

M by 294A0103(52) (OJ L 001 03.01.94 p. 263)

**388 L 0166**

88/166/EEC: Council Directive of 7 March 1988 complying with judgement of the Court of Justice in case 131/86 (annulment of Council Directive 86/113/EEC of 25 March 1986 laying down minimum standards for the protection of laying hens kept in battery cages)

OJ L 074 19.03.88 p. 83

**388 L 0320**

88/320/EEC: Council Directive of June 1988 on the inspection and verification of Good Laboratory Practice (GLP)

OJ L 145 11.06.88 p. 35

M by 294A0103(52) (OJ L 001 03.01.94 p. 263)

M by 390L0018 (OJ L 011 13.01.90 p. 37)

**390 L 0018**

90/18/EEC: Commission Directive of 18 December 1989 adapting to technical progress the Annex to Council Directive 88/30/EEC on the inspection and verification of good laboratory practice (GLP)

OJ L 011 13.01.90 p. 37

**Acronyms**

OJ = Official Journal of the European Commission

M = Amended

C = Supplemented

D = Decision

A = Agreement

L = Directive

## Meeting of International Organizations\* (to be attended by government representatives)

Date		Meeting	Place
Month	Day		
<b>July</b>	1-3	UNEP 1° Meeting of the Mediterranean Commission on Sustainable Development	Montpellier
	1-5	UNEP Extraordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution and its Protocols	Montpellier
	1-5	FAO/IAEA Symposium on the Use of Nuclear Related Techniques for Studying Environmental Behaviour of Crop Protection Chemicals	Vienna
	3-5	ECE Working Group on Effects	Geneva
	4-5	ICPR Plenary Assembly of the International Commission for the Protection of the Rhine	Koblenz
	7-14	UNESCO Symposium on Water, Environment and Society in Times of Climate Change	Sede Boker
	8-12	ECE Preparatory Committee of the 1996 Regional Conference on Transport and Environment	Geneva
	8-12	Subsidiary Committee of the Climate Change Convention on Implementation and Science	Geneva
	8-19	2nd Meeting of the Conference of the Parties to the Convention on Climate Change & Ad Hoc Group of the Berlin Mandate IV	Geneva
	9-10	OECD Expert Meeting on Progress in Integrated Coastal Zone Management	Paris
	22-26	First Meeting of the Open-ended Ad Hoc Working Group on a Biosafety Protocol	Aarhus
<b>August</b>	5-16	International Seabed Authority Meeting	Kingstone
	12-16	Certification of Forest Products and Trade (Experts Working Group)	Bonn
	18-23	The Spectrum '96 International Meeting on Nuclear and Hazardous Waste Management	Scattle
	19-23	Intergovernment Panel on Forests (IPF): Seminar on Criteria and Indicators for Sustainable Forest Management	Helsinki
	26-29	Thirteenth Meeting of the Open-Ended Working Group of the Parties to the Montreal Protocol	Geneva
	26-30	ECE Working Group Strategies	Geneva
	26-30	ECE Working Group Persistent Organic Pollutants	Geneva
	26-30	ECE Working Group on Heavy Metals	Geneva
	26-30	UNESCO XVIIIth Conference on the Danube Countries	Graz
<b>September</b>	2-4	ECE EMEP Steering Body	Geneva
	2-6	UNEP Fifth International Congress on Ethnobiology	Nairobi
	2-6	Subsidiary Committee on Science of the Biodiversity Convention	Montreal
	2-13	INC of Desertification Convention	New York
	2-13	Inter-governmental Panel on Forests (IPF)	Geneva
	10-20	ECE Joint Meeting of the RID Safety Committee and the Working Party on the Transport of Dangerous Goods	Geneva
	10-20	UNEP Pilot Training programme on Adoption, applying and Operating Environmentally Sound Technologies	Dresden
	11-13	Conference on the Environmental Implications of Energy and Transport Subsidies	Rome
	16-17	OECD 12th Meeting of the Hazard Assessment Advisory Body	Paris
	16-20	UNEP 2nd Session of the Intergovernmental Negotiating Committee for the Preparation of an International Legally binding Instrument for the Application of the Prior Informed Consent Procedure for Certain Hazardous Chemicals in International Trade (PIC)	Nairobi
	18-19	OECD 7th National Coordinators Meeting of the Test Guidelines Programme	Paris
	25	OECD Task Group of the Expert Group on the Harmonization of the Regulatory Oversight in Biotechnology	Paris
	26-27	OECD Expert Group for the Harmonization of Regulatory Oversight in Biotechnology	Paris
	26-27	ECE Experts on Electric Power Generation and the Environment	Geneve
	26-27	OECD 3th Meeting of the Task Force on Environmental Sustainable Transport	Paris
	30/9-4/10	ECE Regional Conference on Transport and the Environment	Geneva

Date		Meeting	Place	
Month	Day			
October	2-4	OECD Group on the State of the Environment	Paris	
	3-4	OECD IFS Consultation on Existing Chemicals	Paris	
	8-9	OECD Expert Meeting on Environmentally Sustainable Transport	Paris	
	8-11	UNEP Meeting of Experts on Liability and Compensation	Athens	
	9-11	OECD Meeting of the Expert Group on Chemical Accidents	Paris	
	10-11	OECD 3rd Meeting of the Task Force on Transport	Paris	
	13-23	IUCN Congress	Montreal	
	14-17	ECE Seminar on Control Technologies for Stationary Sources	Budapest	
	14-18	DELCOM Environment Committee (7th Meeting)	Riga	
	14-19	International Conference on Health, Environment and Development	Alexandria	
	15	E.U. Environment Council	Luxembourg	
	17-18	OECD Working Party for the Review Mechanism for Council Decision C(92)39/Final	Paris	
	21-22	OECD Waste Management Policy Group	Paris	
	22-23	OECD Development Assistance Committee Working Party on Development Assistance and Environment (14th Session)	Paris	
	23	OECD Joint Session on Waste Minimisation, Pollution Prevention and Control Group and Waste Management Policy Group	Paris	
	24-25	OECD Pollution Prevention and Control Group	Paris	
	28-30	OECD 5th SIDS Initial Assessment Meeting	Paris	
	November	4-5	OECD Pesticide Forum	Paris
		4-8	ECE Working Party on the Transport of Dangerous Goods	Geneva
		4-15	UNEP Third Conference of the Parties to the Convention on Biological Diversity	Buenos Aires
5		OECD Meeting of the Steering Group on Existing Chemicals	Paris	
6-8		OECD 25th Joint Meeting of the Chemicals Group and Management Committee including a Combined Session with the Pesticide Forum	Paris	
18		OECD ENV/DAFFE ad hoc Meeting of Experts on Subsidies/Tax Disincentives and Environment	Paris	
18-29		Eighth Meeting of the Parties to the Montreal Protocol & Fourth Meeting of the Parties to the Vienna Convention	San José	
19-20		OECD Group on Economic and Environment Policy Integration	Paris	
19-21		OECD Group on Environmental Performance	Paris	
22-24		Symposium on Seabirds in the Marine Environment	Glasgow	
25-29		ECE Executive Body for the Convention on Long-range Transboundary Air Pollution	Geneva	
December		4-6	World Conference on Green Productivity	Manila
	5-6	OECD Environment Policy Committee	Paris	
	9-10	E.U. Environment Council	Brussels	
	9-11	OECD Joint Working Party of the Committee for Agriculture and the Environment Policy Committee	Paris	
	9-13	Ad Hoc Group of the Berlin Mandate V (Convention on Change)	Geneva	
	9-13	International Conference on Environmental and Industrial Toxicology: Research and its Application	Bangkok	
	18-20	OECD Joint Session of Trade and Environment Experts	Paris	
	Early	First Ministerial Conference on WTO	Singapore	

CE Council of Europe

ECE United Nations Economic Commission for Europe

E.U. European Union

HELCOM Baltic Marine Environment Protection Commission

IAEA International Atomic Energy Agency

ICPR International Commission for the Protection of the Rhine

OECD Organisation for Economic Cooperation and Development

UNEP United Nations Environment Programme

UNESCO United Nations Educational, Scientific and Cultural Organization

WMO World Meteorological Organization

## Courses

### Isolation & Identification of Fungi from Natural Habitats

18 - 22 November 1996

A new 5 day course designed to help those needing to isolate fungi from a range of different natural habitats and give a preliminary identification to the isolations. It will be of use to those involved in natural product screening programmes, ecosystem and biodiversity surveys, environmental consultancy, bioaudits, ecology and soil biology.

The course will cover a wide range of techniques for obtaining fungi and suggestions and ideas for maximising the diversity sampled. Habitats to be covered include soil, fresh water, leaf litter, living plant material, insects and air. The course will also include a session on how to go about identifying a fungus and the recognition of the main groups of fungi. A session on the gathering and handling of data about fungal biodiversity in an ecosystem will be included.

Further information can be obtained from:

Mrs Stephanie Groundwater  
International Mycological Institute, Balceham Lane  
Egham, Surrey, TW20 9TY  
Tel. 01784 470111 - Fax 01784 470909  
E-mail: s.groundwater@cabi.org

### A Modular Training Programme in Environmental Management And Health

A part-time modular course organised jointly by the Robens Institute and Farnborough College of Technology. This course offers flexible postgraduate training for environmental management and environmental health professionals, leading to a Postgraduate Certificate, Postgraduate Diploma or Masters Degree of the University of Surrey. The modules can also be attended as stand-alone short courses.

<b>July 22-26 1996</b>	Conservation/Restoration Ecology
<b>September 9-13</b>	Concepts and Issues in Environmental Management
<b>October 28- November 1</b>	Pollution Monitoring and Analysis
<b>January 20-24 1997</b>	Land Quality Management
<b>March 10-14</b>	Human Health and the Environment
<b>May 12-16</b>	Water Quality Management
<b>June 23-27</b>	Environmental Management and Auditing
<b>July 21-25</b>	Clean Technology Processes and Practice
<b>September 8-12</b>	European Environmental Policy and Law
<b>October 13-17</b>	Food Quality Management

Specialist modules will also be offered each year covering issues at the leading edge of environmental management and health. Titles and timings to be announced.

Further information can be obtained from:

Ms Jennie Lynch  
University of Surrey, Guildford, Surrey and Farnborough College  
of Technology, Farnborough, Hants  
Tel. 01483 509209  
E-Mail: rbsjl@surrey.ac.uk

### Nato Advanced Study on Institute Mineral Processing and Environment Improving the quality of our life

18-30 August 1996, Varna, Bulgaria

#### Topics

Fundamentals (hydrophobic aggregation of mineral suspensions, application of DLVO theory in mineral processing and environmental science, electrokinetic studies and their applications, bacterial leaching of minerals)

Environmental pollution and prevention (airpollutant emissions in metallurgical industry, applications of electrochemistry in effluent treatment, treatment of radioactive wastes, reclamation of toxic metal wastes by biosorption)

Separation processes (desulphurization of coals to protect the environment, extraction of priority pollutants using inorganic ion exchangers, removal and recovery of metals from dilute solutions, hydrometallurgy of precious metals: effects on the environment)

Innovative techniques (froth flotation of plastics, recovery of metals from mine wastes, use of mineral processing technologies in environmental protection, electroflotation in waste water treatment: results and perspectives)

Further information can be obtained from:

Dr. G.P. GALLIOS  
Aristotle University of Thessaloniki  
Department of Chemistry  
Lab. of Gen. & Inorg. Chemical Technology  
GR-540 06 Thessaloniki, GREECE  
Tel. +30-31-997716 - Fax +30-31-997759 or +206138  
E-Mail: gallios@olymp.ccf.auth.gr

# Conferences

## 2nd World Congress on Alternatives and Animal Use in the Life Sciences

October 20-24, 1996 Utrecht, The Netherlands

For further information please contact:

Rosan Nikkelen  
P.O. Box 268  
6700 AG Wageningen, The Netherlands  
Tel +31-317-497677 - Fax +31-317-424496  
E-mail: mb96@noldus.nl  
WWW: <http://www.diva.nl/noldus/mb96.html>

## SECOTOX 96 Fourth European Conference

25-28 August 1996, METZ, France

Ecotoxicology and Environmental Safety

For further information, please contact:

Paule Vasseur  
C.S.E. "SECOTOX 96"  
BP 4025  
57040 METZ Cédex 1 France  
Tel. +33-87-758181 - Fax +33-87-758189

Karine TOUATI  
Same address  
Tel. +33-87-756673 - Fax +33-87-756710

## World Congress on Air Pollution in Developing Countries Focus Issue: Enforcement

21 to 26 October 1996, San José, Costa Rica

Organized and managed by ProEco on behalf of Swisscontact

For further information, please contact:

Dr. J. Gruetter  
ProEco, Apdo 3959 Tegucigalpa, Honduras  
Tel. +504-394349 - Fax +504-313341

## ICPEP- 96 International Conference on Plants and Environmental Pollution

26-30 November 1996, Lucknow, India

by International Society of Environmental Botanists and National Botanical Research Institute, Lucknow

For further information, please contact:

Dr. K.J. Ahmad  
Organising Secretary 'ICPEP - 96'  
National Botanical Research Institute  
Rana Pratap Marg Lucknow- 226001 (India)  
Tel. 091 (522) 271031- 35 Extn. 209 221  
Resid. 091 (522) 269269  
Fax 091 (522) 282849 - 091 (522) 282881  
E-mail: [manager@nbri.sirneted.ernet.in](mailto:manager@nbri.sirneted.ernet.in)

## 2nd European Biofuels Forum

From September 22 to 25, 1996, the "2nd European Biofuels Forum", accompanied by an exhibition, will be held at the GRAZER CONGRESS in Graz. The Forum is an initiative of the Commission of the European Union.

For further information, please contact:

Joanneum Research  
2nd European Biofuels Forum  
Elisabethstrasse 11, A-8010 Graz, Austria, Europe  
Tel. +43-316-876334/335 - Fax +43-316-876404  
E-mail: [biofuels@pbox.joanneum.ac.at](mailto:biofuels@pbox.joanneum.ac.at)

## ECO-INFORMA'96

November 4-7, 1996, Lake Buena Vista, Florida, USA

Global Networks for Environmental Information, Bridging the Gap between Knowledge and Application.

For further information, please contact:

ERIM/ECO-INFORMA  
P.O. Box 1334001, Ann Arbor, MI 48113-4001, USA  
Fax +1-313-9945123  
E-mail: [wallman@erim.org](mailto:wallman@erim.org)

or

ECO-INFORMA  
University of Bayreuth, Jean-Paul-Strasse 30  
D-95440 Bayreuth, Germany  
Fax +49-921-54626

E-mail: [heideldore.fiedler@uni-bayreuth.de](mailto:heideldore.fiedler@uni-bayreuth.de)  
Abstracts for posters and oral presentations are welcome!  
Tel. +49-921-552154 - Fax +49-931-54626

## International Exhibition and Conference for Chemical Technology, Analytical Technology and Biotechnology

19-22 November, 1996, ILMAC 96, Messe Basel, Switzerland.

For further information, please contact:

ILMAC 96, Messe Basel  
P.O. Box, CH-4021 Basel, Switzerland  
Tel. +41-616862020 - Fax +41-616862188

## Seventh European Symposium on Physico-Chemical Behaviour of Atmospheric Pollutants: The Oxidizing Capacity of the Troposphere

October 2-4, 1996, Congress Centre "ZITELLE", Venice, Italy

Organised by the European Commission, DG XII/D-1 Environmental Technologies, Joint Research Centre, Environment Institute and EC Science Panel on Atmospheric Chemistry

For further information, please contact:

B. Versino  
Tel. +39-332-789958 - Fax +39-332-785704

## International Symposium on Urban Air Pollution

23-26 September, 1997, Istanbul, Turkey

Symposium will focus on the following main themes:

- Urban Case Studies
- Urban, Regional and Global Air Quality
- Meteorological Modelling
- Air Quality Modelling and Prediction
- Atmospheric Phenomena over Complex Terrain
- Urban Climatology
- Recent Research Trends in Air Quality Assessment

For further information please contact:

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Faculty of Aeronautics and Astronautics  
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Tel: 90-212-2853143 - Fax 90-212-2853139  
E-mail: [ucince@tritu.bitnet](mailto:ucince@tritu.bitnet)

## 13th International Clean Air & Environment Conference

22-25 September 1996, The Grand Hotel, Adelaide, South Australia

The turn of the century represents the deadline for many projects aimed at achieving improved environmental outcomes, particularly related to clean air. The 13th Clean Air and Environment Conference aims to provide a forum to assess the progress of these projects, to identify emerging environmental problems and to explore solutions to those environmental problems that we shall take with us into the 21st century. It is about technical and non-technical solutions. The new century will bring with it a new sense of environmental urgency. The people who attend this conference will be those who are willing to meet the challenges.

For further information, please contact:  
Hartley Management Group Pty Ltd  
P.O. Box 20, Kent Town South Australia 5071  
Tel.: 08 361 2220 (Int. 61 8 361 2220)  
Fax 08 364 0031 (Int 61 8 364 0031)  
Pager (24 hr service): 08 414 1221  
E-mail: sgt@ozemail.com.au

## International Workshop on Metallothioneins

30-31 October 1996 - Geel, Belgium

For further information, please contact:  
Dr. Guy Bordin  
European Commission - Joint Research Centre - IRMM  
Retieseweg  
B-2440 Geel  
Fax: +32-14-584 273  
E-mail: bordin@irmm.jrc.be

## International Conference "Urban Ecology" Leipzig 1997

25-29 June 1997, Leipzig, Germany

The conference is organised by UFZ - Institute for Environmental Research Leipzig-Halle GmbH, sponsored and supported by the Federal Ministry of Education, Science, Research and Technology (BMBF) and the National Research Center for Environment and Health (GSF)

The UFZ-Institute for Environmental Research Leipzig-Halle GmbH started its work in 1992 as a research project of the Federal German Government and the Federal States of Saxony and Saxony-Anhalt. Its foundation is closely connected with the fact that parts of Germany and Eastern Europe were economically exploited in an ecological irresponsible way during the last 50 years. The research at the UFZ aims for the regeneration and conservation of landscapes. It is divided in four departments: Urban Landscapes, Agricultural Landscapes, Natural Landscapes, and Industrial and mining Landscapes.

The programme turns to scientists and practitioners for planning working in the field of urban ecology. Both empirical analysis linked to general theories and case studies of specific environmental

problems, or expert knowledge applied to the solution of problems in urban spaces are particularly welcome. The practice-oriented programme containing poster sessions, workshops, field trips, cultural events etc. includes the following topics:

- Ecological cities - ideals, environmental aims, standards
- The integration of ecological, economical and socio-cultural aspects for the improvement of environmental conditions in cities
- Land use as a controlling factor in terms of urban ecology
- Ecologically responsible mobility
- The integration of nature and landscape in the city development

There is a demand for a scientific and complex urban ecology which is determined by practical applications to the problems of growing cities and the increasing number of their inhabitants since the fifties. Many single national and international projects are dedicated to their solution but they are still without a common base. Publications and conferences rarely exceed the national level. "Urban Ecology" 1997 in Leipzig may be a starting point for the elaboration of a theoretical foundation based on the integration of several disciplines.

The conference language is English. There will be a poster session for each topic. All lecture and poster abstracts will be carefully reviewed by the committee chaired by Prof. Dr. Jürgen Breuste, head of the department "Urban Landscapes". All accepted abstracts will be published in the Abstracts volume distributed at the beginning of the conference. The Conference volume containing all presented papers and posters will be published and distributed to all participants after the event.

Chairman: Prof. Dr. Jürgen Breuste, Head of the Department Urban Landscapes, UFZ

For further information, please contact:

**Congress Secretariat**  
Dr. Hildegard Feldmann  
Ogarit Uhlmann, Department Urban Landscapes  
UFZ-Institute for Environmental Research Leipzig-Halle  
Permoser Str. 15, D04318 Leipzig, Germany  
Tel. +49-341-2352264 - Fax +49-341-2352534  
E-mail: feldfrau@pro.ufz.de

## 4th Conference on the Renewal of Environmental Education in Europe Multidisciplinary and International Co-operation in Environmental Education

18-19-20 September 1997, Chambéry, Centre des Congrès "le Manège", France

organised by ESIGEC, School of Engineering, Université de Savoie, Chambéry, France

For further information, please contact:

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# Information

## Places for people

### Sustainable Cities: Kids in Cities Education for Participation

Places for people is the banner name of the National Association for Urban Studies

#### New address

c/o ETP 9 South Road Brighton BN1 6SB-UK

Phone and Fax: 01273-542660

E-mail: urban@mistral.co.uk

NAUS Registered charity number 1024931

Places for People is an inter-professional association focusing on the urban environment, promoting education to encourage people of all ages to have a voice in the future of the places in which they live, work and play.

PfP works with voluntary, statutory & professional groups concerned with urban environmental issues.

#### PfP Membership

In addition to the PfP journal *Streetwise* and its supplements, members receive the PfP Newsletter with information about publications, conferences, projects and up-dates on articles which have appeared in *Streetwise*. Other information on environmental issues is distributed free-of-charge with copies of the newsletter when available.

### Geological Indicators of Rapid Environmental Change: an International Checklist (News release)

From International Union of Geological Sciences, Commission fate

As a contribution to integrated environmental and ecological monitoring and state-of-the-environment reporting, the International Union of Geological Sciences (IUGS) through its Commission on Geological Sciences for Environmental Planning has developed a checklist of geoindicators. These have been compiled as tools for tracking changes in the dominantly abiotic components of forest, aquatic, desert, coastal, polar, mountain and other terrestrial ecosystems.

Geoindicators are high-resolution measures of short-term (<100 years) surface or near-surface changes that are significant for environmental monitoring and assessment. They measure geological variations, including those related to climate change, that are important for understanding terrestrial ecosystems. Geoindicators measure both catastrophic events and those that are more gradual but evident within a human lifespan. Most deal with changes on the landscape (0.1-10 km) and meso-scales (10-100 km), though some, like relative sea level and volcanic unrest, have regional dimensions.

Geoindicators have been developed from standard techniques used in geology, geochemistry, geophysics, geomorphology, hydrology and other earth sciences. Some, such as seismicity, groundwater quality, and coral chemistry, are complex and costly to measure. Others, such as shoreline position, areal extent of wetlands, dune mobility, and slope failure, are relatively simple and easy to apply. Geoindicators can also be used to unravel trends over the past few centuries and longer through paleoenvironmental research, thus providing the important baselines against which human-induced and natural stresses can be better understood.

Twenty-seven geoindicators have been described in a checklist format that represents a 'menu' of core landscape indicators. These should be combined with other indicators (biological, climatic, even socio-economic) to construct a full picture of environmental condition and the stresses on ecosystems originating from both natural and human sources. Each geoindicator is described using a framework of sixteen different descriptors, as follows:

**Name:** applied to individual geoindicators.

**Brief description:** What is the geoindicator, and how does it express geological processes and phenomena?

**Significance:** Why is it important to monitor this geoindicator? How are changes in it liable to affect human settlements, agriculture, forestry, environmental health, and other sectors of the economy and societal issues?

**Human or natural cause:** Can this geoindicator be used to distinguish natural from anthropogenic change, and if so how?

**Environment where applicable:** In what general landscape settings would this geoindicator be used?

**Types of monitoring sites:** Where specifically should this geoindicator be measured?

**Spatial scale:** At what scale would this geoindicator normally be monitored in the field, and to which larger scale, in general terms, can it be readily aggregated?

**Method of measurement:** How is this indicator measured in the field?

**Frequency of measurement:** How often should this geoindicator be monitored in the field, so as to establish a proper time series and baseline trend?

**Limitations of data and monitoring:** What important difficulties are there in measuring field or laboratory data on and applying this indicator?

**Applications to past and future:** How can this geoindicator be applied to paleoenvironmental analysis, and what predictive potential has it?

**Possible thresholds:** What thresholds or limits are there across which drastic environmental change or threats to human health and biodiversity may occur?

**Key references:** Listed here for further reference are a few, readily obtainable, practical manuals, or citations to key scientific/technical publications on this geoindicator.

**Other sources of information:** National agencies, scientific programs and projects or specific international organizations from which further information, data sets and expertise may be available.

#### Related environmental and geological issues

#### Overall assessment

### Geoindicators Listed

Coral chemistry and growth patterns, Desert surface crusts and fissures, Dune formation and reactivation, Dust storm magnitude, duration and frequency, Frozen ground activity, Glacier fluctuations, Groundwater quality, Groundwater chemistry in the unsaturated zone, Groundwater level, Karst activity, Lake levels and salinity, Relative sea level, Sediment sequence and composition, Seismicity, Shoreline position and morphology, Slope failure (landslides), Soil and sediment erosion, Soil quality, Streamflow, Stream channel morphology, Stream sediment storage and load, Subsurface temperature regime, Surface displacement, Surface water quality, Volcanic unrest, Wetlands extent, structure and hydrology, Wind erosion.

The checklist will be published shortly as part of a monograph outlining the scientific and policy background and including a series of reviews of key geoindicators (Berger, A.R. and W.J. Iams (eds) 1996. *Geoindicators: Assessing Rapid Environmental Changes in Earth Systems*. Rotterdam: A.A. Balkema). Meanwhile, the geoindicator checklist itself is available via the Internet at <http://www.gcrio.org/geo/title.html>.

For further information please contact:

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Geoindicators Working Group, 528 Paradise Street

Victoria, BC V9A 5E2, CANADA

Tel./fax 604-4800840

### JRC Blue Seminars

#### A Series of high level seminars on "Aquatic Processes and Water Technology"

Aquatic systems are a key element of the global environment and contribute significantly to food supply through fisheries and aquaculture as well as to recreation. In parts of the European Community long-term economic growth may be constrained or made significantly more costly by inadequate water resources (in terms of both

water quantity and quality). In order to better manage our water resources on a long-term basis, policy makers have to understand how water interacts with the other elements in the environment.

Water is unevenly distributed regionally. There are regions where sufficient water is available, whereas, other areas are exposed to regular shortages. On the other hand, there are areas showing an excess of water and where water is highly polluted so that its use may be restricted.

In many areas, surface waters are polluted by waste water discharges, the widespread use of agricultural chemical and the contamination of industrial sites. In the long run, released pollutants will percolate through the soil and contaminate groundwater sites.

There is also a close relationship between water and the climate. It is necessary to understand what the reasons are for the increases of droughts and floods experienced in Europe in the recent years, and how water resources can be managed so as to minimise the adverse effects of these conditions.

Research effort is needed to better understand the function of water cycle, and to develop the most adequate water technologies for the reduction of risks to the environment. These issues are being addressed in a series of high level seminars organised by the Environment Institute of the Joint Research Centre (JRC). The "JRC Blue Seminars" are held on a monthly basis at the JRC site in Ispra, Italy. The seminars are conducted in English.

The main goals of the series of seminars which are to be given by leading scientists in the field, are:

- to achieve an improved understanding of the aquatic processes and how they are affected by human activities;
- to identify the present state and future development of water technologies needed to cope with the major threats affecting the water cycle;

The "JRC Blue Seminars" are open to the whole scientific community and are intended to serve as an open forum for discussion and exchange of information regarding the management of water resources in Europe. They are also expected to contribute to the implementation of the Task Force on water technologies which was recently established by the Commission.

The list of seminars is as follows:

- 1 February 1, 1996**  
F.M.M. Morel, Princeton University, USA  
"Biochemistry of trace metals in coastal and fresh waters; Kinetics and biological feedback"

- 2 February 28, 1996**  
S. Zeghal, Compagnie Générale des Eaux, France  
"Nutrients removal in waste water treatment"
- 3 March 28, 1996**  
A. Van Der Beken, Vrije Universiteit Brussel, Belgium  
"The quantity and availability of the fresh water resources in Europe; a perspective on the role of hydrology"
- 4 April 23, 1996**  
B. Wehrli, Limnological Research Center, EAWAG/ETH, Switzerland  
"Lake sediments: geochemical and environmental archives"
- 5 May 15, 1996**  
J.L. Schnoor, The University of Iowa, USA  
"Phytoremediation at hazardous wastes sites"
- 6 June 13, 1996**  
A.J.B. Zehnder, Limnological Research Center, EAWAG/ETH, Switzerland  
"Physical-chemical" processes controlling the availability of substrates for microbes in terrestrial systems"
- 7 July 27, 1996**  
M.J. Hudson, University of Reading, Great Britain  
"Removal of priority pollutants from aqueous waste and environmental streams"

Further details on the seminars can be obtained from the organiser or from the URL: <http://www.ei.jrc.it>

Abstracts and lists of past and future seminars are also available at this address.

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## Publications

### Environmental protection and conservation of the European cultural heritage

#### New conservation methods for outdoor bronze sculptures

EC-DG XII, 1996, EUR 16637 EN, ISBN 92-827-6232-7

The project "New Conservation Methods for Outdoor Bronze Sculptures" has been supported by the European Commission, the Directorate General XII for science, Research and Development, within the research programme "Science and Technology in Environmental Protection", research area "Protection and conservation of the European Cultural Heritage" (contract no.: EV5V-CT92-0107). The development of a new material for conservation, which was the aim of this project, needed a joint collaboration between experts from different institutions in different countries - a joint collaboration which was made possible only by funding of the European Commission.

During the course of the project, partners from Romania and the Czech Republic joined the team, funded by the European Commission's PECO-Programme, which intends to support Eastern European countries

The aim of this report is to provide general insight into the materials development in conservation through summarizing the projects strategy and achievements, whilst at the same time allowing scientists and conservators more detailed information on the experimental data, which were the basis for the final conclusions.

### Desertification in an European context: physical and socio-economic aspects

Proceedings of the European School of Climatology and Natural Hazards Course, held in El Campello, Pueblo Acanitlido, Alicante, Spain, from 6 to 13 October 1993

Edited by: R. Fantechi, D. Peter, P. Balabanis, J.L. Rubio  
European Commission  
Rue de la Loi, 200  
B-1049 Brussels  
Directorate-General  
Science, Research and Development  
1995, EUR 15415 EN, ISBN 92-827-4163-X



The training of the scientific and technical personnel and the development of a highly qualified scientific community are, and have always been among the important concerns of the European Commission. Advanced training is an important prerequisite for the implementation of a common EU policy in science and technology.

The European School of Climatology and Natural Hazards was founded in 1988 as a part of the training and education activities of the European Programme on Climatology and Natural Hazards (EPOCH), and was later continued under the subsequent research programme Environment (1990-1994).

The School consists of a series of courses (of one week duration) on specialised subjects within the general theme of research in climatology and natural hazards. It is open to graduating, to graduate and post-graduate students in this field.

Each of the courses is organised in cooperation with a European Institution involved in the current research programme, and is aimed at giving the students new perspectives and insights in the specialist subject areas through formal lectures and participation in informal discussions with leading researchers.

The present volume is based on lectures given at the course held in El Campello, Pueblo Acanilado (Alicante), Spain, from the 6th to the 13th October 1993 on "Desertification in an European Context: Physical and Socio-economic Aspects". It also contains presentations, given by the participating students, on their own research activities and interests.

With the adoption of the International Convention to combat Desertification which represents a follow up of the Rio recommendations, this publication is timely. I hope that it will highlight the specific situation the specific situation of the southern European regions and not only provide a comprehensive and state-of-the-art review of this complex issue but also stimulate further interest in this field of research.

### **Civil Liability for Environmental Damage: A Comparative Survey of Harmonised European Legislation**

by Teresa Morais Leitão

January, 1995, Florence, Italy

This thesis not only considers the different possible systems of civil liability for environmental damage but also, by taking into account the existing legal instruments or proposals in Europe, tries to analyse the main problems raised by the academic and the institutional debate around each of them. Nevertheless, since a general comparison of all national legal systems would be a task too vast to the extent of this work, the thesis will limit itself to the harmonisation effort that is being made in Europe.

Therefore, it will mainly analyse and compare the potential future systems of civil liability for environmental damage in Europe, namely the EEC Draft Directive on Civil Liability for Damage caused by Dangerous Activities.

There is for the Master in European International and Comparative Law European University Florence 1995, ISBN 972-96806-0-4

### **Research activities on nature and environment: overview of national and international programmes and organizations**

The Advisory Council on Nature and Environment (RMNO) has observed that international coordination becomes important. So in recent years the RMNO have paid more and more attention to the international context of research. The trend towards internationalization will effect both the subject matter and the organization of research related to nature and environment. It is therefore even more important to find possibilities for foreign and international collaboration, especially on a European level, both in connection with programming research and with carrying it out. This is because of the fact that environmental problems and issues on nature are often transboundary (global, fluvial and continental environmental problems) and the type and method of dealing with regional or local environmental problems will often correspond with problems elsewhere.

In 1994, RMNO started with compiling a list of national and international organizations that are involved with programming, financing, organizing or coordinating national and international research programmes related to nature and environment. The national and international research programmes have also been listed. It appeared that not only this need to have such list was felt by RMNO, but also by other national and international organizations. This induced RMNO to publish the survey.

This report (RMNO-report no. 114) can be ordered from the office of the Advisory Council for Research on Nature and Environment  
Tel. +31-(0)70-3364300 - Fax +31-(0)70-3364310  
E-mail: RMNO@XS4ALL.NL

### **CAB INTERNATIONAL**

CAB INTERNATIONAL is an international, intergovernmental, not-for-profit organization dedicated to improving human welfare worldwide through the dissemination, application and generation of scientific knowledge in support of sustainable development, with emphasis on agriculture, forestry, human health and the management of natural resources.

CABI publishes a range of book titles some of them related to the environment.

P.S. CABI now has it's own homepage on the World Wide Web. It's the best place to find out all about CABI, what it does and what's new. <http://www.cabi.org>

### **The Environment Heritage of Soviet Agriculture**

Bo Libert, Environment Directorate, OECD, Paris, France

The environmental problems, such as pollution and land degradation, of post-Soviet agriculture are indeed serious and represent a major obstacle to the expansion of food production in the new political and economic arena. This book provides a thorough review of these problems and also responds to several reports claiming that the situation is irremediable. Although environmental problems are severe, the author shows that they are not necessary the key limiting factor in agricultural production in the short term. Drawing on a range of personal interviews and statistics on the social, economic and political literature, as well as information on crop production, soil and water use, and the environment, it is shown how a more sustainable future might be attained.

CAB International  
September 1995, 240 pages, HB  
ISBN 0-85198-961-6

### **Environmental Valuation: New Perspectives**

Edited by K.G. Willis, University of Newcastle upon Tyne, and J.T. Corkindale, Department of the Environment, London, UK

The measurement of environmental costs and benefits is an increasingly important aspect of the appraisal of policies and projects. Yet questions on how such appraisals can take account of environmental impacts, how non-marketed environmental effects can be valued in monetary terms, and how these values should be used in the development of policy remain controversial.

This volume consists of papers developed from a conference sponsored by the Department of the Environment in the UK. Six key topics are addressed: cost-benefit analysis; the contrasting approaches of economists and ecologists; the pros and cons of alternative valuation methods; contingent valuation; the transferability of environmental benefit estimates; and the establishment of research priorities. The book provides valuable new insights for advanced students and policy-makers in environmental economics and related disciplines.

CAB International  
June 1995, 272 pages, HB  
ISBN 0-85198-966-7

## Salinisation of Land and Water Resources

F. Ghassemi, A.J. Jakeman and H.A. Nix, Centre for Resource and Environmental Studies, Australian National University

Salinisation of land and water is an increasing problem in many areas of the world, particularly in arid and semi-arid regions where irrigation is a contributory factor. This book assesses the extent, human causes and management of salinisation. The first part of the book provides an extended review of general issues, including a history of secondary salinisation, followed by a discussion of the trends in area irrigated, the process of salinisation, extent of land and water salinisation and their associated environmental, economic and social damages. Management options adopted by different countries are also discussed. The second part and major of the book then consists of chapters of case studies of individual countries, showing why salinity occurs in each one. The book is wide ranging in its scope and is aimed at senior students and research workers in geography, crop and soils science, irrigation engineering and environmental studies.

CAB International  
March 1995, 540 pages, HB  
ISBN 0 85198 906 3

## Agricultural Recycling of Sewage Sludge and the Environment

S.R. Smith, WRc plc, Marlow, UK

Sewage sludge application to land is the principal way of deriving a beneficial use for sludge by recycling plant nutrients and organic matter for crop production. It is becoming ever more important as other options for the disposal of sewage sludge are diminishing. Agricultural application also provides a cost-effective method of sludge disposal, but it is essential that sludge recycling in agriculture is regulated to minimise potential environmental problems.

This book, based on work funded by the Foundation for Water Research, provides an overview of the environmental impact of sludge application to agricultural land and relates it to other accepted agricultural practices. It puts the potential environmental effects into perspective and distinguishes between perceived and real risk. It is a significant contribution to thinking on this increasingly important topic and is relevant to students and researchers in soil, crop and environmental science. It will also be vital for all those involved in the waste and water industries.

CAB International  
August 1995, 384 pages, HB  
ISBN 0-85198-980-2

## Microbial Diversity and Ecosystem Function

Edited by D. Allsopp and D.L. Hawksworth, International Mycological Institute, UK, and R.R. Colwell, Maryland Biotechnology Institute, USA

Microorganisms are key components in the functioning of ecosystems and the importance of their role is being increasingly recognized. In this volume, more than thirty contributors, invited from around the world, cover a wide range of topics: the extent of microbial diversity, the impact of microorganisms on global ecology and

nutrient cycling, microorganisms and ecosystem maintenance, extremophiles, inventorying and monitoring microorganisms and the microbiology resource base. The book is based on papers presented at an IUBS/IUMS/SCOPE/UNEP-sponsored workshop on Microorganisms and the Maintenance of Biodiversity held in the UK in August 1993. It provides an up-to-date review of concepts and concerns in this increasingly important area of biodiversity studies, and will interest a wide range of ecologists and microbiologists.

CAB International  
July 1995, 496 pages, HB  
ISBN 0 85198 898 9

## Biological Monitoring of the Environment: A Manual of Methods

Edited by J. Salanki, Hungarian Academy of Sciences, D. Jeffrey, Trinity College, Dublin, Ireland and G.M. Hughes, University of Bristol, UK

Biological monitoring of the environment uses living systems and living processes to predict, detect and quantify the harmful effects of water, soil and air pollution. This manual provides a collection of methods tested under various conditions as being suitable for practical use in monitoring environmental pollutants or pollution. Papers have been written mostly by members of the IUBS Interdisciplinary Commission on Bioindicators. Some provide relevant theoretical background while others are very practical in focus. Methods for use in both field studies and/or laboratory testing are included. This manual will interest a wide range of students and workers in biological and environmental sciences.

CAB International  
May 1994, 176 pages, PB  
ISBN 0 85198 893 8

## Long-term Experiments in Agricultural and Ecological Sciences

Edited by R.A. Leigh and A.E. Johnston, Rothamsted Experimental Station, Harpenden, UK

This book demonstrates that long-term experimentation and monitoring are vitally important in understanding changes that are occurring in the environment and the way they interact with agriculture and natural ecosystems. Chapters are based on papers presented at a conference held in July 1993 to celebrate the 150th anniversary of Rothamsted Experimental Station. During these 150 years of agricultural research a unique set of field experiments have run continuously for all or most of that time. These experiments, originally set up to study the nutrient requirements of arable crops, now provide a unique resource that is relevant to sustainability, environmental impact and climatic change.

The book consists of 22 chapters and covers a wide range of topics including descriptions of various longterm experiments in the USA, Australia, Eastern Europe and Africa, as well as studies at Rothamsted. It will interest a very wide range of readers in agronomy, soil science, forestry, ecology and environmental science.

CAB International  
November 1994, 448 pages, HB  
ISBN 0 85198 933 0

### Note from the Editor

The information contained in this Newsletter has been drawn from material supplied by the same persons indicated in each chapter as possible correspondants for further information.

Text have been checked and apologies are given for omissions or errors.



