

List of CCMS Past Activities
(pilot studies and short term projects)*(1970 to 2006)*

From 1969 to 2006 the NATO Committee on the Challenges of Modern Society (CCMS) overviewed a programme geared towards problems affecting the environment and the quality of life of the peoples of NATO and Partner countries. Below is the list of activities (pilot studies and short term projects) which took place during that period. It is to be noted that many of the publications mentioned under these activities are no longer available.

(last update: 31 Aug 2007)

ADVANCED HEALTH CARE

Pilot country: United States

Duration: 1971-1976

Publication: CCMS Report No. 43

Summary

The aim of this study was to facilitate international co-operation in providing better quality health care to ever-increasing numbers of patients. Four areas of activity were selected, each led by a co-pilot country: Systematic Assessment of Health Services (Canada); Organized Ambulatory Health Services (Federal Republic of Germany); Emergency Medical Services (Italy); and Automation of Clinical Laboratories (United Kingdom). The final resolutions and recommendations which resulted from this study called for continued co-operation and joint efforts among the countries of the Alliance, and encouragement of greater co-operation among national and international private and governmental groups, so that techniques and expertise developed in advanced health care may be freely available to the entire world community.

ADVANCED WASTE WATER TREATMENT

Pilot country: UK

Duration: 1972-1978

Participants: Canada, France, Germany, USA

Publications: CCMS Reports No. 31, 90

Summary

This study explored a variety of techniques and equipment to purify waste water. It produced the most comprehensive assessment of technical developments in this field. Considerable intellectual and capital resources were devoted to the study, which included the construction of test plants in several countries. In particular, the United Kingdom constructed the world's most advanced pilot plant, which permitted various means of treating waste water to be compared. The study assisted countries to develop more effective and efficient means for purifying water and indicated what further priority work needed to be done.

AIRCRAFT NOISE IN A MODERN SOCIETY

Pilot countries: Germany + United States

Duration: 1985-1989

Participants: Belgium, Canada, Denmark, Italy, Netherlands, Norway, Portugal, Spain, UK

Publications: CCMS Reports No. 161, 163, 185, 200, 202, 241

Summary

Noise, both around airfields and from low-flying aircraft, is a source of irritation and a potential health hazard in all advanced societies. This study has concluded that technology now available can substantially reduce the noise levels of military transport aircraft by the turn of the century. Furthermore, there exists significant technological potential to reduce helicopter noise. While the problem of high performance aircraft is more difficult, the development and application of variable

cycle engine technology may offer substantial benefits in the longer term, particularly for low altitude flight conditions.

Directors:

1) Dr. H. Gummlich, Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, Kennedyallee 5, 5300 Bonn 1, Germany

2) Mr. Gary D. Vest, Deputy Assistant Secretary of the Air Force, (Environment, Safety & Occupational Health), Department of the Air Force, SAF/RQ, Washington D.C. 20330-1000, U.S.A.

AIR POLLUTION

Pilot country: United States

Duration: 1970-1974

Participants: France, Italy, Netherlands, Norway

Publications: CCMS Reports No. 4, 5, 6, 7, 8, 10, 12, 13, 14, 15, 18, 19, 20, 29, 30, 33, 35

Summary

Air pollution is recognized as one of the most significant problems facing our modern industrialized society. Nineteen technical reports were published on such topics as air pollution modelling, assessment of air quality, air quality criteria and control techniques for various pollutants, and low pollution power systems development aimed at producing cleaner vehicular engines. The North Atlantic Council adopted a resolution by which member countries resolved to endeavour to use the systems methodology generated by the study in establishing national air quality management programmes. A number of countries, including Germany, drew upon the CCMS technical reports in drafting legislation for the control of air pollution. The United Nations World Health Organization (WHO) also made use of the results of the study in its world-wide community air pollution programmes. The success of the pilot study led to the approval, in 1974, of a pilot study on air pollution assessment methodology and modelling, and it was agreed to continue activity in CCMS on development of cleaner vehicular engines. These two areas of CCMS activity are described in more detail below.

AIR POLLUTION ASSESSMENT METHODOLOGY AND MODELLING

Pilot country: Germany

Duration: 1975-1979

Publications: CCMS Reports No. 41, 42, 50, 51, 67, 70, 71, 80, 88, 89, 96, 99, 100, 101, 102, 103, 104, 105, 105B, 106, 108, 114, 125, 126, 127, 134, 135

Plenum Press Volume No. 2

Summary

The most important objective of air pollution control policy is to safeguard an air quality which will ensure human health and well-being. The expansion of industrial production, the mechanization of wide spheres of life and heavy motorization have in the last few years even increased air pollution in partial sectors. Comprehensive air quality management systems (AQMS) should include the following elements: emission, dispersion, air quality, transfer and impact and control strategy. This pilot study went further in its goals as to systematically follow the way of air quality managing. The main topics dealt with were: set up of an air quality management system, methodology of emissions, inventories and projections, modelling air pollution transport and dispersion. In parallel to an actual development of guidelines of air pollution modelling, an intensive exchange of experience on air pollution modelling and its application was held through international technical meetings. In 1979, the Council approved the recommendations that emerged from this pilot project, which included the initiation of a new pilot project on Air Pollution Control Strategies and Impact Modelling (see below).

AIR POLLUTION CONTROL STRATEGIES AND IMPACT MODELLING

Pilot country: Germany

Duration: 1979-1985

Publications: CCMS Reports No. 139, 142, 143, 144, 146, 147, 148, 149, 150, 151, 153, 154, 155, 162, 181, 182

Summary

This study dealt with control of specific pollutants emitted by certain industrial plants on the one

hand and further developed the impact issues considered by the first study. The philosophy of direct effects of air pollutants on the immediate environment was extended to an overall ecological approach taking into account the activities of and reactions to airborne pollutants in soils and waters. The project was conducted through three panels concerned with reduction of heavy metal emissions from stationary sources, air quality predictions, and environmental impact. The following conclusions were drawn: air pollutants could have adverse effects on human health, on vegetation, on soil, on materials, on visibility and on historical art monuments; it was possible to reduce emissions significantly by means of technically feasible control measures; considerable progress had been achieved on developing models for calculating transport and diffusion of air pollutants in the atmosphere; air pollutants often were transported across national boundaries and might have adverse effects in areas far away from the source of origin.

AIR POLLUTION TRANSPORT AND DIFFUSION OVER COASTAL URBAN AREAS

Pilot country: Greece

Duration: 1991-1997

Participants: Belgium, Canada, Denmark, France, Germany, Italy, Portugal, Turkey, USA, Bulgaria, Hungary, Romania, Russia and Australia

Publication: CCMS Report No. 214

Summary

It is well known that urban areas situated on sea or lake coastlines suffer from air pollution problems more than continental cities. This is due to air masses circulating in such areas and transporting and diffusing air pollutants not only to the suburbs of the town but also to nearby villages. The same situation exists in the case of a coastal industrial area. The dispersion of the emissions can affect nearby inhabited areas. So far all studies about coastal urban areas have been performed on local scale and no comparison of the individual results has been made for setting universal air quality criteria for such areas. The pilot study on "Air Pollution Transport and Diffusion over Coastal Urban Areas" tried to tackle the problem from this point of view. It gave an opportunity to many scientists to exchange ideas and experiences in the field of air pollution (experimentalists and/or modellers) and air quality management. A set of guidelines about how to design and perform a reference coastal experiment was issued and published. Investigation was made about the way that tropospheric air pollution together with prevailing meteorological conditions influence street canyon air pollution; it showed how the coupling between the two may be accomplished under certain meteorological conditions. An investigation was also performed about the dispersion of plumes from an industrial stack under sea breeze conditions and their influence on nearby inhabited areas.

Director: Dr. Harry Kambezidis, Institute of Meteorology and Physics of the Atmospheric Environment, National Observatory of Athens, P.O. Box 20048, GR-11810 Athens, Greece

ASSESSMENT OF NATURAL HAZARDS

Leader: Canada

Duration: March 2001-Oct. 2003

Participants: Armenia, Belarus, Czech Republic, Georgia, Germany, Hungary, Latvia, Lithuania, Moldova, Norway, Poland, Romania, Slovak Republic, Switzerland, the former Yugoslav Republic of Macedonia, Turkey, Ukraine, UK, USA

Publication: None

Summary

The specific objective of this short-term project was to foster learning and communication between different countries, each of which is exposed to a distinctive set of threats, and each with its own unique vulnerabilities. Topics under discussion were: (1) human and economic impacts, (2) risk assessment, (3) geological risks, (4) severe weather and climate, (5) coping strategies including response and recovery, preparedness and mitigation, (6) barriers, (7) case and/or sectoral studies, and (8) emerging issues such as climate change. The project consisted of two workshops. The workshops allowed the various participating countries to learn natural disaster experience from each others. The focus was not only on disaster impacts, but more importantly upon mitigation strategies - technological, political, cultural, economic and legal. Though cultures and the hazards countries are exposed to are diverse, and strategies naturally vary as a result of that diversity, there are many commonalities on how to mitigate the risk of natural disasters. By comparing what has worked well, and perhaps more importantly not so well, we can all be better prepared to develop policies and strategies in our own countries.

ASSESSMENT OF THE RISK OF ACCIDENTAL POLLUTION FROM THE MARITIME TRANSPORT OF DANGEROUS PRODUCTS

Pilot country: France

Duration: 1986-1992

Participants: Belgium, Canada, Germany, Italy, Netherlands, Spain, UK, USA, Morocco, Sweden

Publications: CCMS Report No. 191

Summary

The growing use of synthetic chemical products in industry and agriculture has led to a corresponding rise in the international movement of dangerous substances, particularly by sea. This results in an increased risk of accidents. This study has collated international data on the shipping of dangerous products, studied the characteristics of these products and their reaction in water and produced findings on the most suitable depollution methods.

Director: Dr. Marthe Melguen, Directeur, CEDRE, Pointe du Diable, B.P. 72, F-29280 Plouzané, France

AUTOMOTIVE PROPULSION SYSTEMS (FORMERLY LPPSD)

Pilot country: USA

Duration: 1973-1978

Publications: CCMS Reports No. 32, 39, 48, 61, 76, 107

Summary

The energy crisis in 1973 has stimulated much activity and a sense of urgency about automotive propulsion systems, taking into consideration the highway vehicles which are totally dependent on petroleum-based products. This study consisted of periodic international symposia, which offered an opportunity for technical and management-oriented people from government, industry and the academic world to exchange information and discuss mutual problems. The study identified a number of areas that might be pursued in any future research and development efforts. These include power systems and components, alternative fuels and electric and hybrid engine systems, high temperature materials, harmonization or correlation of emission, standards and procedures.

CLEAN PRODUCTS AND PROCESSES

a) Phase I

Pilot country: USA

Duration: 1997-2002

Participants: Bulgaria, Canada, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, Lithuania, Moldova, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovak Rep., Slovenia, Spain, Switzerland, Turkey, UK, Ukraine

Non-NATO countries: Egypt, Israel, Chile, Japan

Publications: CCMS Reports No. 230, 238, 242, 253

Summary

The concept of sustainable development universally accepted as the means of protecting the environment for all mankind, demands that future manufacturing technologies must be cleaner, yet economically sound. The goal of sustainable development will, in the manufacturing sectors, be achieved by a combination of several methods. One method is improved housekeeping in process plants leading to large reductions of emissions and discharges of pollutants. Another method is significant modifications of existing process technologies through the application of sound science and advanced technologies. Yet another method is totally new process designs that are environmentally preferable, made possible by using tools for life cycle assessment (LCA) and environmental impacts.

The initial goal of creating an effective forum for exchanging new ideas, knowledge, and methods for achieving cleaner products and processes has been achieved with this Phase I which was launched at a time when the environmental impacts of industry and its products, and the depletion of natural resources were just beginning to be appreciated. Additionally, in the span of the last five years, only a few technology sectors could be examined. The need for keeping this forum alive for free exchange of ideas for continued sharing among the member nations, Phase II is needed to conduct the unfinished business of dealing with the exploding developments in cleaner technologies and methods and to address some of the more important industry sectors.

Director: Dr. Subhas Sikdar, Director, Sustainable Technologies Division - U.S. EPA, National Risk Management Research Laboratory, 26 W. M.L. King Drive, Cincinnati, Ohio 45268, USA (Tel: +1-513-569 7528, Fax: +1-513-569 7787, E-mail: sikdar.subhas@epamail.epa.gov)

COASTAL WATER POLLUTION & OCEAN OIL SPILLS

Pilot country: Belgium

Duration: 1970-1975

Publication: CCMS Report No. 1

Summary

The study on Coastal Water Pollution and Ocean Oil Spills focused principally on a mathematical model of the North Sea and on ocean oil spills. A colloquium held in Brussels in 1970, at which all NATO maritime countries were represented, considered the problem of ocean oil spills and adopted a number of resolutions dealing with both intentional and accidental spills. In the principal resolution, countries agreed to cease all intentional oil spills, if possible by 1975, and in any case no later than the end of the decade. The Council later adopted this resolution and others recommending more specific operational and technical actions.

CONSERVATION/RESTORATION OF MONUMENTS

Pilot country: Greece

Duration: 1979-1986

Participants: France, Germany, USA

Publications: CCMS Reports No. 156, 158

Summary

Historic and artistic monuments represent the single most visible aspect of our history and culture. These monuments, mostly of stone construction, are universally threatened by the effects of pollution, urbanization, public access, as well as weathering cycles and other natural phenomena. Though there is national and international activity in the preservation of individual monuments, there is an obvious need for increased co-operation among all those concerned with the development and implementation of national preservation plans. This study provided the participating nations with information to enhance their abilities to minimise adverse environmental effects on monuments, to develop optional programmes for conservation/restoration, and to serve as a model for international co-operation in the preservation of cultural property.

CONSERVATION OF HISTORIC BRICK STRUCTURES

Pilot country: Germany

Duration: 1987-1994

Participants: Belgium, Germany, Italy, Netherlands, Norway, Turkey, UK, USA

Publications: No final report published

Summary

Brick and mortar facades are frequently encountered in monuments and vernacular architecture in Europe and North America. Substantial evidence of damage is obtained universally. This pilot study tried to identify and describe all causes of damage, simulate such damage in field tests and laboratory studies, and undertake an experimental evaluation of consolidation methods and materials; an aspect of this task was the development of a state-of-the-art review of materials and methods.

Director: Dr. Stephan Fitz, Umweltbundesamt - I 3.3, Postfach 330022, D-14191 Berlin, Germany

CONTAMINATED LAND

Pilot country: United Kingdom

Duration: 1981-1984

Publication: Plenum Press Volume No. 8

Summary

The term 'contaminated land' covers a spectrum of different sites (from small sites with easily identified surface deposits of solid waste to large areas containing deposits of unidentified chemical wastes which are already causing serious damage to the environment). The aim of this pilot study was to identify and develop methods of dealing with problems presented by land which contains substances that, when present in sufficient quantities or concentrations, are likely to cause harm directly or indirectly to man, to the environment or, on occasions, to other targets. The study made recommendations in seven areas: long-term effectiveness of remedial measures; on-site processing of contaminated soils; in-situ treatment; macro-encapsulation/containment systems; groundwater management and treatment; toxic and flammable gases; and rapid methods of on-site analysis.

CROSS-BORDER ENVIRONMENTAL PROBLEMS EMANATING FROM DEFENCE-RELATED INSTALLATIONS AND ACTIVITIES

a) Phase I

Pilot countries: Norway+Germany

Duration: 1992-1995

Participants: Belarus, Canada, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Netherlands, Poland, Romania, Russian Fed., Slovak Rep., Turkey, Ukraine, USA, Japan (observer)

Publications: CCMS Reports No. 204, 205, 206

Summary

The objective of this pilot study - approved as part of the North Atlantic Cooperation Council's 1992 Work Plan - was to develop a basis for international cooperation on surveying, assessing and preventing cross-border pollution emanating from defence-related installations and activities. The study contained two specific sub-topics relating to cross-border pollution: (a) pollution from radioactive materials, primarily those affecting oceans and waterways, which was led by Norway, and (b) pollution from chemicals, which was led by Germany. The geographical areas covered included the following: the Barents and Kara Seas, the Baltic Region and the Black Sea, including the Danube catchment. While the study raised important issues with regard to military activities on land and the results of "old sins", it was intentionally focused on the end-result of such a situation: pollution of the oceans and waterways. In accordance with this focus, efforts were concentrated on establishing a status for both chemical and radioactive pollution and the identification of future threats. Estimate effects and the level of risk involved in case there is total radioactive leakage after defined time intervals were examined and discussed, as well as potential future problems emanating from nuclear waste stored on land, in boats, the decommissioning of nuclear submarines during the next five years, the consequences of nuclear submarine or ship accidents in arctic water and the necessary measures to be taken to prevent contamination.

Directors:

1) Mr. Sverre Stub, Deputy Director General, Ministry of Foreign Affairs, P.O. Box 8114 Dep, N-0032 Oslo 1, Norway

2) Dr. Hermann Martens, Chief, Chemical Protection Directorate, WWDBw ABC-Schutz,
Postfach 1142, 29623 Munster, Germany

b) Phase II

Pilot country: Norway

Duration: 1995-1998

Participants: Belarus, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Netherlands, Poland, Romania, Russian Fed., Slovak Rep., Sweden, Turkey, Ukraine, USA, UK (observer)

Non-NATO countries: Japan

Publications: CCMS Reports No. 223, 224, 225, 226, 227

Summary

Under Phase II of this pilot study, four topics were examined: (1) hazardous materials and defence-related activities in the Arctic; (2) radioactive contamination of rivers and transport through rivers, deltas and estuaries to the sea; (3) management of defence-related radioactive waste; and (4) environmental risk assessments for two defence-related problems. The final report of this phase II includes, among others, the following recommendations:

- NATO militaries should evaluate absolute and relative risk-assessment methodologies to address the specific conditions in the Arctic environment.
- Priority should be given to PCB releases and active or abandoned dumpsites in the Arctic.
- Monitoring/investigation of river transport of radionuclides and effects on the environment should be carried out.
- Before commencing a defence-related activity which involves the use of radioactive materials, the full life-cycle implications, including waste management and disposal, should be considered.

Director: Mr. Sverre Stub, Deputy Director General, Ministry of Foreign Affairs, P.O. Box 8114 Dep, N-0032 Oslo 1, Norway

DEFENCE ENVIRONMENTAL EXPECTATIONS

Pilot countries: USA+UK

Duration: 1990-1995

Participants: Belgium, Canada, France (observer), Germany, Greece (observer), Italy, Netherlands, Norway, Portugal, Spain, UK, USA, Czech Republic, Estonia, Georgia, Latvia, Lithuania, Poland, Romania, Russian Fed., Slovakia, Ukraine

Publications: CCMS Reports No. 199, 211

Summary

Throughout NATO, national environmental policies and requirements as well as public sensitivity about the environment can vary from one country to another. In many cases, a lack of knowledge about the expectations of one's nation in terms of environmental protection may create difficulties for military activities and training. This was a major concern to military leaders as the Pilot Study on Defense Environmental Expectations began to address such issues. The Pilot Study concluded that NATO, itself, lacked a clear environmental policy for their Commanders and for members of the NATO Forces while training in member countries. In order to meet the need, the Pilot Study created an *Environmental Policy Statement* for NATO. The Environmental Policy Statement was an important new step for NATO in that it demonstrated the commitment of Alliance members to conduct themselves in an environmentally sensitive manner during training exercises and operations. In addition, the Pilot Study also created *The Principles of Environmental Training* which was approved by both the NATO Military Committee and the Council. *The Principals* were key outlining basic precepts to the development of environmental training for the military at all levels. To add to the accomplishments of the Pilot Study, two videos were produced which would help to expand and enhance the environmental awareness of soldiers "*Pollution Prevention: A Commanders Choice and Video*" and "*Managing Hazardous Waste Within NATO*".

With the vast amount of knowledge, national regulation, and experience in each of the Alliance nations regarding defense related environmental issues, the Pilot Study members acknowledged the importance of being able to exchange information on a regular basis. As an achievement of the Pilot Study, the NATO CCMS Environmental Clearing House System to countries to access

information on defense related environmental matters. which is accessible to all NATO and EAPC nations.

Directors:

1) Mr. Gary Vest, Principal Assistant, Deputy Under Secretary of Defense, Environmental Security, 3400 Defense Pentagon, Washington, DC 20301-3400, USA

2) Mr. John Stuart, Ministry of Defence, IL (LOG) 1, Room 9243, Main Building, Whitehall, London SW1A 2HB, UK

DEPRIVED URBAN AREAS

Pilot country: France

Duration: 1992-1996

Participants: Belgium, Canada, Denmark, Germany, Greece, Italy, Netherlands, Portugal, Spain, Turkey, UK, USA, Switzerland.

Publication: CCMS Report No. 215

Summary

Recognizing the importance of the problem of deteriorating quality of public space in outlying areas of large cities, France has led this study which had the following objectives: (a) to assess the similarities and divergences between the manifestations of deteriorating quality of the urban environment in Western Europe, North America and the former people's democracies of Eastern Europe; (b) to compare the diagnosis made of these phenomena; (c) to observe as far as possible the range of political responses to this issue; (d) to evaluate policies to combat social decline. The pilot study group concluded that political responses to the question of deprived urban areas varied from one country to another both in scale and in the precise policies adopted. In some countries, the emphasis was on the criticism of welfare (UK and USA); in other countries, the emphasis was on the community approach and on the need to combat self-enclosure of the population by its self-affination (Canada, Netherlands and Scandinavia); elsewhere, the emphasis was on assistance in combating the deprivation and vulnerability of such groups by central encouragement through positive discrimination and contractual support for them.

Director: Mr. Jacques Donzelot, Plan Urbain – DAU, Tour Pascal B, F-92055 La Défense Cedex, France

DESERTIFICATION IN DEVELOPED AREAS

Pilot countries: Portugal + Spain

Launched on: 15/06/1989 (never concluded)

Participants: France, Germany, Greece, Iceland, Italy, Netherlands, Turkey, U.K., U.S.A.

Publication: Report No. 196 ("Desertification in Developed Countries")

Director: Dr. José L. Rubio Delgado, Centro de Investigaciones sobre Desertificación, Universitat de Valencia, SPAIN.

THE DESIGN OF THE CASPIAN BASIN OBSERVING SYSTEM TO FORM THE BASIS FOR ENVIRONMENTAL FORECASTING

Pilot country: Turkey

Duration: 2002-2005

Participants: Azerbaijan, Belgium, Bulgaria, Georgia, Greece, Kazakhstan, Russia, Ukraine, UK, USA

Summary

The goal of this study was to establish a prototype of the Caspian Basin Observing System, to demonstrate its use in environmental forecasting and decision making, and to develop data bases and cooperation on preserving the ecosystem. Participants reviewed, during three meetings, the state of the marine environment, processes and gaps in knowledge, data inventories, observing systems and technologies, modelling and forecasting and the status of other projects carried out in the region. The presentations made by the participants once again demonstrated the need for continued research using modern tools and technologies, in order to understand and help preserve the Caspian Sea ecosystem.

Director: Prof. Emin OZSOY, METU, Institute of Marine Sciences, P.O. Box 28, Erdemli-Icel

DEVELOPMENT OF AN INTEGRATED COASTAL ZONE MANAGEMENT PROGRAMME (INCOM) THROUGH COASTAL AND SHELF MONITORING AND MODELLING IN THE BLACK SEA

Leader: Turkey

Duration: Sept. 1999-March 2001

Participants: Bulgaria, Georgia, Germany, Luxembourg, Netherlands, Romania, Russia, Ukraine, United States

Publication: CCMS Report No. 248

Summary

This project presents a science plan describing a general framework which uses physical, chemical, biological observations and modeling studies. The Black Sea Integrated Coastal and Shelf Zone Monitoring and Modeling (INCOM) is concentrating particularly on the western coastal and shelf waters which are under direct pressure of the anthropogenic-based pollution. It essentially involves a system of observations and modeling studies designed to (a) improve our knowledge of the physical and biogeochemical systems of the Black Sea, (b) provide a basis for the assessment of the state and trends in the marine environment regarding the effects of anthropogenic activities, (c) identify causes and solutions of pollution problems, (d) assist decision-making activities of regulatory and management agencies for remediation of existing pollution, and finally restoration of the Sea while stimulating creativity and excellence in research.

Director: Prof. Ilkay Salihoglu, Director, Institute of Marine Sciences, Middle East Technical University, P.O. Box 28, 33731 Erdemli-Icel, Turkey

DIOXIN PROBLEMS

Pilot country: United States

Duration: 1985-1988

Publications: CCMS Reports No. 160, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179.

Plenum Press Volume No. 16

Summary

This study was divided into three working groups. Group A, led by the United States, was assigned the task of addressing the exposure and hazard aspects of the dioxin problems. Group B, led by Germany, was concerned with the technological aspects of the formation of dioxins and furans and methods for their degradation and destruction. Group C, led by Italy, was involved with the management of dioxin accidents. The major objectives of the project were to facilitate international information exchange on dioxins, to identify knowledge voids in respect of dioxin management and to reduce research programme duplications. Information exchanged was of utility to research and regulatory planners and managers in planning future activities. As a result of the success of this study, a follow-up process of two years was planned.

DISASTER ASSISTANCE

Pilot country: United States

Duration: 1970-1972

Publications: CCMS Reports No. 2, 9

Summary

Two of the major natural disaster problems facing mankind result from earthquakes and floods. While preventive measures are often inadequate to cope with potential disasters, much can be done in planning to mitigate the effects of floods and earthquakes. Moreover, adequate preparations permit speedier rescue and post-disaster rehabilitation. With these considerations in mind, the CCMS undertook a pilot study on Disaster Assistance. The recommendations called upon countries to improve their state of readiness by: (a) pre-disaster preparation; (b) emergency measures to be taken during disasters; and (c) steps to speed post-disaster construction and rehabilitation. A special role was assigned to the NATO communications network which could, during times of disaster, be used to co-ordinate requests for and deliveries of relief supplies. Member countries

were also requested to give complete support to the disaster relief activities of the United Nations. Follow-up reports have indicated that a number of measures have been taken in member countries to implement the recommendations on Disaster Assistance. The NATO communications network was utilised for the purpose of assisting in the co-ordination of relief work in connection with the earthquakes which took place in Italy in 1976 and 1980. Responsibility for further action under the Disaster Assistance Study has been assigned to NATO's Civil Emergency Planning Committee.

DISASTER PREPAREDNESS PLANS RESPONDING TO CHEMICAL ACCIDENTS (HEALTH AND MEDICAL ASPECTS)

Pilot countries: Belgium+USA

Duration: 1988-1994

Participants: Belgium, Canada, France, Germany, Italy, Luxembourg, Netherlands, Norway, Turkey, UK, USA, Finland, Sweden, Russia

Publication: CCMS Report No. 198

Summary

This study had two main objectives: first, to develop a matrix analysis to determine the existence and status of specific plans to address disasters involving chemical accidents; secondly, to develop a comprehensive model depicting all the components needed to effect medical coverage of a given population involved in a chemical accident disaster, including manpower and training communications, medical supplies and equipment, transport facilities (land and air) and environmental impact. The group concluded that a major goal of the study had been reached which was a better understanding of the problems modern societies are confronted with regarding the health and medical issues associated with chemical releases. The intent (or challenge) was to manage an emergency so that it does not become a disaster. The group's final report gave specific recommendations for nations to implement appropriate measures for handling chemical emergencies.

Directors:

1) Mr. D. Van Daele, Secretary General, Dept. Of Health & Environment, Rijksadministratief Centrum, Vesaliusgebouw, 1010 Brussels, Belgium

2) Dr. Frank Young, Director, U.S. Public Health Service, Office of Emergency Preparedness, 5600 Fishers Lane, Room 4-81, Rockville, MD 20857, U.S.A.

DISPOSAL OF HAZARDOUS WASTES

Pilot country: Germany

Duration: 1974-1977 (Phase I) 1977-1981 (Phase II)

Publications: CCMS Reports No. 52, 55, 62, 63, 64, 68, 69, 77, 118, 119, 120, 121, 122, 145 + Plenum Press Volume No. 4

Summary

This study tackled the ever-growing problem of disposing of industrial toxic wastes in the safest and least-damaging manner. This involved the testing of appropriate technologies for the disposal and recycling of these wastes, as well as the establishment of effective planning instruments and organizational systems. The study consisted of several components. The United States was responsible for a project on the transportation of hazardous substances and another on the development of guidelines for the disposal of hazardous wastes. Belgium led a project on underground disposal and the United Kingdom led one on land-fill disposal. France was responsible for a project on the chromium cycle. A second phase of the study was launched in 1977, concentrating on thermal treatment, physical, chemical and biological treatment, land-fill techniques and metal finishing wastes. Upon its conclusion, nations agreed to continue close co-operation in this area by establishing a standing committee of governmental experts.

DOSE-RESPONSE ANALYSIS AND BIOLOGICALLY-BASED RISK ASSESSMENT FOR INITIATOR AND PROMOTER CARCINOGENS

Pilot countries: Italy+USA

Duration: 1990-1996

Participants: Belgium, France, Germany, Greece, Netherlands, Portugal

Publication: Plenum Press Book No. 23

Summary

This pilot study had the objective of not only providing a theoretical contribution to cancerogenic risk assessment but also proposing a practical method. The participants took into consideration different methods and approaches for carcinogenic risk regulations adopted by member countries which created some difficulties in standardization methods. Therefore, a flexible and biologically-founded strategy in modeling was proposed to overcome many of these difficulties. A main conclusion of the pilot study was that a model should properly reflect the physical, chemical and biological reality, capturing the essential biological processes that can be observed, even if they may be complex to describe in every detail. Within this framework, the questions about low-dose behaviour modifications due to possible presence of threshold or saturation phenomena are more easily addressed in models that contain parameters which have a biological interpretation and, therefore, may be measured in principle.

Directors:

- 1) Dr. Giovanni A. Zapponi, Istituto Superiore di Sanità, Rome, Italy
- 2) Dr. Jim Cogliano, US EPA, Nat. Center for Env. Assessment, Washington DC, USA

DRINKING WATER

Pilot country: United States

Duration: 1977-1982

Publications: CCMS Reports No. 111, 130

Summary

The aim of this project was to produce a comprehensive report on state-of-the art matters relating to drinking water in participating nations, including evaluations of existing technology and practice from the points of view of effectiveness, public health protection, costs and general availability. Member countries focused on some of the problems associated with providing drinking water that is bacteriologically and chemically safe. In evaluating the problems and possible hazards in supplying safe drinking water, the study concentrated on six major areas - analytical chemistry and data handling, advanced treatment technology, microbiology, health effects, re-use of water resources and ground water quality considerations.

ECOSYSTEM MODELLING OF COASTAL LAGOONS FOR SUSTAINABLE MANAGEMENT

a) Phase I

Pilot countries: Turkey + USA

Duration: 1995-2001

Participants: Canada, Italy, Poland, Portugal, Romania, Russia, Spain Observers: Kyrgyz Rep., Lithuania, Turkmenistan, Ukraine

Non-NATO country: Australia

Publication: Book published commercially by CRC Press

Summary

The following were the main conclusions of the Phase I study: (1) Lagoons are the most valuable components of coastal areas in terms of both ecosystem and natural capital; (2) The concept of sustainable management of lagoons is neither clearly understood nor applied; (3) The use of models as important tools in management has not been experienced yet or utilized in a limited manner; (4) Various models are developed by many research groups and are being utilized. It is very important to select the appropriate one and to make modifications depending on the special conditions of lagoons. The output of the first phase of the pilot study is a book.

Director: Prof.Dr. I.E. Gonenç, Turkey.

EFFECTIVE RISK RESPONSE STRATEGIES

Pilot countries: UK + USA

Duration: 2002-2006

Participants: Belgium, Canada, Czech Republic, France, Georgia, Hungary, Moldova, Norway,

Romania, Turkey

International Organisation: ESF (European Science Foundation)

Summary: The MERREA pilot study was ultimately aimed at exploring the response processes and behaviours of stakeholders in different risk situations, in order to develop more integrated and effective strategies for risk communication and management. Its objectives were to identify the factors that shape and determine the perceptions of the various stakeholder groups, investigate the ways they translate into expectations and actions, and assess the approaches that can be used to influence them, both in advance of and during any risk event. While recognizing that hazards differ in terms of their specific causes, pathways of propagation and impacts, the study was based on the principle that there are many commonalities between different types of risk and different risk situations. Much can be learned from comparing experiences from different risk events. Accordingly, a range of different case studies was selected, representing different types of risk, and these were examined in order to collate and compare the various experiences, and to develop a set of practical guidelines to improve the ways in which responses to risk are factored into risk management strategies and plans. The focus was on risks to public health associated with environmental hazards, but it was anticipated that relevant experience and information could be drawn from much wider fields, and that the results of the study would likewise have wider significance beyond the cases studied. The Pilot Study addressed issues of managing individual and collective responses of stakeholders, seen as a vital part of risk governance. It was found that significant advances have been made on this front in recent years, especially through the development of more participatory approaches to risk management. Much more needs to be learned, and one way of achieving this is to draw lessons from past events while examining implications for efforts to develop effective risk governance strategies.

Director: Dr. Richard M. STERN, 8 rue de l'Eglise, F-83680 La Garde Freinet, France
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EFFECTS OF LARGE CONSTRUCTION PROJECTS ON THE ENVIRONMENT

Pilot country: Spain

Duration: 1991-1996

Participants: Greece, Portugal, Spain, UK, USA

Publication: CCMS Report No. 209

Summary

The aim of this study was to provide government agencies which are charged with achieving the most cost-effective means of protecting and restoring the natural environment, with more information on the specific methodologies, techniques and equipment necessary for the restoration of the physical and biotic environment. Furthermore, the pilot study group discussed the institutional, policy and legal aspects of environmental restoration and finally used a number of practical case studies (e.g. Environmental Restoration Project of the Surroundings of the Algar River Springs, Alicante, Spain; U.S. Army Hohenfels Training Area, Bavaria, Germany; the Channel Tunnel, UK; Trancoa River Basin Reclamation Plan, Lisbon, Portugal) to demonstrate the practical application of these environmental solutions. The final report is produced for governmental decision makers as well as construction and environmental professions, to provide an overview of the environmental challenges and the possible restoration solutions.

Director: Mr. Luis Ramon Otero Peral, Direccion General de Politica Ambiental, MOPTMA, Madrid, Spain

ENVIRONMENT AND REGIONAL PLANNING

Pilot country: France

Duration: 1970-1973

Publication: CCMS Reports No. 17

Summary

This study did not intend to produce a master blueprint for regional planning through a centralised authority which might be applicable in all member countries. Rather, it was contemplated that, by sharing their national experience, the participants might contribute to better understanding of the relationship between land-use planners on the one hand and those concerned with environmental quality on the other. Specific ways of implementing these guidelines were left essentially to the

discretion of each member country in accordance with its particular problems and its national approach to their resolution.

ENVIRONMENT AND SECURITY IN AN INTERNATIONAL CONTEXT

Pilot countries: Germany+ USA

Duration: 1996-1999

Participants: Austria, Belarus, Bulgaria, Canada, Czech Rep., Denmark, Estonia, Finland, France, Hungary, Kyrgyz Rep., Latvia, Lithuania, Moldova, Netherlands, Norway, Poland, Romania, Russian Federation, Slovak Rep., Spain, Sweden, Switzerland, Turkey, the former Yugoslav Republic of Macedonia, UK

Publication: CCMS Report No. 232

Summary

The pilot study's final product compiles existing state-of-the-art research on the relationship between environmental change and security. At the same time, a large part of the pilot study's work was dedicated to developing parameters for response mechanisms directed towards political stakeholders from different policy sectors. The focus of these responses is on reducing the potential incidence or escalation of conflict, inter alia, enhancing security at the earliest possible stage. The structure of the pilot study reflects this orientation towards framing practical action. Another characteristic of this pilot study is that it deals with a broad social science issue in discussing innovative policy responses for dealing with environmental stress and its potential effects on security. The final report consists of the following five chapters: (1) NATO security context; (2) Assessment of the links between environment and security; (3) Typology of environmental conflict cases; (4) Integrated risk assessment; and (5) Indicators, data and decision support systems.

Directors:

1) Mr. Kurt M. Lietzmann, Fed. Ministry for Environment, Nature Conservation and Nuclear Safety, Bonn, Germany

2) Mr. Gary Vest, Principal Assistant, Deputy Under Secretary of Defense, Environmental Security, Washington DC, USA

ENVIRONMENTAL ASPECTS OF REUSING FORMER MILITARY LANDS

a) Phase I

Pilot countries: USA + Germany

Duration: 1994-1996

Participants: Austria, Belarus, Canada, Czech Rep., Estonia, Hungary, Latvia, Lithuania, Netherlands, Poland, Portugal, Russian Fed., Slovak Rep., Sweden, Ukraine, U.K.

Publication: CCMS Report (Two volumes) A-98

Summary

This study examined methods and formats for assessing the environmental characteristics of military lands for reuse – including land selection criteria, types of contamination, risk assessment approaches and prioritization methodologies. It also identified the most practical, expedient and cost-effective approaches to remediating the most prevalent types of contamination at eight different types of military sites. The pilot study assessed economic, political, social, legal and other considerations affecting the level and extent of each nation's environmental activities. Distilling this information made it possible to identify areas in which a country's environmental efforts are well developed and areas in which a country might benefit from assistance. It assembled an extensive listing and description of international and national, and government and private-sector, sources of financing to which individual nations might turn for assistance in financing their environmental projects. Moreover a plan and methodologies for assembling specific project proposals was created.

Directors:

1) Mr. Gary Vest, Principal Assistant, Deputy Under Secretary of Defense, Environmental Security, Washington, DC, USA

2) Dr. Fritz Holzwarth, Bundesministerium für Umwelt Naturschutz und Reaktorsicherheit, Bonn, Germany

b) Phase II

Pilot countries: USA + Germany

Duration: 1996-1998

Participants: Belarus, Canada, Czech Rep., Estonia, Hungary, Latvia, Lithuania, Netherlands, Poland, Russian Fed., Slovak Rep., Sweden, Ukraine

Publication: CCMS Report No. 233

Summary

Phase II of this study developed five potentially viable project proposals for specific site restoration and reuse. The sites were: (1) Ralsko, Czech Republic, (2) Amari, Estonia, (3) Liepaja, Latvia, (4) Klaipeda, Lithuania, (5) Borne-Sulinowo, Poland. The pilot study also developed a Handbook on the Reuse of Former Military Lands which may be applied to any site in any nation. This handbook is a reference tool which will need to be adapted to each nation's own needs and structure. This study has helped develop expertise in converting military sites to other uses. It has also helped foster better understanding of capacity building and problem-solving capabilities among and within all the participating nations.

Directors:

1) Mr. Gary Vest, Principal Assistant, Deputy Under Secretary of Defense, Environmental Security, Washington DC, USA

2) Dr. Fritz Holzwarth, Bundesministerium für Umwelt Naturschutz und Reaktorsicherheit, Bonn, Germany

ENVIRONMENTAL DECISION-MAKING FOR SUSTAINABLE DEVELOPMENT IN CENTRAL ASIA

Pilot country: USA

Duration: 2000-2005

Participants: Armenia, Azerbaijan, Belgium, Canada, Czech Republic, Denmark, Germany, Georgia, Italy, Kazakhstan, Kyrgyz Republic, Luxembourg, Moldova, Russia, Spain, Tajikistan, Turkey, Turkmenistan, Ukraine, UK, Uzbekistan

International Organisations: CAREC, WHO, OSCE

Summary

The countries of Central Asia declared their independence in the 1990's, and many of them are still in transition from the former Soviet Union "command" style economic system to more free-market economic systems. However, these countries inherited from the Soviet system the administrative/regulatory approach to environmental decision-making. This decision-making method is not effective in the rapidly changing socio-economic and political environment. The CA countries, facing strong economic declines, are not able to provide sufficient funding to support an effective administrative/regulatory decision making system. In addition, the "command" style decision making process excludes the public and stakeholders from the decision making process which creates significant other problems and barriers for future effective resource allocation.

This pilot study focused on the decision-making process that could protect and/or preserve the environment, and this way, provide the basis for sustainable social and economic development of the Central Asian region. From the conclusions and recommendations formulated during the various meetings held by the working team, it is clearly seen that these countries represent unique and challenging opportunities to radically improve traditional systems of education, economic planning, and project assessment. Therefore, it is important in these circumstances to preserve the creative potential of scholars and engineers in these countries. A positive impact of Western developed countries could be in helping the CA scientists and experts to be integrated in the world's community of environmental scientists. One of the promising tools that may improve the decision-making process is risk assessment. The methodology of environmental risk assessment is a new, rapidly developing interdisciplinary scientific approach not only in the Central Asian countries, but also in other countries of the Commonwealth of Independent States. The risk assessment approach in the decision-making process permits prioritization of sites that represent the greatest potential risks, and the most effective use of financial/technical resources allocated for remediation or conservation purposes. It makes especially important the introduction of risk assessment methods in the environmental decision-making process in this part of the world.

Director: Dr. Roy HERNDON, Director , Inst. For Intern. Coop. Env. Research, The Florida State University, Tallahassee, Florida, USA

ENVIRONMENTAL GUIDELINES FOR THE MILITARY SECTOR

Leaders: USA+Sweden

Duration: March 1996-April 1997

Publication: Handbook

Summary

The purpose of the handbook is to assist the military sector of any country with the development of an effective programme that both protects human health and the environment as well as effective and safe execution of the military mission. The guidelines use international agreements, treaties or conventions to establish the framework for recommended actions. The guidelines also use the experiences of many countries to provide approaches to solving environmental problems.

Directors:

- 1) Mr. Gary Vest, Principal Assistant, Deputy Under Secretary of Defense for Environmental Security, Washington DC, U.S.A.
- 2) Mr. Johan Appelberg, Ministry of Defence, Stockholm, Sweden

ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS) IN THE MILITARY SECTOR

Pilot countries: Netherlands + USA

Duration: 1996-2000

Participants: Belarus, Belgium, Canada, Czech Rep., Denmark, Estonia, Finland, Georgia, Germany, Hungary, Italy, Latvia, Lithuania, Moldova, Norway, Poland, Portugal, Romania, Slovak Rep., Slovenia, Spain, Sweden, Switzerland, the former Yugoslav Republic of Macedonia

Publications: CCMS Reports No. 240 and 240B

Summary

The objectives of this pilot study were to identify the possible implications of initiating and implementing Environmental Management Systems (EMS) in the military sector and to develop application guidelines, frameworks and models appropriate to the military sector. Two subgroups were first established with the following tasks: (1) to exchange, review and evaluate experiences and expectations among countries regarding EMS; (2) to identify, compare and evaluate standards for EMS that could be used in the military sector. Based on the results of Subgroup 2, the pilot study group decided to use the ISO 14000-family as a framework for further work. Four new subgroups were then established to: (1) identify the benefits and resource requirements for implementation of EMS in the military sector; (2) share information on environmental policies of participating countries; (3) identify the unique characteristics of military organisations in relation to ISO 14001; and (4) identify the training requirements for EMS in the military sector. The pilot study concluded that it is possible and even desirable to implement environmental management systems in the military sector. EMS at the very least provide safeguards for top management that environmental legislation is respected. In addition, the ISO 14001 standard demands continual improvement of the environmental performance of the (military) organisation. This is unique to environmental management systems in general, but especially to the ISO 14001 standard. It ensures that the organisation is also in future capable of meeting the environmental challenges that lay ahead. Each Nation should remain free to decide if and how it implements environmental systems and standards. Those Nations willing to introduce a formal Environmental Management System within their Armed Forces may consider applying the standard specification ISO 14001, which is a universally acknowledged standard. In this regard, the final Pilot Study Group report offers both initial assistance as well as guidelines for application.

Directors:

- 1) Mr. C.J. Nagelhout, Ministry of Defence, Deputy Coordinator of Physical Planning & Environmental Affairs, The Hague, Netherlands
- 2) Mr. Patrick J. Meehan, ODUSD(ES)/PI, Defense Pentagon, Washington, D.C, USA

ENVIRONMENTAL SECURITY OF HAZARDOUS SUBSTANCES INVOLVED IN OIL AND GAS TRANSPORTATION IN THE BLACK SEA AND CASPIAN REGIONS

Leaders: Turkey + Georgia

Duration: March 2000-March 2002

Participants: Azerbaijan, Canada, Germany, Kazakhstan, the former Yugoslav Republic of Macedonia, Ukraine

Partial participation from: Armenia, Bulgaria, Moldova, Norway, Russia, USA

Publication: CCMS Report No. 252

Summary

The vast amount of oil and gas resources that are planned to be produced and transported from the Caspian and Black Sea Regions to western markets during the next 20-30 years require that environmental security be given special attention due to the sensitivity of the Caspian Sea and Black Sea to pollution loads. Cooperation and joint efforts of source, transit and end user countries are considered to be vital. The objectives of this short-term project were to review (a) the state of the environment along oil and gas transportation routes, (b) national legislation and existing codes and standards, (c) international agreements and conventions related to oil and gas transportation and (d) the stakeholder interaction and transparency of the decision-making process in participating countries. The final report includes working group findings, questionnaires developed and some key documents prepared for the project.

Directors:

1) Prof. Dr. Ender OKANDAN, Petroleum Research Centre, METU, Ankara, Turkey

2) Mr. Solomon TSABADZE, Department of Env. Permits and State Ecological Expertise, Ministry of Environment, Tbilisi, Georgia

ESTUARINE MANAGEMENT

a) Phase I

Pilot country: USA

Duration: 1979-1982

Publication: No report published

b) Phase II

Pilot country: Netherlands

Duration: 1985-1994

Participants: Canada, Denmark, France, Italy, Portugal, Spain, UK,

Non-NATO country: Mexico

Publication: Plenum Press Volume No. 20

Summary

Estuaries are important to man. They are the nursery of the oceans. They provide a major food source. They support wild life habitats and have enormous recreational value. They are important to navigation and shipping. The land surrounding them has historically been attractive for settlement and industrial development. Because of these conflicting demands, many estuaries face a deterioration in environmental quality. This project has developed planning guidance to assist countries in choosing the most effective management strategies for their estuaries.

Director: Mr. C.J. van Westen, Ministry of Transport & Public Works, Middelburg, Netherlands

EVALUATION OF DEMONSTRATED AND EMERGING TECHNOLOGIES FOR THE TREATMENT OF CONTAMINATED LAND AND GROUND WATER

a) Phase I (Remedial Action Technologies for Contaminated Land and Groundwater)

Pilot countries: USA+Germany+Netherlands

Duration: 1986-1992

Participants: Canada, Denmark, France, Norway (observer), UK, Austria, Hungary.

Non-NATO country: Japan

Publication: CCMS Report No. 190

Summary

The problems of contamination resulting from inappropriate handling of hazardous wastes are faced to some extent by all countries. The need for cost-effective remedial action technologies to apply at these sites has resulted in the application of new technologies and/or new applications of existing technologies. Building a knowledge base so that emerging remedial technologies are identified was the goal of this study. Under this study, new technologies being demonstrated and evaluated in the field were discussed. This allowed each of the participating countries to have access to a data base of applications of individual technologies within any country having to commit a disproportionate amount of its internal resources to a specific research activity. The technologies included biological, chemical/physical, and thermal technologies for both soil and groundwater. With few exceptions, they were in-situ or on-site technologies; they did not include containment technologies.

Director: Mr. Donald E. Sanning, Chief, Remedial Action Staff, Hazardous Waste Engineering Research Laboratory, U.S. Environmental Protection Agency, Cincinnati, Ohio, U.S.A.

b) Phase II

Pilot country: USA+Germany+Netherlands

Duration: 1992-1997

Participants: Austria, Belgium, Canada, Czech Rep., Denmark, France, Germany, Hungary, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey, U.K.

Non-NATO countries: Australia, New Zealand

Publications: CCMS Reports No. 203, 219

Summary

The purpose of this pilot study was to identify, discuss, and review innovative, emerging and alternative technologies, and to transfer technical performance and economic information to potential users of these technologies. A specific objective of the study was to identify "lessons learned" from the technology demonstrations – both the successes and those that illustrated technology failures or limitations. The latter type of information is rarely presented in conferences or discussed in the technical literature, but is very important for making informed decisions involving critical time and monetary requirements. It is also useful for defining priorities in research and development programmes. The pilot study group examined 52 different remediation technology projects from 14 countries. The projects encompassed *in situ* and *ex situ* biological, physical-chemical, and thermal treatment technologies. Many of the projects involved two or more technologies, either in integrated treatment systems or in parallel treatment. The reports on these projects revealed an ongoing evolution of innovative and advanced technologies. The pilot study is believed to have been instrumental in facilitating this development.

Director: Mr. Stephen C. James, U.S. Environmental Protection Agency, SITE Demonstration & Evaluation Branch, Nat. Risk Management Research Lab., Cincinnati, Ohio, U.S.A.

c) Phase III

Pilot countries: USA+Germany+Netherlands

Duration: 1997-2002

Participants: Armenia, Austria, Belgium, Canada, Czech Rep., Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland, Turkey, U.K.

Non-NATO countries: Australia, New Zealand

Publications: CCMS Reports No. 228 (1998 Annual Report), No. 229 (Treatment Walls and Permeable Reactive Barriers - 1998), No. 235 (1999 Annual Report), No. 236 (Monitored Natural Attenuation – 1999), No. 244 (2000 Annual Report), No. 245 (Decision Support Tools - 2000), No. 250 (2001 Annual Report), No. 251 (Performance Verification of In Situ Remediation Technologies - 2001), No. 255 (2002 Annual report), No. 256 (Special session – 2002)

Summary

The Pilot Study Group examined 33 different remediation technology projects from 12 countries during the five-year program. The projects encompassed *in situ* and *ex situ* biological, physical-chemical, and thermal treatment technologies. Many of the projects involved two or more

technologies, either in integrated treatment systems or in parallel treatment. The reports on these projects revealed an ongoing evolution of innovative and advanced technologies. The Pilot Study is believed to have been instrumental in facilitating this development.

Director: Mr. Stephen C. James, U.S. Environmental Protection Agency, SITE Demonstration & Evaluation Branch, Nat. Risk Management Research Lab., Cincinnati, Ohio, U.S.A.

FLUE GAS DESULFURIZATION

Pilot country: USA

Duration: 1976-1980

Publications: CCMS Reports No. 95, 95B, 97, 113, 138, 152

Summary

The combustion of high-sulfur fossil fuels without deleterious sulfur oxide emissions poses a major technical and economic challenge to the energy and air quality programmes of many nations. Flue-gas desulfurization technology may be the key to environmentally acceptable utilization of the relatively abundant high-sulfur coal and oil reserves. In order to meet this challenge, the United States piloted a study to compare flue-gas desulfurization processes for selective representative application and later to describe the advantages and disadvantages of sulfur-oxide control strategies. The initial phase of this study consisted of a survey of existing FGD systems used on larger combustion processes in the NATO countries and Japan. Twelve FGD systems were surveyed and reports summarizing their status were prepared. During the second phase of this study an applicability FGD system cost analysis was made. This could assist interested parties in making a proper choice of an FGD process for their particular application.

FOREST FIRES

Pilot country: Italy

Duration: 1983-1987

Participants: France, Greece, Spain

Publication: CCMS Report No. 165

Summary

Forests are the most important resources of the environment throughout the world and fire has been the primary agent of their destruction for thousands of years. Fire can affect all elements of an ecosystem, from trees to grass, litter and soil, micro-organisms and animals. Fire occurrence depends on the interaction of weather, topography and type of vegetation with weather predominating. This study was directed towards certain sectors where international co-operation and further investigation in this field were deemed necessary. They included: preventive-type activities, including the information and education of the public; methods of calculation of risk rates; the comparison of different national techniques for fighting fires, and possible co-operation in emergencies; and the unification of terminology on forest fires.

FORMS OF ENVIRONMENTAL EDUCATION IN THE ARMED FORCES AND THEIR IMPACT ON CREATION OF PRO-ENVIRONMENTAL ATTITUDES

Pilot countries: Poland + Canada

Duration: 2000-2004

Participants: Belgium, Czech Republic, Georgia, Portugal, Romania, Turkey

Publication: CD-ROM

Summary

The idea for this pilot study was inspired by the strategy for environmental education contained in "Agenda 21" (chapter 36) of the document on "Earth Summit" (United Nation Conference on Environment and Development. Agenda 21. UNESCO 1992. UNESCO Switzerland). "Agenda 21" highlighted support for "education for everybody... creating social awareness of environmental protection and permanent and sustainable development as soon as possible and environmental education of all social groups ranging from school children to adults". The armed forces, including both mandatory (compulsory service) and professional "career" military service, represent the largest homogenous social group through which the education and qualifications gained during the time of service can be carried over into the future lives and careers of the service personnel.

Knowledge and habits gained in the service stay with them throughout their adult lives.

In many countries, appreciation of this fact is demonstrated by the growing numbers of educational programmes directed towards the armed forces as well as the increasing expenditures being allocated to achieve this outcome. Examining the experiences of armed forces units in various countries was a good way to provide valuable examples of current best practices. These best practices could then be compared and analysed with a view to adapting their strengths. This is what the pilot study accomplished after four years of work.

The pilot study working team collected 71 examples of environmental education and awareness instruments from 11 countries, compiled in a CD-ROM. Educational instruments are defined as those that are provided in a competency based setting (e.g. Formal Course). Awareness instruments refer to those instruments used to create an increase in the general awareness about a wide range of environmental issues or to provide an increase in the awareness about a single topic (e.g. energy conservation). In an effort to provide easy access to additional information about the various types of environmental education and awareness instruments submitted for inclusion in this study the information is catalogued in the NATO/CCMS Template Tool - a database application on the CD contained in the final report. The CD also provides additional insight into creation of the report through a MS PowerPoint slide show. It presents the examples of the best practices of the environmental education in the armed forces.

Directors:

1) Dr. Anna Kalinowska, Director EMS/SDS, Warsaw University Centre for Environmental Studies, Ul. Żwirki i Wigury 93, 02-089 Warsaw, Poland

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FUTURE TRENDS OF CONCENTRATION OF MIGRATORY MOVEMENTS IN LARGE CITIES: CONSEQUENCES FOR THE ENVIRONMENT AND SECURITY

Pilot country: Spain

Duration: 1999-2003

Participants: Azerbaijan, Belarus, Canada, Denmark, France, Georgia, Germany, Greece, Hungary, Iceland, Italy, Moldova, Poland, Portugal, Romania, Sweden, Turkey

Publication: no publication

Director: Dr. Enrique Gaston, Director of Applied Social Studies, University of Zaragoza, Fac. De Ciencias Economicas y Empresariales, Zaragoza, Spain

GEOTHERMAL ENERGY

Pilot country: USA

Duration: 1973-1978

Publications: CCMS Reports No. 38, 40, 49, 59, 65, 66, 81, 107

Summary

In the past, geothermal energy development has been handicapped by the lack of knowledge of the technical and economic feasibility of developing this resource. A further handicap has been poor understanding of the economic and environmental advantages and disadvantages of geothermal energy compared with other energy sources. In this framework, the CCMS geothermal study investigated a number of different aspects of geothermal energy, including non-electric uses, brine reinjection, small power plants, reservoir engineering, dry hot rock and information exchange. Among other things, the geothermal study established an identifiable community of world geothermal experts. It also produced an international computer file of technical information on geothermal wells and fields; developed studies and reports on direct applications, geothermal fluid injection and small power plants; and established a visiting scientists programme.

HEALTH AND MEDICAL ASPECTS OF DISASTER PREPAREDNESS

Pilot countries: USA + Belgium

Duration: 1984-1988

Publications: Plenum Press Volume No. 14

Summary

Disaster has been defined as a sudden event which involves large numbers of people and results in loss of life, serious injury and property loss, together with a severe disruption of community organization and services. Disasters can be classified as natural and man-made. Natural disasters include earthquakes, floods, hurricanes, avalanches, epidemics, droughts and famines. Those which are considered man-made include explosions, fires, civil riots, major transportation accidents, chemical and radiological pollution. This pilot study focused on the existing status of disaster preparedness in participating nations. The types of disaster settings that were reviewed in the study included the following: earthquakes, floods, hurricanes, nuclear power plant accidents or spills, water and aircraft accidents, building fires, building collapses, contamination by hazardous chemicals or biological waste and civil disturbances. The study came to the conclusion that good communication, triage, categorization of hospital facilities, immediate and coordinated transportation were some of the key factors for successful disaster planning.

IMPACT ON MAN AND ENVIRONMENT OF THE AGRICULTURAL USE OF PESTICIDES.

Pilot country: Italy

Launched on: 14/06/1990 (never concluded)

Participants: Canada, Denmark, France (Observer), Germany, Greece, Netherlands, Spain, United Kingdom, USA

Publication: Plenum Press Volume No. 19

Director: Prof. Marco Maroni, Director, Intern. Centre for Pesticide Safety, Busto Garolfo (Milano), Italy

IMPROVEMENT OF EMERGENCY MEDICAL SERVICES

Pilot country: USA

Duration: 1978-1981

Publications: CCMS Reports No. 117, 136

Summary

One of the most important challenges faced by governments throughout the world is how to respond to the ever growing need to prompt appropriate medical care in emergency situations. The need to improve emergency health care stems from two factors: (1) the rapidly increasing incidence of emergency cases such as cardiac and respiratory conditions as well as accidents of all kinds, particularly traffic accidents; (2) the increased possibility of saving lives through prompt medical intervention. In this study, countries compared and evaluated information regarding emergency medical services, practices and institutions in the NATO countries as a basis for improving emergency medical services. The study was divided into five projects: Emergency Medical Services (EMS) Survey (Canada); Organization and Management of EMS Systems (United States); EMS Training and Public Education (Italy and Portugal); Communications, First Response and Transportation (France); Poison Control (Italy).

IMPROVEMENT OF WEATHER FORECASTS RELATED TO HIGH-IMPACT WEATHER OVER THE CENTRAL AND EASTERN MEDITERRANEAN

Leader: Greece

Duration: 2003-2005

Participants: Georgia, Hungary, Italy, Turkey

Summary

This project aimed at combining the effort of scientific teams who have an important know-how in the fields of numerical weather prediction and remote sensing from space, in order to: (a) apply state of the art meteorological models in selected case studies in order to assess the ability of the models to predict well in advance adverse weather conditions; (b) apply recently developed

techniques of rain estimation, based on satellite data (this technique is very promising since it permits the estimation of precipitation amounts over data-sparse areas and over the sea); (c) use the satellite-based estimated fields for validation of numerical weather prediction models over the area of interest and adjustment of model physics in order to get more accurate forecasts; (d) use the combined information (satellite estimations and models forecasts) for a better description of the rain fields when heavy precipitation events occur over Central and Easter Mediterranean.

Two meetings were held at the National Observatory of Athens, one in March 2003 and one in January 2004. Several cases were chosen to work on, i.e. collect the necessary surface, upper-air, and satellite data, and run the regional models for that case: (1) the storm of 4-5 December 2002 over S. Turkey; (2) the storm of 24-26 November 2002 over N. Italy; and (3) the cyclone of 22 January 2004 over the Aegean Sea.

Director: Dr. Vassiliki Kotroni, Institute for Environmental Research & Sustainable Development, National Observatory of Athens, Greece, E-mail: kotroni@meteo.noa.gr

INDOOR AIR QUALITY

a) Phase I

Pilot countries: Italy+USA

Duration: 1988-1994

Publications: CCMS Reports No. 183, 186, 187, 192, 195 + Plenum Press Report No. 19

Summary:

In recent years indoor air pollution has become a major concern for health scientists and technical experts throughout the NATO nations. Recent studies have shown that indoor exposure to air pollutants can be substantially higher than in the outside air. This study has focused on existing regulations in NATO nations, research activities, mitigation methods and policy options for future actions.

b) Phase II

Pilot countries: Italy+USA+Russia

Duration: 1994-1997

Participants: Belgium, Bulgaria, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland, UK

Summary

In view of the growing importance of the indoor air quality field for modern society, the greatly changed political scenario in Central Europe and the newly-independent states of the former Soviet Union, and the continuously emerging needs for international technical cooperation, an extension of this pilot study was undertaken in cooperation with experts from Russia and other Central and Eastern European countries. The primary goal of Phase II of the pilot study was to establish partnerships between the participating countries in Phase I and Russia and other Eastern European countries to facilitate an exchange of information on indoor air quality and to provide technical and policy assistance to participating countries. To favour the development of appropriate national policies on Indoor Air Quality and the process of technical knowledge dissemination, the group prepared the following set of documents: (a) The Erice Statement for a Sustainable Indoor Environment (This document contains recommendations to Governments and National Institutions to develop a *National Plan for a Sustainable Indoor Environment*. It is primarily targeted to national authorities as well as science, policy and public health institutions); (b) Ten facts that every Building Operator, Manager, Planner and Occupant should know about Indoor Air Quality (This document, which is addressed to an unexperienced audience, provides guidance on how inconvenience concerning indoor air in buildings can be prevented and remedied); (c) Good Air Quality in Your Home (This small pamphlet is addressed to the general public with the purpose of explaining where the air pollutants found in homes come from and how one can avoid them affecting his/her health and the health of his/her family); (d) What Medical Doctors Should Know About Indoor Air Quality (The general practitioners and the nursing staff need to be made aware of the potential of indoor air exposures to cause discomfort and disease. This short document clearly summarize the most relevant aspects of importance for the medical profession, providing guidance to the diagnosis of

building-related illnesses, the treatment of patients, and the management of prevention at individual and community level).

Directors:

- 1) Prof. M. Maroni, Intern. Centre for Pesticide Safety, Busto Garolfo (Mi), Italy
- 2) Mr. Robert Axelrad (6607J), U.S.EPA, Indoor Environments Div., Office of Radiation & Indoor Air, Washington DC, USA

INTEGRATED WATER MANAGEMENT

Pilot countries: Belgium+Italy

Duration: 2002-2006

Participants: Bulgaria, Canada, Estonia, France, Georgia, Germany, Greece, Lithuania, Moldova, Netherlands, Poland, Portugal, Romania, Russia, Spain, Sweden, Turkey, UK

Mediterranean Dialogue countries: Algeria, Morocco, Tunisia

International Organisations: UNESCO, IHP, HELP

Publication: *Final report to be published by Springer or UNESCO*

Summary

Water is a "sine qua non" for life and due to the increasing human population and our growing needs the amount of water needed is increasing steadily (Gleick, 2003). On the other hand, the available water resources are declining. Furthermore, water is not only needed for man but also for all ecosystems. The main question to be addressed is how to use and divide the available water between all users (man and ecosystems) now and in generations to come. The objective of the pilot study was exchanging and combining expertise in water system research, considering different dimensions of water management and their intra and inter-relations. The pilot study's final aim was to learn from comparison by presenting examples to build upon, to prepare publications of scientific papers with concepts, not detailed guidelines, to establish a network for initiating new projects and to enforce capacity building in all participating countries. Literature shows many examples of plans for particular issues (for example flood protection, navigation, water quality), but it is more difficult to find information about research and experience on the interactions.

Directors

- 1) Prof. Patrick Meire, University of Antwerp, Dept of Biology, Universiteitsplein 1, 2610 Wilrijk, Belgium (e-mail: Patrick.meire@ua.ac.be)
- 2) Prof. Roberto Sacile, DIST-Dept. Communication Computer & System Sciences, University of Genova, via Opera Pia 13, I-16145 Genova, Italy (E-mail: roberto.sacile@unige.it)

INLAND WATER POLLUTION

Pilot country: Canada

Duration: 1970-1974

Publications: CCMS Reports No. 36, 79

Summary

This pilot study was concerned with the range of social, political and biological problems which arise in a river basin as the population and the level of development in that basin increase. The study was completed with the publication of a final report which reflected the effective sharing of transatlantic experience in dealing with inland water pollution. Canada focused its efforts in this study on comprehensive river basin planning and management. As co-pilot countries, the United States was concerned with approaches to water quality objectives and standards in international water basis, France concentrated on the use of indirect instruments in water management, and Belgium studied the role of models in management decision-making. Thus, four subjects served as the central topics at workshops held in each of the four lead countries. The views were obtained from a broad range of professionals who presented ideas, experiences and techniques which will be of greatest use to water resource planners and managers everywhere.

MANAGEMENT OF INDUSTRIAL TOXIC WASTES AND SUBSTANCES RESEARCH.

a) Phase I

Pilot country: Greece

Duration: 1992-1998

Participants: Albania, Belarus, Canada, Czech Republic, Denmark, Germany, Hungary, Italy, Netherlands, Poland, Portugal, Romania, Spain, Turkey, U.K., U.S.

Summary

The two meetings which were organized during the active period of the pilot study have shown that there is a lack in the legislation regarding toxic wastes in the East European countries which is disproportionate to their needs in order to fight the toxic waste problem. The legislation on toxic wastes of the countries belonging to the European Union are not yet harmonized and adjusted to the EU General Directives. In Belarus there are very serious problems of radioactive pollution originating from the Chernobyl accident. The Czech Republic and Poland have pollution problems of toxic metals originating from mining of these metals. The problems of pollution in Albania and Romania come from the pumping of petrol oil and refineries. Greece has problems with the efficient management collection and land filling of civil wastes. Also there is a lack of legislation regarding toxic wastes and protection of tourist areas from petrochemical pollution. Turkey has problems from overuse of pesticides, pollution from petrochemical industries, tanning industries and lack of legislation. Many of the participants reported cases of water pollution from phenol compounds, toxic metals, pesticides and PHA. All the participating countries expressed their willingness to continue exchanging information regarding management of toxic wastes and to collaborate in the future by participating in research projects in this area.

Director: Prof. M.I. Karayannis, Ioannina University, Department of Chemistry, Lab. of Analytical Chemistry, Greece

b) Phase II

Pilot country: Greece

Duration: 2000-2006

Participants: Armenia, Azerbaijan, Canada, Estonia, Georgia, Hungary, Italy, Kyrgyz Republic, Lithuania, Moldova, Poland, Portugal, Romania, Slovak Republic, Sweden, Turkey, Ukraine.

Summary

During this short-term project four workshops were held on the subject. The first one, held in April 2001, focused on "Phytoremediation of Polluted Ecosystems". The subject of the second workshop held in December 2001 was "Bioremediation of Polluted Environment". The third workshop on "Natural and Drinking Water Contamination from Toxic and Hazardous Wastes" held in October 2003 focused on natural water resources directly related to human activities. The aim of the last workshop, entitled "Advanced Monitoring Techniques of Hazardous Wastes" and held in Ioannina on 26-27 August 2006, was to increase technical understanding, disseminate information on waste monitoring technologies and to assist the formation of networks for solving problems that are common to the participants.

Participants in the workshop agreed over the importance of *hazardous and toxic wastes and the significance of their management*, in particular in Partner countries (i.e. Armenia). All countries represented in the workshop have a large number of polluted sites while some of them experience additional problems from the lack of sufficient wastewater treatment facilities.

As a result of the workshop, Armenia and Greece have decided to join their forces towards the confrontation of an important pollution problem in Armenia related to obsolete pesticides. An application for a **Science for Peace project** has been prepared and submitted to the Environmental Security Panel of the SPS Programme. The establishment of a laboratory with specialized personnel on environmental analysis, which will strengthen the current status of technical basis for analytical investigations in Armenia, is among the main objectives of the collaboration, in order to launch a meticulous monitoring survey and remediation program of residual amounts of pesticides in environmental media and food stuffs. It is expected this will be launched during 2007.

Director: Prof. M.I. Karayannis, Ioannina University, Department of Chemistry, Lab. of Analytical Chemistry, 45110 Ioannina, Greece

METHODOLOGY, FOCALIZATION, EVALUATION AND SCOPE OF THE ENVIRONMENTAL IMPACT ASSESSMENT

Pilot country: Belgium

Duration: 1991-2002

Participants: Canada, Czech Rep., Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Luxembourg, Norway, Poland, Portugal, Romania, Russia, Slovak Rep., Slovenia, Spain, Turkey, UK, USA

Publications: CCMS Reports No. 197 (Evaluation of the EIA-Process), No. 201 (Methodological Aspects), No. 207 (Evaluation of Public Participation in EIA), No. 212 (Strategic Environmental Assessment: Theory Versus Practice), No. 218 (Strategic Environmental Assessment in Landuse Planning), No. 231 (Quality Control in Environmental Assessment: Results of a Survey), No. 249 (Water Management and Assessment of Water Systems), No. 260 (Final Report)

Summary

The aim of this pilot study was to discuss and compare different aspects of Environmental Impact Assessment (EIA) and to improve the EIA process by giving recommendations to the concerned authorities. Many differences between participating countries occurred related to procedures, scope, methodologies, depth of supplied information, and evaluation criteria used in environmental impact assessment. The international recognition of this NATO/CCMS pilot study has increased right from the start of the workshops and the network is now fully admitted next to other international networks such as the EC-network of EIA units and the International Association of Impact Assessment. Partner country participants, in particular, informed that the pilot study was of main importance for their daily work. The results (workshop minutes and reports) can be applied to have an influence on convincing colleagues and hierarchical staff in making plans or setting up programmes. Usually the host country distributed a lot of information (brochures, reports, papers...) at the workshop. Additional information was distributed between individual participants, depending on one's particular request.

Director: Prof. R.F. Verheyen, Universitaire Instelling Antwerpen, Dept Biologie, Onderzoeksgroep Natuurbeheer, Universiteitsplein 1, B-2610 Wilrijk, Belgium

MODELING NUTRIENT LOADS AND RESPONSE IN RIVER AND ESTUARY SYSTEMS

Pilot country: USA+Lithuania

Duration: 1999-2003

Participants: Belarus, Bulgaria, Canada, Denmark, Estonia, Finland, Germany, Hungary, Italy, Latvia, Moldova, Poland, Portugal, Romania, Slovenia, Spain, Turkey

Publication: CCMS Report No. 271

Summary

This pilot study, jointly led by the United States and Lithuania, intended to address a major and widespread aquatic environmental problem arising from an over-abundance of nutrients (nitrogen, phosphorus) from both point sources, such as municipal sewage, and nonpoint sources, such as agricultural runoff. Excessive nutrient inputs into a water body induce biological, chemical and physical changes in aquatic plant and animal communities, often leading to oxygen depletion. During this Pilot Study, research was conducted to develop additional fundamental scientific knowledge of the effects of nitrogenous pollutants, and to develop and adapt water quality models for nutrients (especially nitrogen), calibrate and test them with field water sampling data, improve and upgrade them, and apply them to specific riverine-estuarine systems, and potentially lake systems, for evaluation and refining. In some cases field sampling and analysis were carried out specifically for the purposes of this study; in others, available data were used. The scientific information and modeling tools is available to all interested NATO and EAPC (Euro-Atlantic Partnership Council) countries for their use in application to similar water quality problems in river-estuary systems.

Directors:

1) Dr. Rosemarie C. Russo, U.S. Environmental Protection Agency, Ecosystems Research Division, Athens, Georgia, USA

2) Dr. Romualdas Lekevicius, Vilnius University, Ecological Genetics Laboratory, Lithuania

NEW AGRICULTURAL TECHNOLOGIES

Pilot countries: Turkey+Belgium+USA

Duration: 1991-2001

Participants: Belarus, Bulgaria, Czech Republic, France, Greece, Latvia, Lithuania, Moldova,

Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Ukraine

Publication: CCMS Report 247

Summary

In this pilot study two problems were identified; the first one related to pollution and the second one to agricultural productivity. In order to protect the environment “low input sustainable agricultural methods” were also considered as new agricultural technologies.

Director: Prof. Dr. Erdal Sekeroglu, Çukurova University, Agricultural Faculty, Department of Plant Protection, Adana, Turkey

NUTRITION AND HEALTH

Pilot country: Canada

Duration: 1975-1978

Publication: CCMS Report No. 92

Summary

Although nutrient deficiencies are no longer important public problems in member countries, it should not be concluded that there are no nutritional problems. The purpose of this project was to determine what methods governments have used to influence dietary habits. The study found that a variety of methods such as direct intervention, education, advertising, fortification, subsidies were used with success to improve the health of the general population. The nutrition-related health problems were cancer, cardiovascular disease, obesity, hypertension, diabetes and dental caries which could be reduced to some extent by diminishing dietary fat, cholesterol, sugar, salt, alcohol, and by increasing the use of whole grain cereals, fruits and vegetables.

OPPORTUNITIES OFFERED BY REMOTE SENSING IN SETTING UP MODELS DESIGNED TO ANTICIPATE MARITIME POLLUTION MOVEMENTS

Pilot country: France

Duration: 1982-1994

Participants: Canada, Germany, Italy, Netherlands, Portugal, Spain

Director: Monsieur J.M. Massin, Secrétaire d'Etat à l'Environnement et à la Qualité de la Vie, Direction de la Prévention des Pollutions, Neuilly-sur-Seine Cédex, France

PASSIVE USE OF THE ELECTRO-MAGNETIC SPECTRUM

Pilot country: Netherlands

Duration: 1989-1995

Participants: Belgium, France, Germany, Italy, Norway, Portugal, Spain, UK, USA, Czech Rep., Russia, Sweden

Publication: CCMS Report No. 213

Summary

Radioastronomy, which studies extra-terrestrial objects by receiving their electro-magnetic emissions, contributes in a fundamental way to a better understanding of the cosmos. Its techniques enable scientists to study physical circumstances and processes which cannot be simulated in a terrestrial laboratory. This passive use of the electro-magnetic spectrum is only possible if no active users are working on frequencies in the band required. However, the bands reserved under international agreement for passive use are under increasing pressure, both commercial and technological. The aims of this study were to investigate the possibility of strengthening administrative control of frequency allocations and to examine the technological potential for simultaneous use of the spectrum by passive and active users. The matter was becoming urgent because of increasing pressure on the spectrum from the communications industry.

Director: Ir. H.C. Kahlmann, Radioastronomical Observatory Westerbork, Zwiggelte, Netherlands

PLASTIC WASTES RECOVERY

Pilot country: USA

Duration: 1978-1981

Publication: CCMS Report No. 123

Summary

Modern society is threatened by shrinking energy resources, limited non-renewable primary materials and the environmental hazards and inconveniences of its industrial, municipal and domestic wastes. A key element in successfully coping with these threats is the development of strategies and technologies which deal with them in an integrated manner. One crucial requirement is to achieve the capability of recovering waste products for re-use in an economically feasible and energy-conserving manner that protects the environment. One area that offers great opportunity for re-use is that of plastic wastes. This study made ten recommendations encompassing numerous aspects of the recovery and disposal of plastic wastes.

POLLUTION PREVENTION SEMINAR

Leader: USA (+ NATO's RTA)

Duration: March 1998-Sept. 1999

Summary

In the framework of this short-term project, a symposium on "Approaches to the Implementation of Environmental Pollution Prevention Technologies at Military Bases" was organized in Budapest, Hungary, on 4-7 May 1999. This symposium was co-sponsored by CCMS and RTO (Research and Technology Organization). Experts from 21 NATO and Partner countries attended this event. The Long Term Scientific Study (LTSS/44) "Environmental Technologies for Application to NATO Military Assets and Bases" served as the foundation of this symposium. Pollution Prevention was defined for the purposes of both the study and the symposium as the introduction of alternative materials, practices, processes and energy sources that avoid, minimize or eliminate the creation and introduction of pollutants and wastes into air, soil and water. The focus of Environmental Pollution Prevention is to identify approaches that (a) reduce or eliminate contaminants at the source whenever possible, (b) recycle that which cannot be eliminated, and (c) treat and dispose of waste that cannot be eliminated as a last resort.

Director: Dr. Joel E. Tumarkin, Environmental Program Coordinator, The Institute of Defense Analyses, Alexandria, Virginia, U.S.A.

POLLUTION PREVENTION STRATEGIES FOR SUSTAINABLE DEVELOPMENT

Pilot countries: USA + Turkey

Duration: 1990-1995

Participants: Belgium (observer), Canada, Denmark, France, Germany, Greece, Iceland, Italy, Netherlands, Norway, Portugal, Austria, Hungary, Sweden

Summary

This pilot study had the following tasks: (1) Establish an international network of individuals and agencies engaged in the development of pollution prevention and sustainable development initiatives; (2) provide a forum to disseminate the results of pollution prevention research and identify programmes that facilitate the adoption of such technologies and practices; (3) survey current regulatory and market approaches and government and non-government programmes in order to identify effective mechanisms in each country which encourage pollution prevention; (4) develop mechanisms for individuals working in the field of pollution prevention to broaden their understanding of the subject by working in rotational assignments with agencies in participating countries; (5) support the presentation of educational seminars and training workshops in various countries; (6) provide a focus for exchanging information on new pollution prevention options to individuals and agencies with non-NATO countries. The pilot study supported the organization and implementation of five significant workshops, during which hundreds of individuals were afforded the opportunity to learn about and exchange information about pollution prevention programmes and technologies from around the world.

Director: Mr. Harry M. Freeman (MS-466), Chief, Pollution Prevention Research Branch, Risk Reduction Engineering Laboratory/ORD, U.S. EPA, Cincinnati, Ohio, USA

PRESERVATION OF HISTORIC STAINED GLASS

Pilot country: Germany

Duration: 1982-1994

Participants: Belgium, France, Germany, Italy, Netherlands, Portugal, UK, USA, Austria

Publications: CCMS Reports No. 164 and 208

Summary

The principal purpose of this study was to test recently developed protective coatings in laboratories and under field conditions in as wide a range of climatic circumstances as possible.

Director: Dr. Stephan Fitz, Umweltbundesamt, Berlin, Germany

PREVENTION AND REMEDIATION ISSUES IN SELECTED INDUSTRIAL SECTORS

Pilot country: USA

Duration: 2002-2007

Participants: Austria, Belgium, Canada, Czech Republic, France, Georgia, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Moldova, Netherlands, Poland, Romania, Russia, Slovenia, Spain, Switzerland, Turkey, Ukraine, UK

Non-NATO: Australia, Japan

Publication : Final CD including all annual reports.

Summary : The Pilot Study sought to define and explore best practices for reducing the health and environmental impact on soil and groundwater from industrial sectors of interest (e.g., metals mining, organic chemical production, gasworks, and fertilizer manufacturing) as well as other unique site "types" (e.g., old landfills, privatization sites [i.e., facilities transitioning from former state ownership in certain categories], mega sites [i.e. large scale former industrial and mining facilities], and shoreline sediment sites). In reviewing case studies as well as experience from the current pilot study and other sources, this study was able to assess or benchmark "what is easy to clean," "what is difficult to clean," and "what is impossible, at reasonable cost, to clean". The pilot study sought to engage industrial and other private sector organizations at the trans-national level in sharing and evaluating technical information; the unique contribution of the pilot study was its ability to synthesize information regarding best practices, successes and failures, and uncertainties for the sectors of interest. A consensus process was used to select the sector for each meeting; the following sectors were examined: (a) non-ferrous mining; (b) rehabilitation of old municipal landfills; (c) mega sites (former large scale industrial facilities); (d) small sites in urban areas; (e) sediments sites.

Director: Dr. Walter W. Kovalick, Jr., U.S. Environmental Protection Agency, Director, Technology Innovation & Field Services Division, Office of Superfund Remediation & Technology Innovation, Office of Solid Waste & Emergency Response, Washington, DC, USA.
E-mail: Kovalick.Walter@epamail.epa.gov

PROMOTION OF ENVIRONMENTAL AWARENESS IN THE ARMED FORCES

Pilot country: Germany

Duration: 1987-1991

Participants: Belgium, Canada, Italy, Netherlands, Norway, Portugal, Spain, UK

Publication: CCMS Report No. 188 + video "Protect the Environment"

Summary

The Armed Forces, as an integral part of society, must conduct its activities in an environmentally sustainable manner. They also share the responsibilities for protection of the environment and conserving the natural and cultural resource heritage for future generations. Therefore, a balance must be achieved between the military infrastructure requirements and training activities on the one hand, and justifiable interests of the population on the other. Consequently, it is necessary for Armed Forces to consider potential environmental consequences of their activities and conduct those activities in such a manner as to minimize negative environmental impacts within military mission constraints. This study has developed techniques for promoting environmental awareness in the Armed Forces of member nations. It has reviewed present practices in the Armed Forces of member states and made proposals for improvement, where deemed necessary. A major accomplishment of the Pilot Study was the development of a statement of principles for the

"Environmental Awareness and Protection in the Armed Forces". The Pilot Study Group also produced a film which primarily addresses the universal soldier and shows the necessity to fulfil military tasks in accordance with the requirements of environmental protection by examples oriented on his daily duties.

Director: Dr. Ulrich F. Schneider, Federal Ministry of Defence, Bonn, Germany

PROTECTION OF ASTRONOMIC AND GEOPHYSICAL OBSERVATORY SITES

Pilot country: France

Duration: 1985-1991

Participants: Canada, Netherlands, Spain, UK and USA

Publication: Book published by Ed. Frontière

Summary

Modern science advances because it uses instrumentation that is more and more sensitive and accurate. But the instruments are equally sensitive to their environment. Astronomic and geophysical observatory sites must be given the best possible protection against external influences such as vibration, radio-electric radiation, light and magnetic fields, to make them receptive to natural signals. It is now no longer possible to move observatories to remote sites, which has been the remedy hitherto. The only solution is to limit the sources of pollution. This study has assembled the technical and legal information necessary to help scientists protect their observatory sites against existing pollution and avoid further degradation in the future.

Director: Dr. J. Kovalesky, Centre d'Etudes et de Recherches Géodynamiques et Astronomiques, Grasse, France

PROTECTION OF CIVIL POPULATIONS FROM TOXIC MATERIAL SPILLS DURING MOVEMENTS OF MILITARY GOODS.

Pilot country: Canada

Duration: 1992-2000

Participants: Albania, Armenia, Belarus, Bulgaria, Czech Republic, Estonia, Finland, Germany, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Norway, Poland, Romania, Russia, Slovak Rep., Sweden, Ukraine, United States.

Publication: CCMS Report No. 234 + 2000 Emergency Response Guidebook

Summary

In the year preceding the initiation of the pilot study, an emergency measures conference was held in the Czech Republic which focused on how former military units would undertake more significant roles in response to civil emergencies. During this meeting, several international modal programmes were presented: the European Agreement Concerning the International Carriage of Dangerous Goods by Road, commonly referred to as ADR, the Central Office of International Rail Transport's Agreement on the Transport of Dangerous Goods by Rail, commonly referred to as RID, the International Maritime Organisation's International Maritime Dangerous Goods Code (IMDG Code), the International Civil Aviation Organisation's Technical Instructions on the Safe Transport of Dangerous Goods (ICAO TI's), and the European Provisions Concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN). A question remained, however, unanswered: how do you make people do these things. The question was excellent and invited a consideration of different forms of law, the content of the law, compliance programs, culture and resources. The question was ever present during the life of the pilot study. The meetings of this pilot study developed the ideas of: (a) how one can express values as a policy; (b) how policy can be turned into legislation; (c) how legislation can be supported by regulations and international standards, and (d) how compliance with these can be attained. The point was made repeatedly during the sessions that prevention was more effective than response in protecting people, property and the environment.

Director: Dr. John A. Read, Transport Canada, Dangerous Goods Directorate, Ottawa, Ontario, Canada

RATIONAL USE OF ENERGY

Pilot country: United States

Duration: 1974-1978

Publications: CCMS Reports No. 46, 47, 56, 58, 60, 73, 74, 75, 94, 107

Summary

The study on the Rational Use of Energy consisted of four projects, which had as their common objective assisting member countries in achieving increased energy conservation. Because the industrial sector is the largest and fastest growing consumer of energy, the industrial international data base project developed a comprehensive methodology for analyzing energy consumption in industry and specific measures for conserving energy. The project on modular integrated utility systems (MIUS) investigated ways of integrating the supply of utility services to communities, and found that substantial amounts of energy could be saved by utilising the MIUS approach. The project on electric utility load management identified areas where electric utilities might achieve substantial improvement on economic performance and in the reduction of adverse environmental impacts. The test reference year project presented recommendations for weather data collection suitable for energy consumption calculations.

REDUCTION OF AIR POLLUTION FROM MARINE ENGINES

Pilot country: Greece

Duration: 1993-1998

Participants: Canada, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Poland, Portugal, Sweden, Turkey, UK, USA

Non-NATO: Cyprus

Summary

The objective of this pilot study was to examine methods of marine engine design and operation for a reduction in harmful emissions, whilst maintaining fuel economy. The overall aim was to collate the available research results, define the state-of-the-art, classify related technologies in terms of maturity, effectiveness and cost, and make proposals and suggestions on legislation on realistic levels of emissions and related key research areas. Four technical areas were examined: (1) primary control methods for marine engine emissions; (2) secondary control methods for marine engine emissions; (3) monitoring of emissions and legislation; (4) operation of vessels, fuel issues and retrofit issues.

Director: Prof. Nikolaos P. Kyrtatos, National Technical University of Athens, Dept of Naval Architecture and Marine Engineering, Laboratory of Marine Engineering, Zografos, Athens, Greece

REGIONAL/TRANSBOUNDARY TRANSPORT OF AIR POLLUTION

Pilot country: Greece

Duration: 1998-2004

Participants: Belarus, Bulgaria, Denmark, Estonia, Hungary, Moldova, Portugal, Russia, Spain, Sweden, Turkey.

Summary

The Pilot Study gave an opportunity to many scientists, both from member and partner countries, to exchange ideas and experience in the field of Regional/Transboundary Transport of Air Pollution. Six meetings were organized that gave the opportunity for presentations of the research activities and results of the participants as well as for constructive discussions about research, administrative and organizational issues. One of the most important achievements of the Pilot Study was the organization of an ARW on "Air Pollution Processes in Regional Scale". The workshop was held with the participation of 46 scientists from 20 countries and resulted in the publication of a book in "NATO Science Series" of Kluwer Academic Publishers. Additionally, the Pilot Study participants prepared a science review on Regional/Transboundary Transport of Air Pollution and collaborated in research related to specific topics of the problem.

Director: Dr. Dimitrios MELAS, Aristotle University of Thessaloniki, Physics Dept.- Lab. Of Atmospheric Physics, Greece

REGULATIONS CONCERNING THE APPLICATION AND PRODUCTION OF PHEROMONES

Pilot country: Netherlands

Duration: 1979-1983

Publication: CCMS Report No. 140

Summary

The research community has given increased attention to the control of both insect and mammalian pests through the use of chemical drugs. Sufficient knowledge has been obtained for trial applications to be made. Following a workshop on research problems concerned with pheromones sponsored by the NATO Science Committee, the Netherlands proposed to lead a CCMS pilot study designed to collect information on the status of registration procedures for behaviour-modifying chemicals (pheromones) in as many countries as possible, to analyze the contents of these procedures, and to formulate recommendations for improving them. The results of this pilot study may be of particular value for the future control of pests by the use of pheromones, and hence in avoiding damage to the environment such as is sometimes the case with pesticides.

REMOTE SENSING FOR THE CONTROL OF MARINE POLLUTION

Pilot country: France

Participants: Greece, Turkey, USA

Duration: 1976-1983

Publications: CCMS Report No. 78 + Plenum Press Volume No. 6

Summary

The purpose of this study was to review progress achieved with techniques for detecting pollution of the marine environment and to identify the research policies to be adopted by NATO countries in this area. Two working groups were assigned to study the applications of remote sensing to the detection, surveillance and monitoring of oil spills and other dangerous substances at sea (Working Group I) and to study the opportunities offered by remote sensing for tracking and monitoring the diffusion and coastal movements of pollutants (Working Group II). The following recommendations were made with respect to the use of remote sensing to combat pollution caused by accidental or deliberate oil spills in the marine environment: countries should concentrate efforts on integrated multisensor systems; the surveillance package should be equipped with real-time displays capable of integrating the data from the various sensor systems; the data processing software should be considered as an integral part of the sensors; a marine surveillance system should first undertake a statistically-based evaluation of the pollution risks, with a view to facilitate the exchange of data; standardization efforts must be made.

REVIEW OF ENVIRONMENTAL PROJECTS OF THE CASPIAN SEA FOR THE PLANNING OF FUTURE ACTIVITIES

Leader: Turkey

Duration: March 1998-Sept. 1999

Participants: Azerbaijan, Belgium, Georgia, Germany, Greece, Kazakhstan, Luxembourg, Russia, Turkmenistan

Publication: CCMS Report No. 239

Summary

The Caspian Sea is important not only from an environmental and economic standpoint but also from a geo-strategic perspective. The environmental sustainability and economic utility of the Caspian Sea has a critical role to play in the stability of the entire region. The short-term project reviewed the objectives and the accomplishments of all Caspian Sea programmes, whether completed or ongoing, and compiled the information on existing gaps of knowledge in the region. Utilizing this information, the project produced a Caspian Sea Science and Implementation Plan. The plan basically includes recommendations for future work aimed at resolving the missing elements in environmental research in the region. The plan identifies the specific anthropogenic and natural causes of environmental problems in the region, and the gaps of knowledge to quantify key variables and processes to be studied. Integrated assessments and scientific investigations of the environmental changes in the Caspian Sea region are identified as the starting point for tools leading to successful predictions and for fruitful scientific collaboration and management.

Director: Prof. Ilkay Salihoglu, Director, Institute of Marine Sciences, Middle East Technical University, Erdemli-Icel, Turkey

REVIEW OF ONGOING BLACK SEA PROJECTS FOR THE PLANNING OF FUTURE ACTIVITIES

Leaders: USA + Turkey

Duration: July 1996 - Oct. 1997

Participants: Bulgaria, Georgia, Romania, Russia, Ukraine

Publication: CCMS Report No. 221

Summary

The environmental crisis in the Black Sea is primarily a result of anthropogenic forcing. The effects of long-term natural variability and climate change may have further aggravated current environmental conditions and problems. Economic constraints in virtually all of the countries bordering on the Black Sea have compounded the difficulties in addressing this environmental crisis in terms of both management and pertinent research, technological development, and monitoring. Future environmental changes in the Black Sea must be predicted adequately so that options can be analyzed and funding requirements for solutions identified. The development of predictive systems for marine ecosystems is now feasible. This short-term project reviewed the objectives and accomplishments of existing environmental programmes in the Black Sea and identified requirements not being addressed under any of these programmes or requirements that need to continue, even after these programmes terminate. It further identified the need to develop applied interdisciplinary models which, when integrated with a set of observational data, will constitute the basis for an operational nowcast/forecast system for predicting the consequences of anthropogenic forcing, synoptic, long-term and climatic variability on the evolution of the Black Sea ecosystem. The project defined the key variables and the parameters to be measured and modeled, and assessed the availability of historical data sets, as well as the gaps they contain in regard to the data assimilative models. It also examined the components of the observation system, both available and needed. The project ultimately defined a science and implementation plan for a research and technological development programme to foster capabilities for prediction and monitoring of the Black Sea ecosystems on a permanent basis. The plan identifies the scientific and technological research issues to be considered and the strategies to be adopted for developing a Black Sea Observation and Forecasting System (BSOFS) for the entire basin and its coastal and shelf seas over a 10-year period.

Directors:

1) Mr. Gary Vest, Principal Assistant Deputy Under Secretary of Defense for Environmental Security, Defense Pentagon, Washington DC, USA

2) Prof. Umit Unluata, Director, Institute of Marine Sciences, METU, Erdemli-Icel, Turkey

RISK MANAGEMENT OF CHEMICALS IN THE ENVIRONMENT

Pilot country: Norway

Duration: 1983-1988

Publication: Plenum Press Volume No. 12

Summary

This pilot study made a review of existing methods for decision analysis, gave recommendations and developed methods that may provide decision-makers with a better analytical tool in evaluating complex decision alternatives. The objectives of this study were: (1) to review and develop methods through studies of specific examples related to chemicals in the environment, (2) to identify areas for further research and development, and (3) to establish methods for risk assessment and risk management that may be used or adopted by member countries. The study showed that formal methods (e.g. cost-benefit analysis) may be useful tools in managing the risk posed by chemicals. Formal methods help to structure the problem of concern and provide excellent opportunities for communication between decision-makers and groups affected by the problem. The following recommendations were made: to work for increased efforts to protect humans and the ecosystem from harmful pollutants; to encourage member countries to reduce emissions of harmful chemicals to the environment; to contribute to improved information about the effects of chemicals on human health and the environment to the general public; to encourage international cooperation and interdisciplinary research in risk assessment and risk management.

ROAD SAFETY

Pilot country: United States

Duration: 1970-1974

Publications: CCMS Reports No. 3, 11, 16, 21, 22, 23, 24, 25, 26, 27, 28, 34, 37, 44

Summary

Of all the problems confronting modern industrial society, road safety is one of the most urgent. The economic losses which result from road accidents are considerable, but the number of fatalities that result from road and highway accidents each year are truly tragic. The United States undertook to pilot a multifaceted study on road safety under CCMS aegis and a number of countries joined in this work. Six principal projects were included in the study : Experimental Safety Vehicles (United States); Pedestrian Safety (Belgium); Alcohol and Highway Safety (Canada); Identification and Elimination of Road Hazards (France); Motor Vehicle Inspection (Germany); Accident Investigation (Netherlands). Perhaps the most active project was that devoted to Experimental Safety Vehicles (ESV), in which all the major automobile-producing countries of the world participated. The result was more urgent development of ESVs and their crash testing on an accelerated basis. The work of all the road safety project areas contributed to the adoption by the North Atlantic Council, in 1973, of the CCMS International Road Safety Resolution, by which member countries undertook to use their best efforts to prevent an increase in the numbers of traffic deaths on their road networks over the following five-year period, and thereafter to reduce such numbers progressively.

ROLE OF TRANSPORTATION IN URBAN REVITALIZATION

Pilot country: United States

Duration: 1978-1983

Summary

This study focused on urban transportation and urban revitalization of European and American cities which had used or were using transportation actions to assist in the attainment of their urban revitalization objectives. Transportation actions play an important role because of their potential ability to influence the location of jobs, dwellings and patterns of movement related to economic, social, cultural and recreational activities. The study concluded that the possibilities for change in any city are always defined and limited by that city's own history of economic, political and social development. The technical planners working for the political leadership can modify the flow of events, but their planning will be more effective to the extent that they recognize the strength of the basic economic and social, and, hence, political forces that they are dealing with.

RURAL PASSENGER TRANSPORTATION

Pilot country: United States

Duration: 1978-1982

Publication: CCMS Report No. 124

Summary

In the absence of public transportation, the automobile has become virtually the sole means of transportation in various regions of some countries. This situation has created serious problems, especially in rural areas. The concentration of commercial activities and other services in fewer towns has aggravated the problems. People without cars, including the poor, the elderly, and the young, are subject to this hazard. The purpose of this study was to promote expert exchange of pertinent information on the methods employed in different countries and in different institutional settings to provide passenger services in rural areas. All of the central governments wished to see rural public transportation improved, but with little or no impact on the budgets of the central government. There was considerable emphasis on ways to make conventional public transportation less costly and on ways to develop alternatives to conventional systems.

SECURITY OF NARROW WATERWAYS, PORTS/HARBOURS AND ADJACENT POPULATED AREAS

Type of activity: Pilot Study

Pilot country: Turkey

Duration: 2002-2006

Participants: Bulgaria, France, Georgia, Germany, Greece, Italy, Romania, Russia, USA

Summary:

The objective of this pilot study was to study the safety and security of specific maritime assets and strategic choke points in the face of potential of expected terrorist attacks and the protective and response measures, which may have to be taken to reduce the risk and mitigate the consequences of these attacks. The study results were expected to be applicable to various choke points and assets in the NATO countries and other energy-wise strategic areas in the world.

Director: Prof.Dr. Polat GÜLKAN, Director, Disaster Management Research Center, Civil Engineering Department, Middle-East Technical University, 06531 Ankara, Turkey

SEISMOLOGY AND EARTHQUAKE LOSS REDUCTION

Pilot country: Italy

Duration: 1978-1985

Publication: CCMS Report No. 157

Summary

For thousands of years earthquakes have been a realization of the earth's continued geological development. A major seismic event places severe social, psychological and economic burdens on the affected nation. Setting up a strategy for defence against earthquake implies more than solving just the scientific and technical problems. There are also important economic and political aspects to be considered which can only be achieved by effective interaction between government and research. This study was designed to deal with various aspects of seismic risk, earthquake prediction and earthquake loss reduction. The topics discussed for research were: improvement of the knowledge of the physics of the earthquake process, improvement of the collection of data for the future, review, refining and ranking of existing data, definition of clear parameters for design and decision-making, improvement of the knowledge for assessing the effectiveness of loss reduction policies, creation of programmes to educate the community and ways of using and disseminating information about prediction.

SOLAR ENERGY

Pilot country: USA

Duration: 1973-1978

Publications: CCMS Reports No. 54, 83, 85, 93, 107, 109, 110

Summary

The solar energy study investigated how this inexhaustible source might be further developed to heat and cool buildings and to provide hot water. As part of this study, agencies of fifteen NATO and non-NATO countries entered into an agreement for the exchange of information. Eight additional countries and the European Community participated in the study. The study accomplished a number of things; it pushed forward both national and international efforts in this field; and it had a positive influence on the development of solar heating and cooling programmes. The exchange of information on national programmes served as a catalyst for the establishment of new programmes in a number of countries and expansion of existing ones.

STORAGE OF PETROLEUM IN SALT CAVERNS AND THE USE OF SALT BRINE AS A MEDIUM FOR IMPROVEMENT OF ENVIRONMENT

Participating countries: Poland+Turkey+USA

Duration: April 2005-May 2006

Summary: The purpose of this project was to evaluate the feasibility of using subsurface salt deposit repositories for strategic oil, liquid fuel and gas storage, and for using generated brines to improve the ecological and environmental conditions of the Baltic Sea. For subsurface storage in geologic structures, liquid hydrocarbons can be stored in salt caverns, while natural gas can be stored both in salt caverns and porous, well-capped rocks. The latter method is less effective in terms of storage efficiency (full pressure of stored gas cannot be achieved immediately and some quantity of gas is always lost) but often less costly because exhausted gas or oil fields can be used for storage purpose. This project envisioned the possibility of building petroleum storage sites in salt structures on the northeast and southeast flanks of NATO in Poland and in Turkey, largely based on vast experience with similar petroleum storage in the U.S. Strategic Petroleum Reserve (SPR) in Louisiana and Texas. The international project team plans on using the U.S. experience to reduce project risk. While this project focuses on subsurface petroleum storage in salt caverns, similar caverns can also be used for liquid fuel and natural gas storage.

Director: Dr. G. Pienkowski, Polish Geological Institute, Rakowiecka 4, 00-975 Warsaw, Poland

SUSTAINABLE BUILDING FOR MILITARY INFRASTRUCTURE

Leaders: Netherlands + Canada

Duration: March 1999-March 2003

Participants: Belgium, Czech Republic, Finland, Georgia, Italy, Lithuania, Moldova, Norway, Poland, Romania, Slovak Republic, Slovenia, Sweden, Switzerland, UK, USA

Publication: CCMS Reports No. 246, 263

Summary

The first phase of this short term project sought to find to what extent the principles of Sustainable Building were already being applied in different countries and to gauge whether there was interest in setting up a more thorough study of the subject. The main event of Phase I was a seminar at Delft, the Netherlands in March 2000, where seventeen countries participated.

In Phase II, which lasted from October 2000 to February 2003, more information was gathered on Sustainable Building policies and programmes, methods and tools, examples of sustainable buildings and a network of experts. Besides those activities a second seminar was organised in March 2002 in Brussels, Belgium and working groups have worked at setting up a web site and a database for the distribution and exchange of information on sustainable building.

As a follow-up to this project, seminars are organized every two-year on this subject.

Directors:

1) Mr. Maarten G. Gijsbers, Ministry of Defence, DGW&T-CD-ROM, Postbox 20701
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2) Mr. J.A. Turner, Director, Realty & Engineering Policy, National Defence Headquarters,
Ottawa, Canada

TECHNOLOGIES FOR THE STUDY, PRESERVATION AND MANAGEMENT OF CULTURAL RESOURCES

Pilot country: Greece

Duration: 1991-? (never concluded)

Participants: Belgium, France, Germany, Italy, Netherlands, Portugal, Spain, Turkey, U.K.

Director: Dr. Yannis Maniatis, Laboratory for Archaeometry, National Research Center "Democritos", Athens, Greece

TRAINING AND EDUCATION IN ENVIRONMENTAL PROBLEMS

Pilot country: Spain

Duration: 1983-1989

Participants: Germany, UK

Publication: CCMS Report No. 184

Summary

Training and education in environmental problems is the key to changes in public attitudes and behaviour, which in turn are the indispensable basis for any environmental policy. In this study two aspects of the problem were examined: first, the analysis of theories and notions underlying specific environmental behaviour and the design of a technique to carry out such analysis; second, the progress in international co-ordination, which enabled evaluation methodologies to be established allowing international comparisons, resulting eventually in overall conclusions. The first phase of this study was devoted to designing suitable experiments for testing the impact of environmental education, the second was concentrated on carrying them out and the third on collating and interpreting the results.

URBAN TRANSPORTATION

Pilot country: United States

Duration: 1972-1976

Publications: CCMS Reports No. 45, 53, 57, 82, 86, 87

Summary

One of the most difficult problems to cope with, in the advanced countries especially, is the problem of transportation in cities. This study consisted of five projects, aimed at facilitating faster and more convenient travel for passengers and for more efficient delivery of freight in metropolitan agglomerations. Belgium took responsibility for a project in Collection Systems Evaluation, aimed at improving the collection of suburban travellers at a central point (i.e. Waterloo) for rapid transit to another point (i.e. Brussels). France led a project on Urban Movement to explore means of delivering freight more rapidly and with minimum impact on traffic volume. Germany led a survey of all available short distance transport techniques for use in cities and to evaluate these. The United States co-ordinated a project in Urban Travel Forecasting, which provided data on the need for public transit facilities in cities of the future.

USE OF LANDSCAPE SCIENCE FOR ENVIRONMENTAL ASSESSMENT

Pilot countries: USA + Germany

Duration: 2001-2006

Participants: Austria, Bulgaria, Finland, Georgia, Italy, Latvia, Lithuania, Norway, Poland, Romania, Russian Fed., Turkey, Ukraine, UK

Non-NATO member: Australia

Summary: The Pilot Study was developed to explore the potential of quantifying and assessing environmental condition, processes of land degradation, and subsequent impacts on natural and human resources (including security) by combining the advanced technologies of remote sensing, geographic information systems, spatial statistics, and process models with landscape ecology theory. The study was designed to enhance the ability of senior-level decision-makers, environmental managers, and the public to: 1) address a range of environmental problems that have inherently different scales; 2) evaluate cumulative impacts to ecological and hydrological resources; 3) provide a framework for large-scale assessment in which to put surrounding communities in perspective; 4) communicate analysis and assessment results to a wide range of technical and non-technical audiences; and 5) develop products such as regional and watershed assessments, analysis tools, digital maps, and databases for a variety of international audiences. The research focused on the interaction between landscape patterns and ecological processes and their relation to environmental security. Environmental assessment is defined as a process by which scientific evidence and technological information are analyzed for the purpose of evaluating present condition or forecasting the outcomes of alternative future courses of action. The assessments were directed toward specific ecological resources and socially relevant endpoints such as watershed condition (water quality, quantity, and vulnerability to flooding), landscape resilience (ability to sustain ecological goods and services when subjected to conditions of anthropogenic and natural stress), and biodiversity (wildlife habitat). The research and implementation agenda of the Pilot Study was accomplished through the completion of multiple national studies throughout Europe and the United States which emphasized thematic areas related to landscape characterization, land cover change detection, landscape indicators, landscape assessment, and landscape theory and models.

Directors:

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USE OF SIMULATORS AS A MEANS OF REDUCING ENVIRONMENTAL IMPACTS CAUSED BY MILITARY ACTIVITIES

Pilot country: Netherlands

Duration: 1990-1995

Participants: Belgium (observer), Germany, Greece, Italy, Luxembourg (observer), Norway, Poland, Portugal (observer), UK, USA

Publications: CCMS Reports No. 210, 217

Summary

This pilot study was set up to investigate how much environmental benefit could be gained from the use of simulators. It identified the need for policy analysis management tools which would give procurement officers an insight into the environmental impacts of different types of weapons training activities and the role simulators could play in reducing these impacts.

Director: Mr. C.J. Nagelhout, Ministry of Defence, Ruimtelijk Ordening en Milieuzaken, The Hague, Netherlands

UTILIZATION AND DISPOSAL OF MUNICIPAL SEWAGE SLUDGE

Pilot country: USA

Duration: 1979-1985

Summary

The cleansing of municipal waste waters has demonstrably improved the quality of surface waters in many parts of the world, and dramatically so in some areas. However, as treatment systems become more efficient and more commonplace, so does the volume of by-product wastes - sewage sludge - also increase. The overall objectives of this pilot study were as follows: to investigate and document the different practices for management and control of sewage sludge disposal and use; to assess each country's institutional structures and regulatory approaches for management and control of sewage sludge disposal and use; to offer conclusions and recommendations. The study was structured into four separate sub-elements, with different countries assuming responsibility for each sub-project: Institutional and Regulatory Analysis, by Germany; Utilization, by France; Disposal, by the Netherlands and the United Kingdom; and Incineration by the United States. Some of the recommendations of the study were: more stringent controls for the industrial discharges of metals and other pollutants to municipal waste water treatment facilities; adequate sampling and analysis of sludge and soils; adequate record-keeping; sea disposal of sewage sludge harmful to the marine environment should be prevented; co-incineration of sewage sludge and municipal solid wastes should be encouraged.

VULNERABILITY OF THE INTERCONNECTED SOCIETY (VIS)

Leader: Norway

Duration: March 2001-Sept. 2002

Participants: Denmark, Georgia, Hungary, Lithuania, Moldova, Poland, Romania, Sweden, Switzerland, Turkey, UK, Ukraine, USA

Publication: CCMS Report No. 262

Summary

The participants in the VIS short-term project have drawn the following main conclusions based on their discussions and the information available from other national and international processes:

- The aspect of interconnectivity of systems and its effect on societal vulnerabilities is in need of further study in an appropriate multilateral setting.
- Societal vulnerabilities must be seen in a global context. As these cannot be resolved by individual countries alone, interconnectivity becomes a network challenge. Further work

should consequently focus on interconnectivity as a trans-national phenomenon.

- To provide a useful level of analysis and knowledge sharing, it is necessary to limit the scope of new initiatives and leave implementation into national solutions to established fora and actors.
- The key tool in dealing with future challenges is a systematic investment in training and knowledge dissemination.
