

However, this choice is certainly not easy: for instance, entirely opposing conclusions were reached in two successive papers as to the estimated costs of two methods of burning refuse!

Speakers at the sessions devoted to new methods of energy extraction dealt mainly with pyrolysis † projects or pilot-plant experiences. The number of systems presented or mentioned—nearly twenty—offers great hopes that at least some of them will emerge and become fully satisfactory. This is not yet the case and, at the present time, no city will readily accept pyrolysis as the disposal method for all its waste without strong government financial support and involvement. However, pyrolysis is an exciting prospect and should be tried.

Among the processes that are based on thermic treatment, recycling or resource recovery may be given various degrees of consideration, ranging from the standard provision of 'complete' recovery equipment to simply ignoring it, the choice being often related to the characteristics of the thermic process. The value of recovered products is apt to be dependent on their purity, and efficient separation equipment becomes all the more complicated the higher the degree of purity desired. This makes the separation process more and more capital-intensive and costly.

Energy extraction through bioconversion was only dealt with in a round-table discussion. Although anaerobic digestion is frequently used in the disposal of sludge or animal waste, there does not appear to be any such application to urban waste—with the exception of the recovery of methane from landfill. Research is being performed in several fields, but the effort is not comparable with that which is being made on pyrolysis, although there certainly are interesting results to be obtained.

One session was devoted to the impact of recycling on the energy content of refuse. Relationships between material and energy balance in recycling, as well as the limits of resources, were explored. Our consumer civilization was clearly questioned as to the price it is willing to pay to 'ensure' its long-term survival: recycling alone will not solve the problem if we do not limit the dissipative use of resources. However, this kind of reflection and some others, such as the consideration of separate collection as a method of materials recovery, were not much in the minds of most participants, who were apparently more concerned with eliminating, at the lowest possible cost, increasing mountains of solid waste; alternatively they were involved with demonstrating the capabilities of their own equipment.

The need to analyse recycling profitability in terms of energy, resources, and finance, before offering a solution to any solid-waste problem, must be emphasized. However, local authorities are not equipped for this and often—owing to their necessarily restricted view—lack the required perspective. Who in our modern society is really assuming the responsibility of taking this task in hand? Clearly there is room for another conference, attacking the problem from the other end. It should be remembered meanwhile that the Montreux CRE Conference was on 'Conversion of Refuse to Energy', and it certainly came up to expectations in bringing together people from all the sectors concerned and allowing them to become aware of, and share experience gained from, pertinent achievements, potentialities, and projects, all over the world.

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† Defined as 'chemical decomposition or other chemical change brought about by the action of heat regardless of the temperature involved'.—Ed.

MEETING ON THE BIO-ENVIRONMENTAL METHODS
OF MALARIA CONTROL,
HELD IN LIMA, PERU, 10–15 DECEMBER 1975

This meeting was organized jointly by the United Nations Environment Programme (UNEP), the World Health Organization (WHO), and the Government of Peru, with the objective to promote (a) the development of sound bio-environmental methods of malaria control, (b) research on the development of new pest-management systems, and (c) training of anti-malaria workers on these systems and dissemination of technical knowledge among countries involved in the global anti-malaria programme.

The meeting was attended by participants from 4 continents representing 16 different countries as follows: Asia (China, Malaysia, Afghanistan, India, and Iran); Africa (Algeria, Egypt, Sudan, Tanzania, Zaire, and Nigeria); North America (Mexico and the United States); and South America (Peru, Brazil, and Venezuela). In addition to UNEP and WHO, representatives from UNESCO, UNDP, the 'World Bank', and USAID, attended the meeting.

Both malaria experts and environmentalists found the meeting an excellent forum to express their views. Earlier in the discussions these views had appeared to be diametrically opposite; but gradually the gap narrowed and each discipline came to understand the problems of the other, whereupon both parties began to develop constructive recommendations to suit common objectives. Among important recommendations, the following should be noted:

- A. An attempt has to be made, based on feasibility studies, to promote and introduce bio-environmental methods of malaria control in anti-malaria programmes.
- B. The dissemination of information on the various sound bio-environmental methods and their cost-benefit effectiveness and use under different epidemiological and socio-economic situations have to be intensified.
- C. While endorsing the WHO policy regarding the use of insecticide in anti-malaria programmes, the participants realized the urgent need to introduce bio-environmental methods to complement the insecticidal approach, and to reduce the period of the current dependency on the latter.
- D. Studies are to be intensified to trace the fate and pathways of the various insecticides that are used in public health and agriculture—particularly those entering the various food-chains that terminate in Man and give rise to human health-hazards.
- E. WHO, in close association with UNEP and other interested agencies and institutions, should develop further its research programme aimed at discovering effective and comparatively cheap new anti-malaria weapons.

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SECOND INTERNATIONAL ENVIRONMENTAL MANAGEMENT
SEMINAR, HELD AT THE CENTRE D'ETUDES INDUSTRIELLES,
1231 CONCHES, GENEVA, SWITZERLAND, 19–30 JANUARY 1976

A group of participants in key environmental positions in industry, national governments, and international organizations, from eleven different countries, attended the second such International Environmental Management Seminar at the Centre d'Etudes Industrielles (CEI), Conches, Geneva, Switzerland. The first such occasion having been the pioneering one held just a year earlier as reported in *Environmental Conservation* (Vol. 2, No. 3, pp. 235–6, Autumn 1975), two intervening but allied seminars of a

more specialized nature made this January 1976 event actually the fourth environmental seminar to be held at CEI.

Dr Mostafa K. Tolba, Executive Director of the United Nations Environment Programme, opened the seminar with an address on the 'State of the Environment' and a review of the major environmental issues facing mankind. These issues of human well-being, the natural environment, and development, were explored in more detail throughout the first week of the seminar, being viewed from the standpoint of health, energy, economics, legislation, conflict, and land-use planning. Particular emphasis was given to matters of industrial project planning, plant location, and pre-market environmental testing of products.

Formal contributions to the seminar were made by speakers in leading positions in international organizations, national governments, and industrial enterprises. An important feature of the Seminar was the free exchange of views and experience among participants working in small groups on cases dealing with current environmental problems (e.g. PVCs, fluorocarbons, nuclear energy, etc.).

The second week of the seminar was devoted to an in-depth study of the principles and methods of environmental impact assessment and minimization of conflict. The seminar participants concentrated their attention on impacts and conflicts associated with a major industrialization project at Fos-sur-Mer on the Mediterranean coast of France.

The Seminar proved to be highly successful in helping to identify, develop, and clarify, the necessary tools and techniques for management of the environment. It further helped to reinforce the view that the central concern of environmental management is the formulation and implementation of policies and decisions towards providing for long-term, sustainable, and broad-based, human well-being. Perhaps the foremost achievement of the Seminar was to demonstrate clearly how industry, governmental bodies, and international organizations, can indeed work together on a continuing basis for promoting management of the human environment more effectively than has been accomplished to date.

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CONFERENCE OF Plenipotentiaries of the Coastal
States of the Mediterranean Region on the Protection
of the Mediterranean Sea,
HELD IN BARCELONA, SPAIN, 2-16 FEBRUARY 1976

Over the last two years, the United Nations Environment Programme (UNEP) and several United Nations specialized agencies (particularly FAO, IAEA, IMCO, UNESCO, UNIDO, WHO, and certain UN Economic Commissions) have intensified efforts towards the development and implementation of a comprehensive plan to protect and enhance the Mediterranean region. The Mediterranean 'action plan', which was adopted at a regional Intergovernmental Meeting in Barcelona early in 1975,* contains recommendations for activities in four main areas: research and monitoring, integrated planning of development, legal obligations, and institutional structures.

* See the account by Stanley P. Johnson, Head of the Prevention of Pollution and Nuisances Division, Commission of the European Communities, published in *Environmental Conservation* (Vol. 2, No. 3, pp. 235-6, Autumn 1975).—Ed.

Probably the main development in this field since the 1975 Intergovernmental Meeting was the above occasion, at which sixteen of the eighteen Mediterranean States participated (Albania and Algeria were not represented). On 13 February, the Conference adopted the Convention for the Protection of the Mediterranean Sea against Pollution, a Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft, a Protocol concerning Cooperation in Combating Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency, and ten assorted resolutions. What makes the Barcelona Conference particularly noteworthy is that after the weekend, on 16 February, twelve states signed the Convention and the cooperation protocol, and eleven states signed the dumping protocol at a ceremony arranged by the Depositary Government, Spain.† Normally a great deal of time passes before a significant number of Governments actually sign a treaty.

The Convention itself is very broad and commits states in general terms to 'take all appropriate measures... to prevent, abate, and combat, pollution of the Mediterranean Sea area and to protect and enhance the marine environment in that area' (Article 4). The Convention then specifies the distinct sources of pollution for which controls should be implemented: pollution from dumping, ships, exploration and exploitation of the continental shelf and sea-bed, and land-based sources. There are also articles on cooperation in pollution emergencies, monitoring, scientific and technological cooperation, and liability and compensation.

By ratifying a protocol, states accept more detailed obligations to control pollution from the discrete sources listed above. When discussing the system of legal controls, the states felt that the Convention was too broad to provide meaningful protection on its own; therefore, no state may become a contracting party to the Convention without also becoming a party to at least one of the protocols. A protocol will enter into force when at least six states have ratified it, and the Convention will enter into force simultaneously with the first protocol.

The Dumping Protocol closely follows the precedent of the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, and the 1972 Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft. The protocol prohibits the dumping of substances on the 'black' list, requires a prior special permit to be issued by the competent national authority for the dumping of substances on the 'grey' list, and requires a general permit for the dumping of all other wastes or other matter.

The second protocol adopted at Barcelona calls for cooperation among the parties 'in cases of grave and imminent danger to the marine environment, the coast or related interests... due to the presence of massive quantities of oil or other harmful substances resulting from accidental causes or an accumulation of small discharges which are polluting or threatening to pollute the sea' (Article 1). The protocol provides for information exchange, coordination of communications, and assistance in emergencies. Parties to the protocol may cooperate directly or through the regional centre. A regional oil-combating centre is to be established on Malta as a result of one of the resolutions adopted by the Conference. The functions of the centre will include information dissemination, preparation of contingency plans, maintenance of a commu-

† The twelve states were Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Malta, Monaco, Morocco, Spain, and Turkey. Greece did not sign the dumping protocol.