

## CONFERENCES & MEETINGS

INTERNATIONAL WORKSHOP ON SOLID-WASTE MANAGEMENT AND RESOURCE MOBILIZATION, HELD IN KATHMANDU, NEPAL, FROM 28 OCTOBER TO 4 NOVEMBER 1990

The Solid-waste Management and Resource Mobilization Centre (SWMRMC) of Kathmandu, Nepal, and the German Technical Co-operation Agency (GTZ), co-sponsored this meeting of solid-waste management experts to address the range of problems faced by developing cities in Asia. The cities represented at the meeting were: Ahmedabad, Bandung, Bangalore, Bangkok, Calcutta, Ghangmai, Colombo, Jakarta, Kathmandu, Kuala Lumpur, New Delhi, Penang, and Thimpu (Bhutan). Further Asian participants represented national departments or programmes, such as the Adipura Award of Indonesia and the Cottage Industries Department of Myanmar. There were international experts from Canada, Germany, and Norway, as well as from the International Reference Centre for Wastes Disposal and the World Bank, and two observers from Accra, Ghana. Nepalese participants, in addition to SWMRMC staff, were from the Ministry of Housing and Physical Planning, Ministry of Education and Culture, and aid and consulting organizations.

The meeting was organized around three important components of a solid-waste management system: (1) Institutional development (financial management, resource mobilization, legal framework, integrated planning, manpower development, private-sector cooperation, and technology choice); (2) People's participation (school education, motivation, and mass media); and (3) Resource recovery (composting, landfill gas, waste picking, recycling, etc.). Working groups addressing specific topics each considered *effectiveness* (how far strategies meet agreed targets); *efficiency* (best use of resources); *significance* (success in reaching target groups and especially in servicing the unserved); and *sustainability* (maintaining the solid-waste management system). The summaries of these working groups were presented in plenary sessions and also reproduced in booklet form by the SWMRMC. The final session was devoted to an informal symposium on 'Waste Management in a Mega City', organized by Christian Hatzfeldt on the basis of comments from the working groups.

The participants visited the sanitary landfill constructed with German financial and technical assistance for Kathmandu, the compost-making plant, low-income neighbourhoods, and squatter settlements (where waste gathering, sorting, and trading, were in evidence), and a small-scale bone-meal factory, as an example of local urban-waste recycling.

Immediately after the meeting, the participants joined in the 'Cleaner City Campaign' of Kathmandu, which consisted of a neighbourhood cleaning drive (organized by local clubs), the inauguration of the Nepal Housewives' Association, a children's parade, distribution of pamphlets, poster competition, and display and a mass rally with youth oratory competition. This event illustrated some of the techniques that were encouraged by SWMRMC to raise citizens' awareness and motivation for improvements in solid-waste management.

Most of the invited experts prepared papers relating to solid-waste management or case-studies which were not presented at the Workshop but were printed and distributed as resource materials. Some copies of these papers, and the Workshop summaries, may be available

from SWMRMC. For further information, please contact: Sri S. B. Thapa, General Manager, Solid Waste Management and Resource Mobilization Centre, PO Box 1044, Teku, Kathmandu, Nepal.

This was at once a lively and stimulating meeting that allowed discussion of issues of pressing importance to Asian cities while providing a great deal of practical information on waste management. By eschewing formal paper presentations, the procedure permitted much interaction among the participants, together with coherence in covering the range of solid-waste concerns for the cities which were represented and others like them.

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SECOND ANNUAL CMDC\* CONFERENCE, ON THE THEME OF ENVIRONMENT-COMPATIBLE ENERGY-SOURCES, HELD AT THE HOTEL ZÜRICH, ZÜRICH, SWITZERLAND, DURING 10-12 DECEMBER 1990

About 130 people were present on this encouraging occasion organized by CMDC President Gustav R. Grob, and although most were from Switzerland or nearby Germany, not a few were from farther afield.

There is an obvious link between energy and environment, such that most of our worst environmental problems arise from the unrestrained use of fossil fuels. This fact was apparent throughout the above Conference, which also stressed the fact that a drive towards a hydrogen-based economy would bring relief in greatly reducing the degradation of our environment.

We should not depend overwhelmingly on direct solar energy as our renewable resource. Although this will be an important source, and perhaps 50% of all renewable energy will come from wind and hydro, there are, fortunately, others. Among the various ways of converting solar energy to electricity, the cheapest will be OTEC, followed by solar thermal, followed by photovoltaics. It is peculiar that everybody stresses photovoltaics when the two other alternatives are so much cheaper.

Regarding the production of hydrogen from renewable sources, the best prospect seems to be the Euro-Quebec Hydro-Hydrogen Pilot Project. This will make use of the huge surplus of cheap electricity available from the hydroelectric power-plants recently constructed in that Canadian province. The hydrogen produced by electrolysis would be transported to Europe in ships, either in liquid or compressed gaseous form. The cost of this hydrogen, at the site of delivery (Hamburg), would be almost competitive with other energy-vectors.

This project, initiated by Dr J. Gretz, of the European Research Center at Ispra, in northern Italy, benefits now from strong support from the industry, from the German Government, and from the European Community.

The suggested introduction of a hydrogen-based economy is being met with reticence, because of the huge investments which would be needed. However, concerning the distribution and use of hydrogen, a new tendency is gaining approval, namely to consider the progressive admixture of hydrogen to natural gas.

\* Acronym of *Cercle Mondial du Consensus*, the 'World Circle of the Consensus'. — Ed.

On the second day of the Conference, when stress was being laid upon hydrogen as a carrier and there were many good papers, a peculiar thing happened: a lady from China spoke favourably of the use of coal (*sic*); and a gentleman from the Soviet Union thought that they would continue to use natural gas for about 30 to 40 years. When asked why they made these extraordinary announcements, they said 'But it is cheaper', and had to be carefully educated about net cost *versus* apparent initial costs!

There is little doubt that natural gas will progressively replace petroleum as an energy-source, if only as a transition towards a fully-integrated hydrogen economy. In the transition period, to start with, small amounts of hydrogen could be added to natural gas, both for transportation purposes and for other use. The investments would be reasonable.

This process was described by one of the speakers, Dr J. Selzer, for supply to vehicles. He proposed the name of HYTHANE for the mixture of HYdrogen and meTHANE.

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GLOBAL WARMING — A CALL FOR INTERNATIONAL COOPERATION, BEING THE SECOND INTERNATIONAL CONFERENCE ON THE SCIENCE AND POLICY ISSUES FACING ALL GOVERNMENTS, HELD IN CHICAGO, ILLINOIS, USA, DURING 8–11 APRIL 1991

As with so many meetings scheduled in early 1991, this conference suffered from the Persian/Arabian Gulf events. Attendance declined markedly compared with the preceding year, although well over one hundred delegates, representing 17 countries, showed up; the number of attendees from Third World nations, or originally from such nations, was impressive.

An attempt was made to reach a wide range of professionals as well as the public at large. Both international cooperation and coordination were urged in the broader aspects of natural resources management, current technologies, policy options, and legal constraints. Global climatic changes were considered, as well as effects of 'greenhouse' phenomena, reforestation, and employment of biomass energy. Educational aspects were touched upon, stressing the universities' informational role.

#### *Global Warming and Other Changes*

Global warming was accepted as factual by all speakers, and several effect-mitigating factors were discussed or proposed: biomass energy, biocrops, biofuels, etc. One session dealt almost exclusively with forests and their effect of reducing atmospheric CO<sub>2</sub> concentrations. Canadian, Indonesian, Mexican, Bulgarian, and Tropical, forests' role assessment analyses were used as examples.

A cooperative US–USSR ecosystem study was described in considerable detail and, though of modest scale, shows very promising aspects.

Climate change indicators and the global climate linkage received the largest totality of time. Here the coral-reef system and the subarctic biological realm were linked to current climate oscillations, the use of models was highlighted, and Man's influence put in focus.

#### *Methane and Water Shortage*

Two other topics handled at some length were methane and water shortage. The Gas Research Institutes' environmental programme in global change was reviewed, and methane fluxes in urban and agricultural settings were described. Three papers dealt with desertification and water supply in the Sahel, particularly Chad; hydrologic systems were handled on a global scale, and specifically for Indonesia.

In the cadre of Man's impact upon global changes, alternative energy sources were proposed, ranging from wood and herbaceous plants to the ocean. Activities of several US agencies received some favourable echoes. Unusual, however, was a proposal for reducing global warming while promoting preservation of endangered species: a forest of several species of *Eucalyptus* could support a large population of marsupials and simultaneously reduce the 'greenhouse' effect!

#### *Further Gleanings*

Gleaning among the environmental topics touched upon, constructive proposals were made or practical thoughts expressed. Thus biofuels could alleviate over-production of CO<sub>2</sub>, and technologies for this are at hand. An eight-nations experiment is under way to use the tree-line as a climate-change indicator. If 84% of carbon emission due to production and consumption are ascribable to developed countries, a substantial proportion is nevertheless generated by China.

In the context of the over-emission of CO<sub>2</sub>, alternatives focus on changing energy policies, controlling 'greenhouse' gas emissions, and changing patterns of land-use and -adaptation. Where the US is concerned, mass education, tighter efficiency-standards, more research and development, and more economic incentives, could be key steps. An enormous educational task lies on the universities' front door-step, so that a constant global population might be enabled to live in happy equilibrium with the Earth System.

The Third International Conference on the Science and Policy Issues Facing All Governments will be held, again in April, in 1992 in Chicago, and efforts will be made to increase West European, female, and developing countries' input, while diversifying even further the range of subjects covered.

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TENTH EUROPEAN PHOTOVOLTAIC SOLAR ENERGY CONFERENCE, HELD IN THE FIIL CONGRESS CENTRE, LISBON, PORTUGAL, DURING 8–12 APRIL 1991