

**WORLD HEALTH ORGANIZATION
WESTERN PACIFIC REGIONAL
ENVIRONMENTAL HEALTH CENTRE
(EHC)**



SUMMARY OF 1992 ACTIVITIES

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1. INTRODUCTION

Established in 1979, the WHO Western Pacific Regional Environmental Health Centre (EHC) is the technical arm of the WHO Regional Office for the Western Pacific, responsible for promoting and facilitating effective collaboration among Member States and supporting the development of self-reliant institutions and capabilities in the field of environmental health. The Centre was formerly known as the WHO Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS). It was renamed in October 1992. The Centre implements activities in the five principal programme areas related to the promotion of environmental health namely: community water supply and sanitation; environmental health in rural and urban development and housing; health risk assessment of potentially toxic and hazardous chemicals; control of environmental health hazards; and food safety. It collaborates with Member States in conducting national and regional training courses/workshops to develop very much needed human resources in environmental health, and it provides technical cooperation services to promote the development of national environmental health policies and planning capabilities in Member States. It also serves as an environmental health information service centre and facilitates information exchange and cooperation among national institutions and WHO collaborating centres in environmental health in the Region. The collaborating centres are part of an international network designed to perform activities in support of WHO's environmental health programmes.

2. STAFF

Annex 1 lists the staff of the Centre during 1992.

3. HIGHLIGHTS OF ACTIVITIES UNDERTAKEN

In 1992, EHC provided technical cooperation to 21 countries and areas of the Western Pacific Region on various environmental health activities. Altogether, 43 collaborative activities were implemented by staff members and/or consultants, and three regional group educational activities were convened. A list of these activities is given in Annex 2. The consultants who served during the year are listed in Annex 3.

3.1 Community water supply and sanitation

EHC participated in a four-week UNDP-funded mission to four Pacific island countries (Fiji, Papua New Guinea, Solomon Islands and Vanuatu) to prepare an overall programme outline and a project formulation framework to address the major subregional needs of the area in the water supply and sanitation sector. An evaluation of the ongoing UNDP/UN Department of Economic and Social Development (UNDESD) regional water and sanitation project for the Pacific island countries, and recommendations for the future direction of this project, were also made.

In another interagency collaborative activity, EHC participated in a four-week World Food Programme mission in Ningxia Hui Autonomous Region in China to appraise the water supply component of a poverty alleviation and environment rehabilitation project in three rural upland counties. Project proposals were finalized during the mission and recommendations were made to improve the implementation of the project activities.

Technical advisory services to Cook Islands were provided to design measures to be carried out to ensure adequate water supply and sanitation during the large influx of visitors for the Festival of Pacific Arts in October 1992. As a result of the measures taken, the additional 2 000 visitors during the festival were accommodated without any health problems or undue inconveniences. EHC also developed a curriculum for a training course for health inspectors and made recommendations on various sanitation problems and on water quality monitoring programmes.

In the Federated States of Micronesia, a mission was implemented to recommend measures to improve the operation of the sewage treatment plant in Weno, Chuuk State. During this mission, a state of emergency was declared because of the prolonged drought, and measures to alleviate the poor water supply conditions in outer islands were proposed. As a result of the proposals, WHO supplied diaphragm pumps and drinking water disinfection equipment and supplies to enable groundwater sources in the centre of the atolls to be utilized for clean and safe drinking water.

In June 1992, EHC cooperated with the Philippines to conduct a national workshop on operation and maintenance of water supply and sanitation systems. Two staff members conducted the workshop during which action plans were formulated for each participating agency to implement in the following year.

In Cambodia, a two-week assignment was carried out to assess the water supply and sanitation conditions in selected hospitals and to recommend remedial measures for their improvement. Relevant sections on water supply and sanitation for an Infection Control Manual for Cambodian health workers were also prepared.

Tuvalu recently applied for membership of the World Health Organization and a WHO mission was invited by the Government to assess the overall health situation, identify priority areas for collaboration and participate in the preparation of a five-year health development plan. EHC participated in the mission with the responsibility for environmental health aspects. Proposals for collaborative activities included vector control, water supply and sanitation, and training.

As part of an Intensive Course on Environmental Health for Public Health Engineers organized by the Ministry of Health, Malaysia, in cooperation with EHC, a series of seven lectures in vector control were prepared and presented.

The implementation of a project to develop model designs and procedures for rural water supply and sanitation systems in Lao People's Democratic Republic commenced during the year. The project was implemented through a technical services agreement and was funded by the Swedish International Development Authority (SIDA).

Another technical services agreement with Kiribati to develop a model latrine design for the villages in Christmas Island was completed during the year. This project was the result of a previous assignment in 1990 which identified inadequate sanitation facilities as a major cause of flies and disease.

An applied study of cistern water quality in Jintaichuan Command Area, Gansu, China in collaboration with the National Patriotic Health Campaign Committee was also started during 1992. The study is to assess the cost-effectiveness of current chlorination procedures for the cistern water supplied to villagers from irrigation canals.

3.2 Environmental health in rural and urban development and housing

Activities in this programme area were mainly directed to training, technical advisory services and provision of information on environmental planning and management, solid waste management, and improvement of environmental health in urban areas.

3.2.1 Environmental planning and management

EHC collaborated with the Government of the Lao People's Democratic Republic to assess existing problems associated with urban wastewater and drainage, management of industrial, domestic and hospital wastes, and agricultural use of solid waste and excreta from urban areas. Although the present problems are associated mainly with domestic wastewater and solid waste in urban areas, industrial pollution problems are expected to increase in the future. To enhance human resources capabilities to deal with these problems, EHC will further collaborate with the Government in conducting a national workshop on management of environmental health hazards in early 1993.

In Tonga, EHC carried out a mission to assess the magnitude of environmental pollution problems in the country. Major problems were found to be in the area of domestic wastewater and solid waste management although pollution of surface and ground waters by agrochemicals and some industrial wastes was also becoming serious.

The National Institute of Public Administration, Malaysia is actively involved in environmental health training programmes, and EHC has been working closely with the Institute to support these programmes. EHC staff members were provided to the Institute to cooperate in conducting five courses/workshops in environmental planning and management from June to December 1992. The subject areas covered were integrated environmental planning and management, environmental risk assessment and control technology, hazardous waste management, geographic information systems, and environmental impact assessment. Government officers involved in environmental management and planning at the Federal, State and Local levels participated in these workshops.

A staff member participated in the International Symposium on UNCED and Prospect on the Environmental Regime in the 21st Century which was organized in September 1992 in Seoul by the Korea Research Council on Environmental

Sciences and the Ministry of Environment, and sponsored by WHO and local organizations. The Symposium provided a forum to exchange views on the prospect of environmental cooperation in the 21st Century, following the success of UNCED, and to explore the policy direction for the Northeast Asian environmental cooperation.

The Public Works Department (PWD) in Malaysia organized a five-day workshop on environmental impact assessment in October. EHC provided a staff member as a resource person for the workshop which covered subjects on natural ecosystems, environmental and social impacts from public works, and included a case study on water supply development.

In conjunction with various activities carried out during Malaysia's Environment Week from 21 to 27 October, an international exhibition and conference on environmental protection and control technology, ENVIROPRO '92, was held in Kuala Lumpur. EHC served in the technical organizing committee for ENVIROPRO '92 and participated in both the exhibition and conference. More than 30 exhibitors and 200 professionals from all over the world participated in the activity.

EHC has continued to promote the exchange of information on environmental and health impact assessment through its information network, EIA/EHIANET.

3.2.2 Solid waste management

EHC participated in the National Seminar on Management and Technology of Municipal and Industrial Wastes held in February in Malaysia, organized by the University of Agriculture, Malaysia, and sponsored by the United Nations Educational, Scientific and Cultural Organization. The seminar covered issues on policies, strategies, technologies and economics of both municipal and industrial waste management. A panel discussion concluded that further improvement of waste management in Malaysia would require the strengthening of regulatory enforcement, intersectoral coordination and public education.

In May, the staff of UNDP/World Bank Water and Sanitation Programme, Regional Water and Sanitation Group for East Asia and Pacific, International Reference Centre for Waste Disposal and EHC met in Jakarta to discuss issues of coordination among these agencies on solid waste management.

The discussion led to interagency collaboration in a broad range of areas and activities in solid waste management, namely, institutional aspects, human resources development and training, national strategy, financial and economic aspects, and technology. For each of these activities, potential subject areas of collaboration were discussed in detail and the lead agency was identified.

EHC convened a Regional Workshop on Solid Waste Management in Pacific Countries in May in Suva, Fiji, involving 20 participants from 14 Pacific island countries. The participants reviewed the solid waste management activities in the Pacific countries and technical and managerial options available, conducted a half-day field exercise on a time and motion study of refuse collection and evaluation of a landfill site, and prepared a proposal for improving solid waste management activities in their countries.

Following the regional workshop, EHC collaborated with the Governments of Western Samoa, Cook Islands and Tonga to assess solid waste management activities in their capital towns. The main problem facing these towns was a difficulty in siting and managing landfills, and the respective Governments were taking action to close the improperly operated present dump sites and locate new sanitary landfills for environmentally sound disposal operations. EHC provided timely advisory services for the development of new landfills and closure of old ones.

Solid waste management was one of the subjects covered in the Intensive Course on Environmental Health for Public Health Engineers organized by the Ministry of Health, Malaysia in cooperation with EHC. The topics from solid waste generation to final disposal and public education were covered in the course.

The Environmental Management Bureau (EMB) in the Philippines conducted a five-day solid waste management workshop in October with the cooperation of EHC. This is a follow-up activity on a recommendation made in a previous project with EMB in 1990. The workshop covered all aspects of solid waste management from generation to final disposal. The participants prepared plans and proposals to improve solid waste management in their localities.

EHC has continued to provide information-related services in solid waste management. During the year, EHC produced a technical publication entitled,

“Information Management for Municipal Solid Waste Management Services”, and promoted the exchange of information on solid waste management through its information network, SWMNET.

3.2.3 Urban environmental health

In April, EHC cooperated with the Ministry of Health, Viet Nam to conduct a workshop on environmental health in urban development in Hanoi. The workshop brought together 51 participants from relevant agencies of the Ministries of Health, and Construction, and provincial and municipal governments dealing with health, public works, and urban construction services. The participants reviewed national and international plans and programmes for urban environmental health, assessed the existing environmental health situation in urban areas and discussed priority issues and strategies for the improvement of environmental health in urban areas. The workshop provided an impetus for national and provincial authorities to promote a healthy urban environment.

EHC participated in the UNDP-organized Intercountry Consultative Meeting on the Urban Management Programme for Asia and the Pacific held in Kuala Lumpur in September. Participants came from national and local governments, community organizations, and research institutions in the Region, and relevant UN, multilateral and bilateral agencies. The meeting identified the most critical issues in the Region, reviewed and proposed modalities of cooperation and coordination between various urban sector programmes in the Region, and discussed the most effective ways to meet the needs of countries and the urban citizenry.

3.3 Chemical safety

3.3.1 UNDP/WHO Project on Safety and Control of Toxic Chemicals and Hazardous Wastes

Activities continued to be implemented in connection with the ongoing two-year (1990-1992) UNDP/WHO Project on Safety and Control of Toxic Chemicals and Hazardous Wastes. Five countries participated in the project, namely:

China, Malaysia, Philippines, Republic of Korea and Singapore. EHC cooperated with the Department of Environment, Malaysia to review existing legislation and regulations on chemical safety, draft interim legislation and delineate a plan of action for the long-term development of regulatory programmes on chemical safety in Malaysia. It was recommended that Malaysia should continue its progress towards control of hazardous substances by implementing legislative reform to cover those areas for which control is lacking or inadequate, and a long-term commitment should be made to rationalize and reform existing controls on hazardous substances to reduce overlapping, inconsistencies and gaps in administration.

In Singapore, EHC collaborated in the conduct of a national workshop on the control of toxic chemicals. The workshop was aimed at enabling the Government to assess and enhance national capabilities in overall control of toxic chemicals and to provide a forum for industries to share with each other their experience in the implementation of chemical safety programmes. EHC also collaborated in the conduct of a workshop on environmental risk assessment and control technology in Malaysia. A problem-solving approach was used based on four case studies developed for the workshop. The workshop provided a good forum for participants to share their knowledge and experience in the identification, evaluation and control of environmental and occupational health hazards.

A consultant visited China, Malaysia, Philippines, Republic of Korea and Singapore to gather material for the development of educational/training material for industrial chemical safety. The material has been translated into the Chinese and Malay Languages for use at training workshops for industrial safety and health workers. In Malaysia, the training workshop was held in December 1992 and was very successful in stimulating a lively dialogue between the governmental and industrial sectors. The training workshop in China is planned for early 1993.

In collaboration with the Ministry of Chemical Industry, China and the Shanghai Chemical Industrial Bureau, a consultant and staff member visited chemical plants in Shanghai to assess the technical problems associated with the incineration of chemical wastes, and prepared conceptual designs and cost estimates for waste incineration plants.

In addition to the above activities under the UNDP/WHO project, fellowships were awarded to national officials to enable them to visit other countries to familiarize themselves with various aspects of chemical safety management.

Overall, the implementation of the UNDP/WHO project was timely for all the participating countries, particularly China, Malaysia and the Philippines. The activities provided met the needs for their development of national programmes for the management of toxic chemicals and hazardous wastes.

3.3.2. Other activities on chemical safety

In the Pacific island countries, the problems of hazardous waste management are acute because land-based disposal and resource recovery alternatives are not readily available. EHC implemented a project to develop a hazardous waste inventory and action plan for these countries. Visits were made to eleven countries to assess the types, sources and quantities of hazardous wastes, evaluate existing waste management practices and identify potential hazardous waste management options. Among other things, it was found that the recent rapid proliferation of cars on small islands had led to problems with the disposal of waste motor oil and used lead-acid batteries. It is planned to prepare a protocol for the implementation and monitoring of a pilot-scale demonstration project on practical hazardous waste management. Tentatively, two demonstration projects have been selected, namely, pesticide repacking and waste oil disposal.

EHC convened a regional workshop on effective management of chemical safety information from 30 November to 4 December 1992. The workshop assessed the existing information management systems and studied technical and institutional instruments for information management, and defined actions and resources required by Member States to develop effective systems. The workshop was attended by officials from ten Member States of the Region, three observers from the International Labour Organization, and two Malaysian observers. The workshop concluded that there was a common need in all Member States to heighten the awareness of the existence of chemical safety information and to have information and educational materials in the local languages.

In Tonga, increasing pesticide use has triggered concerns about health issues. EHC provided a staff member to collaborate with the Government to assess the use, field practices and storage of agricultural chemicals and made recommendations to improve the situation in order to minimize any adverse effects on health.

3.4 Control of environmental health hazards

3.4.1 Air quality management

The air quality is deteriorating in many urban and industrial areas of the Region, and in a few cities it is becoming a significant threat to human health. Some of the Member States have rapidly expanding economies, and this is reflected in the deteriorating air quality. This is particularly evident in urban areas with increasing numbers of motor vehicles and traffic congestion. Industrial development and increasing fossil fuel combustion also adversely affect air quality. Coal combustion in China causes serious indoor air pollution, as well as excessive concentrations of particulate matter and sulfur dioxide in outdoor air.

The objective of the air quality management activities of EHC is to focus on the most serious urban and industrial air pollution problems, and on indoor air pollution.

During 1992, EHC collaborated with China, Malaysia, Philippines and the Republic of Korea on various aspects of air quality management. A booklet, "Biofiltration, An Appropriate Control Technology for Gaseous Pollutants from Industrial Processes", was also produced. Other air quality management activities included a presentation to a World Environment Day International Seminar on Urban Air Pollution and Strategies in Seoul, and the preparation and presentation of five lectures on air quality management for an Intensive Course on Environmental Health for Public Health Engineers in Malaysia.

A major air quality management study, funded by the Japan International Cooperation Agency, is being conducted in the Kelang Valley region of Malaysia. It is due for completion in May 1993, and it involves meteorological observations, ambient air monitoring, source emission testing, traffic surveys, and an air dispersion simulation model. EHC is represented on the Technical Committee for the study.

Endemic fluorosis is a severe and chronic problem in some parts of China, affecting approximately 70 million people. EHC collaborated with the Institute of Environmental Health and Engineering in Beijing on measures to reduce the occurrence of endemic fluorosis from coal smoke inhalation. A study was made of six coal burning regions with different severities of fluorosis, and one control area. The fluoride concentrations in the coals used, and in the indoor and outdoor air, were analysed, as were the amounts of fluoride intake by digestion and inhalation. The study found that the fluorosis is mainly caused by inhalation of smoke from the traditional methods of cooking and heating, using high fluoride content coal as the fuel. An evaluation was made of the effect of various types of improved stoves. They were found to be a most effective and feasible measure to reduce the incidence of fluorosis.

EHC has renewed contact with relevant agencies in China on air quality management matters, after an absence of more than two years. Past collaborative activities were reviewed and, in general, these appear to have been successful. The air quality monitoring seems to be of a high standard in China. The severe indoor and outdoor air pollution from coal combustion have justifiably been the predominant areas of concern, but air pollution from motor vehicles is becoming increasingly important. Some relevant national studies of the health effects of air pollutants have been carried out, and more are planned. Progress is being made on reducing exposures to fluoride compounds through the inhalation of coal smoke, from the combustion of high fluoride content coals. Preventive air pollution control measures, such as the conversion from coal to cleaner fuels in urban areas, are having a significant impact, in terms of limiting the degradation of the air quality. Future collaborative activities for EHC could be in the areas of further work on air quality monitoring, the health effects of air pollutants and the control of air pollution, for both coal combustion and motor vehicles.

The Republic of Korea has a proactive air quality management programme, and significant progress has been made on reducing such problems as high levels of sulfur dioxide and total suspended particulates from space heating facilities in winter months. Summer time peak concentrations of photochemical oxidants are already high, and are likely to get worse. With a large proportion of diesel-fueled vehicles, the focus needs to be on emissions of nitrogen oxides and particulate matter from that source. EHC collaborated with the Institute of Environmental Research in the Republic of Korea on measures to reduce atmospheric emissions from diesel vehicles.

The air quality of Metropolitan Manila is degraded by emissions from motor vehicles. However, it is feasible to correct the problems with some practicable measures. These include improvements in fuel quality, a change in the fuel pricing policy, and a series of national initiatives in the area of motor vehicle emission control. A second air quality issue in the Philippines is the control of air pollution from the industrial development projects, including the thermal and geothermal power plants. This is best achieved by a strengthened air pollution control licensing system.

EHC collaborated with the Environmental Management Bureau in the Philippines on initial work on the preparation of an air quality management master plan for the country. An outline of the master plan was prepared. The goal is to achieve a healthy air environment throughout the Philippines by the year 2000 and beyond. With current and pending reviews of the rules and regulations relating to air pollution control and air pollution from motor vehicles, and the large number of related studies/projects funded by international donor agencies and countries, further input on the master plan should be linked to progress on those matters. Especially relevant is some Asian Development Bank work on vehicular emissions control planning for Metropolitan Manila.

EHC participated in the WHO/UNEP Global Environment Monitoring System (GEMS) Human Exposure Assessment Location (HEAL) Coordinators Meeting, which was held in Bangkok from 16 to 20 November 1992. The meeting was largely about human exposure monitoring of lead, although future requirements for other GEMS HEAL projects were also discussed. In addition to the presentations of country programmes, the predominant topics were the health effects of lead and quality assurance. The assessment of total human exposures to environmental contaminants is an important adjunct to the environmental monitoring of pollutants in air, food and water, through a network of stations around the world. This view appears to be gaining acceptance, as witnessed by the rapidly increasing number of countries involved in GEMS HEAL (from seven to twenty-six, with a further seven interested to join). There is also considerable interest in expanding GEMS HEAL to other environmental pollutants, in addition to the long standing monitoring of heavy metals, organic pesticides and nitrogen dioxide.

3.4.2 Environmental epidemiology

In 1992, environmental epidemiology training courses were held in the Philippines, Viet Nam and Malaysia. The Philippines course, conducted by a Headquarters staff member and an EHC consultant, was attended by 33 persons. The course content included lectures on measuring health and disease, types of epidemiological study designs, how to approach the analysis of data, measuring exposure and dose, and an introduction to the delivery of environmental and health services in the Philippines. The course in Viet Nam, conducted by the same Headquarters staff member but a different consultant, was more advanced. It focused on epidemiological research methods. The second consultant also gave lectures on environmental epidemiology to the Intensive Course on Environmental Health for Public Health Engineers in Kuala Lumpur.

3.4.3 Water quality management

EHC collaborated with the Government of Macao to provide technical guidance for the conduct of the Macao Estuarine Water Quality Monitoring Programme. The existing programme was assessed and recommendations made to improve the sampling programme to meet the current needs. Recommendations were also made for the implementation of quality assurance components in sampling and analysis to improve the data being collected. The Macao Estuarine Water Quality Monitoring Programme will follow trends in the quality of the waters around Macao and measure the impacts of the proposed wastewater treatment works.

In the Philippines, a mission was undertaken as the second phase of an assignment initiated in 1987 to cooperate in improving the water quality management capabilities of the Laguna Lake Development Authority (LLDA). This second phase focused on the development of a funding proposal for a Master Plan for the management of the land and water resources within the LLDA area of jurisdiction. This area is important for economic development, and the lake is also being considered as a potable water supply for Metro Manila. A draft funding proposal for the Master Plan was prepared and, in consultation with UNDP officials, a further proposal was made for the funding of a Framework Plan in order to expedite funding for the commencement of activities. Complementary to the development of the funding proposals, a wastewater treatment project for the San Pedro River was recommended to demonstrate

the benefits of wastewater treatment for the riparian communities and the water quality of the lake.

A demonstration of RAISON, a Geographical Information System (GIS) software package, was made as part of a course organized by the National Institute of Public Administration in Malaysia on GIS. RAISON has been adopted as the GIS package for the analysis of data from the UNEP/WHO Global Environmental Monitoring System (GEMS) water quality monitoring project.

An activity has been initiated with the Government of Malaysia for the development of a water quality disaster management plan. The plan will address the management of water quality in the event of natural and man-made disasters as well as the outbreaks of epidemics related to waterborne diseases.

3.5 Food safety

To improve public awareness and understanding of food irradiation, EHC collaborated with the International Atomic Energy Agency and the Food and Agriculture Organization of the United Nations to convene an international seminar on harmonization of regulations on food irradiation in Asia and the Pacific in January 1992. The seminar was attended by 54 participants and observers from 22 countries. The seminar provided an opportunity to exchange considerable information on food irradiation and its potential capacity to facilitate trade in food and to help control two of the most serious problems connected with food supplies - the extensive loss of food through deterioration, and the illness and death that result from food contaminated with pathogens and parasites. The seminar participants agreed that national authorities should work towards uniform regulations for food irradiation using the available intergovernmental coordination mechanisms such as the Codex Alimentarius Commission and the International Consultative Group on Food Irradiation. The participants also stressed that clear, open, factual communication with the public on the benefits of the process and its products is a vital factor in successful commercialization of food irradiation.

A consultant was provided to the Government of Cook Islands to review their food safety legislation. The activity involved extensive consultation with personnel at all levels of the Ministry of Health and food-related agencies. Opinions were sought on issues such as food importation, development of local food processing

enterprises, analytical services, and food quality and safety problems. Discussions were held with various officials regarding food legislation in force in the Cook Islands, and the need for new legislation and implementing regulations. As a result of these discussions, a Food Act was drafted, and circulated for discussion. Recommendations were made for further action to improve food safety in the Cook Islands.

The Government of the Kingdom of Tonga is drafting a new Public Health Act with one of the parts addressing food safety and quality issues. EHC provided a consultant to review food-related activities in the Act and to present comments to the Law Reform Committee through the Director of Health. Recommendations were made on the resources required to develop the infrastructure necessary to enforce the Act.

In another activity in Tonga, the consultant advised on the use of Hazard Analysis Critical Control Point (HACCP) procedures for the control of typhoid fever in Tonga. He identified a wide range of food handling and storage practices which would facilitate the transmission of typhoid fever and outlined measures to prevent further epidemics, including extensive food hygiene education and modifications to traditional methods of food preparation.

A project to develop a compendium of rapid food tests was completed. The bulk of the information covers commercially available test kits which could be utilized in the field and the compendium will be of value to those working in food analysis.

EHC also completed the publication of a food inspection manual for imported foods that may act as a model for the Region. This manual provides direction on the responsibilities of the food inspector, sampling programmes and equipment, wharf examination, and microbiological and chemical analyses that should be considered, and proposes action on foods identified as unsatisfactory.

4. COLLABORATION WITH INTERNATIONAL AND BILATERAL AGENCIES

EHC continued to maintain its contact with other international and bilateral agencies involved in environment-related activities. Activities implemented during the year in collaboration with these agencies were the project on safety and control of toxic chemicals and hazardous wastes funded by UNDP; the

WHO/IAEA/FAO seminar on food irradiation; the hazardous waste inventory and action plan development in the Pacific island countries, and the regional workshop on effective management of chemical safety information, funded by the Special Programme on Technology Transfer of the Government of Japan; environmental epidemiology workshops in the Philippines and Viet Nam partially funded by the Swedish International Development Authority (SIDA); and the assessment of the poverty alleviation and environmental rehabilitation project in Ningxia Hui Autonomous Region, China, funded by the World Food Programme. Discussions were held with UNDP and World Bank on possible future collaboration in solid waste and urban management programmes. EHC staff also attended meetings organized in connection with the UNEP/WHO GEMS human exposure assessment location (HEAL) and water quality monitoring projects.

5. INFORMATION SERVICES

EHC plays an important role in providing information services in environmental health. The Centre attended to 236 requests for information on various environmental health topics during the year.

Information exchange activities continued through the networks on environmental impact assessment/environmental health impact assessment (EIA/EHIANET), food safety (FOS INFONET) and solid waste management (SWMNET).

Following a recommendation of the Sixth EHC Advisory Committee, the Centre initiated work to develop environmental health indicators to monitor the situation in Member States and identify priorities and targets for collaborative activities. A staff member participated in a WHO Consultation on Development and Use of Environmental Health Indicators held in Germany, where people from institutions involved in the development of these indicators from various countries discussed key issues and made recommendations for future WHO activities.

6. REPORTS AND DOCUMENTS

The reports on activities implemented in 1992 (as listed in Annex 2) are available on request from EHC, provided they have been derestricted by the governments. Other technical documents issued in 1992, which are available on request, are listed in Annex 4.

EHC STAFF DURING 1992

Dr P. Guo Director

Technical staff

Mr T. Dafoe Water Quality Management Specialist

Mr B. Fisher Sanitary Engineer

Dr W. Harrington Chemical Safety Specialist

Dr H. Ogawa Environmental Systems Engineer

Mr K. Rolfe Air Quality Management Specialist

Vacant Food Safety Specialist

Administrative staff

Ms L.Y. Chan Administrative Officer

Programme support staff

Ms Y.M. Tan Special Assistant

Secretaries

Ms T. Chan

Ms L.M. Lai (until 1 July 1992)

Ms Normah Mahmud

Ms M. Pieris

Ms M.R. Tan

Drivers/Messengers

Mr Shahrudin Asmuni

Mr Masim Satarum

ANNEX 2

TECHNICAL COOPERATION ACTIVITIES AND FIELD VISITS - 1992

Activity	Carried out by	Date
BRUNEI DARUSSALAM		
1. Water pollution control	T. Dafoe	6-18 Dec
CAMBODIA		
1. Water supply and sanitation in hospitals	B. Fisher	21 Jun - 5 Jul
CHINA		
1. Safety and control of toxic chemicals and hazardous wastes - visit to discuss implementation of the remaining activities under the WHO/UNDP project	H. Ogawa	12-20 Aug
2. Review and assess World Food Programme (WFP) project on poverty alleviation and environmental rehabilitation in three rural upland counties of Ningxia Hui Autonomous region	B. Fisher	27 Sep - 23 Oct
3. Feasibility assessment of a centralized incineration plant for the chemical industry in Shanghai	A.J. Liem	10 Aug - 12 Sep
4. Collaboration on air quality management activities	K. Rolfe	1-14 Nov
COOK ISLANDS		
1. Water supply and sanitation facilities for the Festival of Pacific Arts and water quality monitoring programme	B. Fisher	17 Mar - 3 Apr
2. Assessment of solid and hazardous waste management in Rarotonga	H. Ogawa	31 May - 10 Jun
3. Review of food safety legislation	D.B. Mahoney	20-31 Jul

Activity	Carried out by	Date
FIJI		
1. Hazardous waste inventory and disposal	H. Ogawa	13-15 May
KOREA, REPUBLIC OF		
1. Collaboration on the reduction of particulate matter emissions from diesel from diesel vehicles, and participation in the World Environment Day International Seminar on Urban Air Pollution and Strategies	K. Rolfe	23 May - 21 Jun
LAO PEOPLE'S DEMOCRATIC REPUBLIC		
1. Promotion of environmental health programme, Phase 1 - Assessment of environmental hazards and preparation of a plan for training	H. Ogawa	24 Apr - 1 May
MACAO		
1. Estuarine water quality monitoring	T. Dafoe	3-16 May
MALAYSIA		
1. Collaboration in the conduct of a national seminar on management and technology of municipal and industrial wastes organized by Universiti Pertanian Malaysia and sponsored by UNESCO	H. Ogawa	18-19 Feb
2. Review of chemical safety legislation	L. Mortimer	26 Jul - 15 Aug
3. Technical study and national workshop on environmental risk assessment and control technologies	J. Spickett, H. Ogawa	20 Sep - 13 Oct
4. Collaboration in the conduct of a national workshop on environmental impact assessment organized by the Public Works Department	H. Ogawa	19 Oct
5. Intensive course on environmental health for public health engineers	T. Dafoe, H. Ogawa, K. Rolfe, A. Woodward	12-16 Oct

Activity	Carried out by	Date
6. Training programme on environmental planning and management for the National Institute of Public Administration	H. Ogawa	1 Apr - 31 Dec (Intermittently)
MARSHALL ISLANDS		
1. Hazardous waste inventory and action plan development	W. Harrington	11-17 Sep
MICRONESIA, FEDERATED STATES OF		
1. Urban water supply and sanitation programmes	B. Fisher	13-23 Apr
2. Hazardous waste inventory and action plan development	W. Harrington	4-11 Sep
NORTHERN MARIANA ISLANDS, COMMONWEALTH OF THE		
1. Hazardous waste inventory and action plan development	W. Harrington	29 Aug - 4 Sep
PALAU		
1. Hazardous waste inventory and action plan development	W. Harrington	25-29 Aug
PAPUA NEW GUINEA		
1. Hazardous waste inventory and action plan development	I. Wallis	3-11 Sep
2. Food safety legislation	A. Hazzard	1-13 Nov
PHILIPPINES		
1. National workshop on operation and maintenance of water supply and sanitation systems	T. Dafoe, B. Fisher	15-25 Jul
2. National workshop on environmental epidemiology	R. Etzel, T. Kjellstrom	21 Jul - 4 Aug
3. Preparation of air quality management master plan	K. Roife	23 Aug - 19 Sep

Activity	Carried out by	Date
4. Collaboration in the conduct of a Seminar-workshop for local government solid waste managers	H. Ogawa	20-24 Oct
5. Water quality management for Laguna Lake Region, Phase 2	T. Dafoe	7-15 Jul & 27 Jul - 14 Aug

SAMOA

1. Assessment of solid and hazardous waste management	H. Ogawa	25-31 May
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SINGAPORE

1. Collaboration in the conduct of a national workshop on control of toxic chemicals, and preparation of proposals for the implementation of workshop recommendations	H. Ogawa, J. Spickett	20-30 Jan
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SOLOMON ISLANDS

1. Hazardous waste inventory and action plan development	I. Wallis	12-16 Sep
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TONGA

1. Review of food safety legislation	D. Mahoney	11 Jun - 3 Jul
2. Development and management of solid waste landfill sites and operation of collection systems, assessment of magnitude of environmental pollution, and hazardous waste inventory and disposal	H. Ogawa	12-27 Jun
3. Hazard analysis critical control point concept in typhoid fever control	D. Mahoney	6-17 Jul
4. Chemical safety for agricultural chemicals	W. Harrington	19-23 Sep

VANUATU

1. Hazardous waste inventory and action plan development	I. Wallis	16-23 Sep
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Activity	Carried out by	Date
VIET NAM		
1. Collaboration in the conduct of a national workshop on environmental health in urban development	H. Ogawa	20-24 Apr
2. Collaboration in the conduct of a national workshop on environmental epidemiology research methods	T. Kjellstrom, A. Woodward	30 Sep - 16 Oct

REGIONAL ACTIVITIES

1. WHO/IAEA/FAO seminar on harmonization of regulations on food irradiation in Asia and the Pacific, Kuala Lumpur, Malaysia.	A. Hazzard, G. Moy, N. Tape, P. Pothisiri, P. Loaharanu	20-24 Jan
2. Assessment of UNDP regional water and sanitation project in Fiji, Vanuatu, Solomon Islands and Papua New Guinea	B. Fisher	17 Feb - 18 Mar
3. Regional workshop on solid waste management in the Pacific countries, Suva, Fiji	H. Ogawa A. Thorstensen	18-22 May
4. Preparation of educational/training materials on chemical safety - China, Malaysia, Philippines, Republic of Korea and Singapore	D. Ferry	31 May - 4 Jul
5. Regional workshop on effective management of chemical safety information	W. Harrington, T. Kaminuma H. Ogawa	30 Nov - 4 Dec
6. Coordination of the UNEP/WHO Global Environmental Monitoring System (GEMS) air quality monitoring project	EHC staff	Continually
7. Coordination of the GEMS water quality monitoring project	EHC staff	Continually
8. Coordination of the GEMS food contamination monitoring project	EHC staff	Continually

Activity	Carried out by	Date
9. Coordination of the GEMS human exposure assessment locations (HEAL) project	EHC staff	Continually
10. Environmental information service programme	EHC staff	Continually

OTHER ACTIVITIES

1. Attendance at the UNDP/World Bank meeting on coordination of solid waste management activities, Jakarta, Indonesia	H. Ogawa	11-12 May
2. Attendance at the international symposium on UNCED and prospect on the environmental regime in the 21st century, Seoul, Republic of Korea	H. Ogawa	2-5 Sep
3. Attendance at the intercountry consultative meeting on the urban management programme for Asia and the Pacific, Kuala Lumpur	H. Ogawa	16-18 Sep
4. Attendance at the meeting on GEMS/Water Mekong project, Bangkok, Thailand	P. Guo	10 Oct
5. Attendance at the international exhibition and conference on environmental protection and control technology (ENVIROPRO '92), Kuala Lumpur, Malaysia	H. Ogawa	27-31 Oct
6. Attendance at the WHO/UNEP GEMS HEAL coordinators meeting, Bangkok, Thailand	K. Rolfe	15-20 Nov
7. Attendance at the WHO inter-regional consultation on environmental health, Geneva, Switzerland	S. Tamplin, P. Guo	10-18 Oct
8. Attendance at the WHO consultation on development and use of environmental health indicators, Duesseldorf, Germany	H. Ogawa	13-19 Dec

ANNEX 3

SHORT-TERM CONSULTANTS - 1992

R. Etzel
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SHORT-TERM CONSULTANTS - 1992
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A. Woodward
Senior Lecturer & Head of
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University of Adelaide
Adelaide
Australia

ANNEX 4

LIST OF TECHNICAL DOCUMENTS ISSUED IN 1992

1. Information management for municipal solid waste services
2. Biofiltration - an appropriate control technology for gaseous pollutants
3. Manual for the inspection of imported food
4. Compendium of rapid food tests
5. Papers presented at WHO/IAEA/FAO Seminar on Harmonization of Regulations on Food Irradiation in Asia and the Pacific:
 - Food irradiation technology - a general overview of its benefits and limitations
 - The contribution of food irradiation to food safety and food security
 - Food irradiation technology - trends and progress in its commercial application
 - Development of food trade in the Asia and Pacific Region and prospects for commercial application of food irradiation
 - Opinion polls and marketing trials with irradiated food
 - Principles of the codex general standard for irradiated foods and associated code of practice
 - Control of food irradiation facilities and good irradiation practices
 - Technical parameters to be standardized with special reference to dosimetry and authorized doses
 - Environmental impact assessment in the establishment of food irradiation facilities
 - Labelling of irradiated foods (including shipping documents) and other provisions relating to the product moving in trade
 - Detection methods for irradiated foods - review of current developments
 - Need for a uniform system of control for ensuring acceptance of irradiated food in trade
 - Quarantine treatment of fresh food using irradiation - recent development in market potential and future prospects for Asia and the Pacific

- Training of personnel involved in regulatory control
- Status of regulatory control of food irradiation in Asia and the Pacific - identification of gaps and discussion of need for harmonization
- Control of good irradiation practices and the role of the ICGFI guidelines and codes
- The Asian Regional Co-operative Project on food irradiation with emphasis on process control and acceptance: progress and achievements
- A harmonized approach to regulating food irradiation based on groups of foods
- Acceptance of food irradiation by the consumer - the views of consumers
- Acceptance of food irradiation by the consumer - a critical review of typical misconceptions
- Acceptance of food irradiation by the food industry - problems and prospects
- Acceptance of food irradiation by governments - identification of possible impediments to progress
- Studies on and application of food irradiation in China
- Food irradiation in Malaysia - current status of application and regulatory control
- Current situation of food irradiation control in Thailand
- The safety of irradiated food in Viet Nam

6. Papers presented at Regional Workshop on Solid Waste Management in the Pacific countries:

- Key issues on solid waste management in the Pacific island countries
- Generation and nature of solid waste
- Principles of storage, collection and transportation
- Vehicle selection and collection by private contractors
- Time and motion study and vehicle scheduling and routing
- Problems of open dumps and introduction to controlled sanitary landfill
- Siting of landfill and site assessment
- Landfill design and operation
- Principles of composting - processes, operational parameters, marketing
- Recycling and resource recovery
- Management of special wastes - industrial and household hazardous wastes, and hospital waste
- Legislative and institutional development, and public participation
- Record/book keeping - financial and information management
- Planning for solid waste management - development and operation of overall system

7. Papers presented at Regional Workshop on Effective Management of Chemical Safety Information:

- Overview of chemical safety information
- Poison control centre
- Organization of chemical safety information
- Information for risk assessment
- Production and consumer sites
- Role of computers and regional network