CEHA Activities and Achievements During the Biennium 2002-2003
CEHA ACTIVITIES AND ACHIEVEMENTS
2003-DURING THE BIENNIAL 2002

World Health Organization
Regional Office for the Eastern Mediterranean
Regional Centre for Environmental Health Activities
CEHA
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Executive summary

CEHA’s major efforts focused on and succeeded in raising additional extra-budgetary (EB) resources to make up for the substantial decrease in its regular budget resources. New approaches were followed for raising resources for projects at national level. About US$ 1,700,000 was raised to implement environmental health (EH) projects in northern Iraq. Thus, CEHA was involved for the first time at national level on such a scale. About US$ 500,000 was raised to implement regional EH projects. Joint activities with other international organizations; implementing activities on behalf of other international agencies; funding activities by local donors; and carrying joint activities with other EMRO programmes proved to be good, practical, and cost-effective approaches for achieving goals within budget constraints.

The Region witnessed major disasters during 2002-2003, therefore promotion of EH activities in refugee camps and during emergencies received CEHA’s special attention. Action involved technical and logistical support to the concerned agencies in Iraq, Islamic Republic of Iran, Jordan, Pakistan, Somalia, Sudan and Syrian Arab Republic. Guideline documents and a water and hygiene kit were produced and disseminated to help countries in responding and preparing for disasters and emergencies.

Community water supply and sanitation continued to be a high priority with clear focus on: enhancing the quality of drinking-water supplies especially intermittent supplies; enhancing the sustainability of water supplies through promotion of water demand management and conservation; environmental sanitation in small communities; and household water security.

In collaboration with the Arab Fund for Social and Economic Development, health aspects of wastewater treatment and reuse continued to receive CEHA’s attention. Applied research was carried out, human resources were developed through training and delivery of information, situation was assessed through compilation of national and regional profiles, and capacity of institutions was strengthened through provision of laboratory equipment.

The theme of World Health Day (WHD) 2003 was Healthy Environments for Children. Efforts for building partnerships and creating popular movements for children were initiated through national conferences in Jordan and Saudi
Arabia. Remarkable celebrations marked the occasion of the WHD in other countries. Efforts started to monitor indicators on healthy environments for children. Pilot applications of the Global Initiative on Children EH Indicators have started in Islamic Republic of Iran, Oman, and Tunisia.

Several achievements were made by CEHANET during 2002-2003 including: Reconstructing its web site to act as virtual source of reliable EH information; establishing an electronic clearing house for water demand and management information, linking health and environment information through publishing CEHA databases through the virtual health library, providing traditional and electronic information services to more than 4000 users in the Region; and publishing, Arabizing and disseminating 15 training and learning materials.

Electronic access to EH information was assessed in Egypt, Lebanon, Islamic Republic of Iran, Pakistan, Syrian Arab Republic, and Republic of Yemen. The clear digital gap was identified and action was taken to facilitate access to information in the six countries.

Missions to assess imported food inspection systems were carried out in Jordan and Qatar. Training course on food irradiation was conducted in Bahrain, and three training courses on lead poisoning in food and water were completed in Saudi Arabia, Oman and Bahrain.
**What is CEHA?**

CEHA is the WHO Regional Centre for Environmental Health Activities, a technical centre established in 1985 in Amman, Jordan, by the World Health Organization’s Regional Office for the Eastern Mediterranean (EMRO). CEHA started executing its programmes utilizing a grant from the Arab Gulf Programme for the UN Development Organizations (AGFUND) and the kind hospitality of the Government of Jordan.

CEHA activities and services cover the Eastern Mediterranean Region (EMR) which comprises of the following 21 member states and the Palestinian Self Governing Authorities: Afghanistan; Bahrain; Djibouti; Egypt; Iraq; Islamic Republic of Iran; Jordan; Kuwait; Lebanon; Libyan Arab Jamahyria; Morocco; Oman; Pakistan; Qatar; Saudi Arabia; Somalia; Sudan; Syrian Arab Republic; Tunisia; United Arab Emirates; and Republic of Yemen.

**Mandate and Approaches**
CEHA's mandate is to promote environmental health through technical support for strengthening national capabilities and programmes in the Member States of the Region. To achieve its mission CEHA adopted the following approaches:

- Support the development and strengthening of national capabilities in the environmental health field
- Strengthen the scientific and technical basis of environmental health work in the Region
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- Improve information flow to and among Member States
  Promote health awareness in relation to environment and development in the Region
- Improve effectiveness of inter-country actions to protect and improve environmental health
- Mobilizing regional efforts through networking amongst concerned institutions in the Member States
- Support national efforts in emergency preparedness and environmental health management in refugee camps

The Technical Advisory Committee (TAC)
CEHA’s performance and plans are guided by a Technical Advisory Committee (TAC), which meets once every two years. TAC consists of representatives (on rotation basis) from all the countries of the Region, as well as international environmental health experts.

WHO and Environmental Health
WHO has long recognized that a healthy environment is a fundamental prerequisite for the health of people and for quality of life. The healthy environment constitutes a key element of WHO’s strategy of Health for
All in the 21st Century, and the WHO/EMRO regional strategy for health and environment which was prepared in response to the 'Earth Summit' and its Agenda 21, and the follow up international conferences on health, environment and sustainable development. These strategies describe the ways in which WHO can contribute to development, which respects human and environment. CEHA operates within the framework of the Regional Environmental Health Programme, which encompasses the following technical areas:

► Environmental Health Policy and Health Risk Assessment (EHP)
► Management of Community Water Supply and Sanitation (CWS)
► Promotion of Food Safety (FOS)
► Promotion of Chemical Safety (PCS)

Activities and Services
CEHA carries out activities in the following broad categories at regional and national levels. CEHA's activities stem from the conclusions and recommendations of regional activities and technical support missions, requests of Member States, as well as the recommendations of CEHA's Technical Advisory Committee.

Human Resources Development by supporting and convening training courses, seminars, workshops and conferences at national and regional levels. In addition, CEHA develops, adapts and translates training and learning materials for use by Member States.

Information Exchange through the Regional Environmental Health Information Network (CEHANET), which was launched in 1988. CEHANET works on networking among national environmental health information units in the Region, and on capacity building of these units by the provision of systems and tools, and human resources development.

Technical Cooperation by providing expert advice on problem assessment, programme planning and institutional development as well as assisting national institutions in acquiring necessary facilities and equipment.

Special Studies and Applied Research by providing support to national professionals and institutions to carry out investigations relevant to national and regional environmental health priority issues, such as drinking water
quality, healthy environments for children, wastewater treatment and reuse, water conservation, solid waste management, air pollution, etc.

**Demonstration Projects** by implementing an integrated set of the above mentioned four activities focusing at solving one problem in a certain country, which can be replicated in other countries facing the same problem.

**Available Resources**
- CEHA staff comprises of a Director (DIR), Rural Health and Environment Advisor (RHE), Technology Transfer Advisor (TTA), Urban Health and Environment Sanitary Engineer (UHE), Technical Information Officer (TO). A Senior Administrative Assistant and seven administrative staff support the professional staff. In addition, short-term consultants and temporary staff are recruited as needed for specific tasks.
- Financial resources consist of regular funds from WHO as well as extra budgetary funds from regional and international organizations.
- The Centre occupies a four-story building (generously provided by the Government of Jordan in 1988) offering ample space for a well-equipped conference floor, a library, a modern information centre, and staff.

**Interagency Collaboration**
Health, environment and development are interdependent subjects of wide coverage, which require active participation of various disciplines, necessitating effective collaboration for the achievement of sustainable results. Since its establishment, CEHA has reached out to regional and international institutions, and other specialized and funding agencies to seek collaboration in activities of mutual interest. These efforts have materialized in financial support from several donor agencies such as: the Arab Gulf Programme for the UN Development Organizations (AGFUND), the Arab Fund for Social and Economic Development (AFSED), and the Islamic Development Bank (IDB). Technical cooperation aiming at optimizing the utilization of resources
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is being done continuously with regional and international agencies such as the International Development Research Centre (IDRC), the United Nations Environment Programme/Regional Office for West Asia (UNEP/ROWA), the World Bank, Environment Canada, United Nations Office for Project Services (UNOPS), United Nations Fund for Children (UNICEF), United Nations Food and Agriculture Organization (FAO), and all the UN Agencies Based in Amman.

Mobilization of Resources in 2002-2003

CEHA succeeded in raising additional extra budgetary resources to make up for the substantial decrease in its regular budget. About 90% of its planned activities were funded by external resources from international and regional donors such as: Arab Fund for Social and Economic Development (AFESD), Arab Gulf Programme for the United Nations Development Organizations (AGFUND), United Nations Office of the Iraq Programme Oil-for-Food (UNOIP), United Nations Operations Project Services (UNOPS), United Nations Children Fund (UNICEF), Islamic Development Bank (IDB) and others. CEHA was also successful in opening new doors for raising funds and collaboration to sponsor its environmental health action in member states of the Region. Joint activities with other international organizations such as the United Nations Environment Programme/Regional Office for West Asia (UNEP/ROWA) and UNICEF proved to be a good, practical and cost effective approach for achieving goals within budget constraints. Implementing activities on behalf of other regional and international organizations and for national agencies seems to be a promising approach for covering costs of CEHA activities in the Member States.

Major funds (about US$ 900,000) were received from UNOPS and UNOIP to implement the following projects in Northern Iraq. Unfortunately, due to the local situation in Iraq these projects were partially completed and CEHA lost the opportunity of expanding such projects. The overall rate of implementation of each project is shown below.

► The Project for Institutional Strengthening and Common Roof - Water Quality Monitoring - Stage 1 (US$ 437,800, UNOPS) 100%
► Water Quality Control and Environmental Health Program in the three northern Governorates of Iraq (US$ 337,100, UNOIP) 30%
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Funds were also received from other donors for implementing the following projects, which are currently at different stages of completion:

► Regional Initiative for Improvement of Food Irradiation of Health Training on Food Practices and Imported Food Inspection. It covers Egypt, Jordan, Kuwait, Morocco, Oman, Pakistan, Saudi Arabia, Sudan, Syrian Arab Republic and Tunisia. (AGFUND contribution = US$ 75,000).


► Role of Communities and NGOs in Awareness Raising and Hygiene Education in Health Friendly Management of Solid Waste. It covers Egypt, Lebanon, Morocco, Pakistan, Palestine, Sudan, Syrian Arab Republic, Tunisia and Republic of Yemen. (AGFUND Contribution = US$ 70,000).


► Regional EH Information Network Based on Internet and E-mail. It covers Egypt, Islamic Republic of Iran, Jordan, Kuwait, Lebanon, Oman, Pakistan, Palestine, Saudi Arabia, Sudan, Syrian Arab Republic, United Arab Emirates and Republic of Yemen. (AGFUND Contribution = US$ 79,000).

► Food Safety: Status of Lead Poisoning in EMR countries with Special reference to Children and Mother’s Health. It covers Bahrain, Egypt, Jordan, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia and United Arab Emirates. (AGFUND Contribution = US$ 72,500).

Funds were also received for funding the following projects which were started in 2004:

► Promoting Healthy Environments for Children in Yemen and Pakistan (AGFUND contribution US$ 100,000)

► Establishing Health and Environment Information Centres in Iraq (AGFUND Contribution US$ 70,000)

Collaboration with UN agencies and other International and Regional Agencies was very successful during this biennium. Both Inter-country and
country activities were implemented jointly with UN Agencies or on behalf of them. The following is a summary of the collaboration activities:

► UNEP/ ROWA contributed about US$ 10,000 to support publishing and printing the proceedings of the water demand conference in both printed as well as electronic format, and US$ 15,000 to co-sponsor the 2nd conference on water demand management which held in Egypt by the end of 2004.

► UNICEF contributed about US$ 35,000 to sponsor a second round of training courses for water and wastewater technicians in Iraq. This was a continuation for the first round of training activities, which were started last biennium. This included Arabization of several training manuals and handbooks. US$ 8,500 was provided to support the establishment of an information center in Baghdad.

► World Bank contributed US$ 120,000 to support a Regional Project on Mainstreaming Healthcare Waste Management in Investment Projects in the Region Common to EMR/MENA Regions.

► The Islamic Development Bank (IDB) contributed US$ 35,000 to sponsor an Inter-country workshop on environmental health impact assessment.

► UNICEF contributed US$ 24,500 to Establish two information centers in Iraq which unfortunately was not completed due to local situation in Iraq.

Several joint activities were implemented in collaboration with WHO/HQ and WHO/EURO; US$ 9,000 was utilized to evaluate the availability of water and wastewater information in three member states. US$ 30,000 was received from WHO/HQ to support the promotion of healthy environments for children in the Region.

CEHA was successful in raising funds for country activities. An international conference was co-sponsored by the Ministry of Regional Municipalities and Rural affairs and Environment of Oman and WHO/CEHA.

Special Studies and Applied Research (SSAR)

CEHA’s special studies and applied research programme (SSAR) is responding to the ever growing need for identification, analyzing, and devising appropriate solutions to environmental health problems. During 2002-2003 CEHA supported special studies on infestation of helminth diseases among the population and comparison of infestation between exposed people and unexposed (Control Area) in six countries namely, Islamic Republic of Iran,
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Iraq, Saudi Arabia, Tunisia, and the Syrian Arab Republic. Another Inter-country study was sponsored to assess the access and availability of water and wastewater information in Morocco, Tunisia, and Syrian Arab Republic. Also a desktop study was sponsored to review and compile a regional wastewater treatment and reuse profile covering Egypt, Jordan, Oman, Morocco, Tunisia, Kuwait, and the Syrian Arab Republic. A pilot study was carried out in Egypt to identify the optimum method for removal or inactivation of strongyloids larvae from reclaimed wastewater. In the field of promotion of indigenous low cost technology, a research was carried out on testing the efficiency of Galool-Asal (Acacia Bork Tree) as disinfectant for polluted water.

**EH Activities during Emergencies**

Because of the Iraq crisis environmental health during emergencies received CEHA’s special attention during 2002/2003. CEHA’s role was expanded and it provided technical, logistical and administrative support before, during and after the invasion of Iraq. Activities covered Iraq and its neighboring countries such as Jordan, Saudi Arabia and the Syrian Arab Republic. During 2002 and in collaboration with UNICEF water quality surveillance and wastewater collection were improved through human resources development. More than 400 engineers and technicians were trained through 16 training courses on subjects such as simplified water testing procedures, water disinfection, wastewater collection and treatment. Several training and learning materials were Arabized and disseminated to the related experts and agencies.

Seven major projects on water quality monitoring and control; sanitary surveys and compilation of environmental health profiles; water disinfection; solar energy; geographical
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information systems and laboratory information management systems were launched in Northern Iraq. Unfortunately and due to the local situation in Iraq these projects could not be completed.

During the war several services were provided to Iraq and its neighboring countries. CEHA provided technical services and advise to Jordan, and the Syrian Arab Republic to help in emergency planning and to improve the environmental health conditions in refugee camps in these countries. The WHO/Iraq staff were evacuated to Jordan and hosted in CEHA premises. Administrative, logistical and telecommunication support was provided to facilitate running the WHO programme in Baghdad through the national staff. Information and guidance was provided to the UN teams and local authorities to help in fighting the cholera epidemics, which occurred after the War.

The WHO team was re-evacuated in September 2003 to Amman and hosted in CEHA premises. Support was provided to 42 professionals who were managing their administrative, logistical and telecommunication services through CEHA facilities.

An action was taken to develop water and hygiene kit to help displaced persons and refugees during the first days of disasters. The kit includes drinking water, hygiene aids and a set of awareness materials on water and hygiene.
Community Water Supply and Sanitation

CEHA programme on community water supply and sanitation during the 2002/2003 biennium was characterized by the following:

► The programme continued to respond to the regional felt needs and priorities, which are:
  ▪ Strengthening the sector monitoring and assessment for improved planning and management;
  ▪ Improving the quality of drinking water supplies through strengthening quality surveillance and monitoring programmes;
  ▪ Identifying effective means for enhancing the quality of intermittent water supplies;
  ▪ Enhancing the security of household water supplies through promoting water demand management and conservation;
  ▪ Extending sanitation and wastewater management services to small communities.
► The programme was largely supported with extra-budgetary resources with little regular budget support.
► The programme provided technical services to EMR countries within the JPRM framework drawing on JPRM funding to support the technical advisory services and training activities.

Environmental Sanitation and Wastewater in Small Communities

Since its modest launch in 2000, the regional initiative on accelerated extension of environmentally sound sanitation and wastewater management services to small communities in EMR countries has expanded with the following products which were achieved during 2002-2003:

► Needs assessment studies and planning exercise conducted in Jordan, Tunisia, Islamic Republic of Iran, and Syrian Arab Republic.
► Two training facilities established at the University of Jordan for Science and Technology and at the University of Teheran to provide continuing education and capacity building services at both national and regional levels.
► A training course handbook on the Design and Management of Wastewater Systems in Small Communities was developed.
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► An information clearinghouse was established to identify relevant information and make accessible to interested audience within the region.

► Training of over 1200 wastewater professionals on small wastewater systems in Islamic Republic of Iran, Syrian Arab Republic, Jordan, Republic of Yemen, Oman, Tunisia, and Morocco.

► Wide recognition of the critical needs and approaches for wastewater management in small communities following implementation of several demonstration projects and training and awareness raising efforts in Islamic Republic of Iran, Republic of Yemen, Morocco and Tunisia.

► Following advocacy efforts at the Seville International Conference on Small Wastewater Systems in the Mediterranean (March 2003), a consortium of researchers from Morocco, Tunisia, Egypt, and Syrian Arab Republic together with European partners from Germany, Italy and Austria obtained three Million Euros grant from the EU to promote efficient, cost effective and environmentally sound wastewater systems in small communities in the Mediterranean countries.

### Enhancing Household Water Security in EMR countries

Despite expansion of piped water supplies to urban and rural areas, household water security in terms of safe quality and sufficient quantity remains a big challenge due to water supply shortages and inefficient management of water supply systems and resources. Aiming at enhancing household water security in the region, the programme strives to:

► Place water demand management and efficient utilization of water at the heart of water resources management processes within the region.

► Assess the status of household water security in some EMR countries to generate evidence on the links between household water security and health in order to develop effective approaches to enhancing household water security.

CEHA and UNEP/ROWA jointly sponsored the first dedicated regional
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CEHA and UNEP/ROWA jointly sponsored the first dedicated regional
conference on water demand management and conservation in October 2001. As a follow up the programme succeeded in mobilizing a multi-agency partnership with UNEP, ESCWA, FAO and UNESCO for the second Regional Conference on Water Demand Management at the end of 2003.

The programme facilitated the flow of information on successful water demand management experiences by documenting the Tunisian, and Moroccan experiences in water demand management and sharing them with other EMR countries. An information clearinghouse on water demand management was also established to facilitate speedy access to information and planning tools.

An expert consultation on household water security was implemented in December 2003 to identify critical needs for evidence and intervention to enhance household water security. The 2004/2005 plan of action will build on the findings of the consultation and will implement its recommendations.
Health Aspects of Wastewater Treatment and Reuse

One of the main objectives in the last biennium was to disseminate and transfer appropriate technology for wastewater treatment and reuse in EMR. In collaboration with the Arab Fund for Economic and Social Development (AFESD) and WHO/EMRO, CEHA sponsored the following activities in the participating member states:

- Six special studies and applied research on detection and enumeration of Nematode Eggs, Infestation of Intestinal Nematodes among the Population,
- Three special studies on Removal of Nematodes;
- 16 national training courses on health aspects of wastewater treatment and reuse;
- Compilation of wastewater treatment and reuse profiles in 11 countries;
- Supply of equipment to strengthen the capacity of laboratories in six countries to analyze nematode eggs in effluent of wastewater treatment plants; and
- Regional Consultation Meeting for Review of National Priorities and Action Plans for Wastewater Reuse and Management, October 2003. The consultation was attended by 33 experts from eleven Arab EM countries and representatives of five international organizations. The meeting highlighted the need for guidance on microbiological quality for wastewater and grey water reuse.

Healthy Environments for Children

The healthy environment for children initiative at CEHA started in 2003 following the Bangkok conference in March 2002. The initiative components were developed and a proposal for action was approved. The Task Force on EMRO Initiative on Healthy Environments for Children was established by the Regional Director in October 2002 and the Informal Consultation on
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Healthy Environments for Children was convened at CEHA in November 2002. The consultation identified regional priority environmental risk factors and outlined broad directions for action. Within CEHA, relevant activities were regrouped and consolidated as a project initiative within the programme with the following achievements:

► Building partnerships and creating popular movements for children through convening national seminars and conferences in Saudi Arabia and Jordan. The Jordan national conference was convened under the Patronage of HM the Queen with the participation of over 200 scientists, senior officials and members from the civic society. Saudi Arabia national seminar drew support from the government, the private sector and the civic society and resulted in establishment of the Ministry of Health initiative on healthy environments for children. Remarkable celebrations marked the occasion of the World Health Day - dedicated to healthy environments for children- in Tunisia, Lebanon, Pakistan, Iran and other countries. In Jordan, a national network on healthy environments for children has been established at the Jordan University of Science and Technology.

► Gathering and dissemination of information on healthy environments for children within EMR countries. The HEC database and information
clearinghouse has been established. Research information and literature is being collected and categorized for increased accessibility.

► Monitoring of indicators on healthy environments for children and assessment of environmental health risk factors is underway. Published research data is being collected and analyzed and incorporated into a numerical database. An assessment of environmental health risk factors and monitoring of indicators on healthy environment for children was planned in Pakistan, Yemen, Oman, Tunisia, and Jordan.

► Funding has been secured for implementing capacity building, education, awareness raising and demonstration projects on healthy environments for children in both Pakistan and Yemen.

**Solid and Hazardous Waste Management**

Solid waste is one of the most pressing environmental problems in the Region. In many countries, particularly in the lower income cities, there are serious shortcomings for collection, transportation and disposal of garbage. Beside this, residents in communities should change their behavior towards handling of solid waste in order to avoid attraction of animals, mosquitoes and rodents to their cities and also to safeguard the aesthetic view of their community environment. Community based solid waste management scheme is a solution for this problem and may play a major role in raising the awareness of local community and in a successful implementation of primary and secondary collection of solid waste.

Cooperation in health care waste management received a lot of attention in many countries of the region particularly in Sudan, Pakistan, Jordan and Morocco. CEHA activities included initiating a joint project with the WHO European Centre for Health and Environment, Rome, for production of a practical information package to assist developing countries in establishing safe procedures and practices for the management of health care waste. The second part was published in 2002. In response to the request of many member states in the Region, CEHA Arabized the first two parts, and is currently Arabizing the WHO Guidelines "Safety Management of Wastes from Health Care Activities".

In the framework of the WHO/CEHA-World Bank joint project entitled mainstreaming healthcare waste management into health investment projects, a draft manual of good practices was developed. This manual was drafted in
Funds were also received from other donors for implementing the following projects, which are currently at different stages of completion:

► Regional Initiative for Improvement of Food Irradiation of Health Training on Food Practices and Imported Food Inspection. It covers Egypt, Jordan, Kuwait, Morocco, Oman, Pakistan, Saudi Arabia, Sudan, Syrian Arab Republic and Tunisia. (AGFUND contribution = US$ 75,000).
► Role of Communities and NGOs in Awareness Raising and Hygiene Education in Health Friendly Management of Solid Waste. It covers Egypt, Lebanon, Morocco, Pakistan, Palestine, Sudan, Syrian Arab Republic, Tunisia and Republic of Yemen. (AGFUND Contribution = US$ 70,000).
► Regional EH Information Network Based on Internet and E-mail. It covers Egypt, Islamic Republic of Iran, Jordan, Kuwait, Lebanon, Oman, Pakistan, Palestine, Saudi Arabia, Sudan, Syrian Arab Republic, United Arab Emirates and Republic of Yemen. (AGFUND Contribution = US$ 79,000).
► Food Safety: Status of Lead Poisoning in EMR countries with Special reference to Children and Mother’s Health. It covers Bahrain, Egypt, Jordan, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia and United Arab Emirates. (AGFUND Contribution = US$ 72,500).

Funds were also received for funding the following projects which were started in 2004:

► Promoting Healthy Environments for Children in Yemen and Pakistan (AGFUND contribution US$ 100,000)
► Establishing Health and Environment Information Centres in Iraq (AGFUND Contribution US$ 70,000)

Collaboration with UN agencies and other International and Regional Agencies was very successful during this biennium. Both Inter-country and
country activities were implemented jointly with UN Agencies or on behalf of them. The following is a summary of the collaboration activities:

► UNEP/ROWA contributed about US$ 10,000 to support publishing and printing the proceedings of the water demand conference in both printed as well as electronic format, and US$ 15,000 to co-sponsor the 2nd conference on water demand management which held in Egypt by the end of 2004.

► UNICEF contributed about US$ 35,000 to sponsor a second round of training courses for water and wastewater technicians in Iraq. This was a continuation for the first round of training activities, which were started last biennium. This included Arabization of several training manuals and handbooks. US$ 8,500 was provided to support the establishment of an information center in Baghdad.

► World Bank contributed US$ 120,000 to support a Regional Project on Mainstreaming Healthcare Waste Management in Investment Projects in the Region Common to EMR/MENA Regions.

► The Islamic Development Bank (IDB) contributed US$ 35,000 to sponsor an Inter-country workshop on environmental health impact assessment.

► UNICEF contributed US$ 24,500 to Establish two information centers in Iraq which unfortunately was not completed due to local situation in Iraq.

Several joint activities were implemented in collaboration with WHO/HQ and WHO/EURO; US$ 9,000 was utilized to evaluate the availability of water and wastewater information in three member states. US$ 30,000 was received from WHO/HQ to support the promotion of healthy environments for children in the Region.

CEHA was successful in raising funds for country activities. An international conference was co-sponsored by the Ministry of Regional Municipalities and Rural affairs and Environment of Oman and WHO/CEHA.

**Special Studies and Applied Research (SSAR)**

CEHA’s special studies and applied research programme (SSAR) is responding to the ever growing need for identification, analyzing, and devising appropriate solutions to environmental health problems. During 2002-2003 CEHA supported special studies on infestation of helminth diseases among the population and comparison of infestation between exposed people and unexposed (Control Area) in six countries namely, Islamic Republic of Iran,
Iraq, Saudi Arabia, Tunisia, and the Syrian Arab Republic. Another Inter-
country study was sponsored to assess the access and availability of water and wastewater
information in Morocco, Tunisia, and Syrian Arab Republic. Also a desktop study was
sponsored to review and compile a regional wastewater treatment and reuse profile covering
Egypt, Jordan, Oman, Morocco, Tunisia, Kuwait, and the Syrian Arab Republic. A pilot
study was carried out in Egypt to identify the optimum method for removal or inactivation of
strongyloids larvae from reclaimed wastewater. In the field of promotion of indigenous low
cost technology, a research was carried out on testing the efficiency of Galool-Asal (Acacia Bork Tree) as disinfectant for polluted water.

**EH Activities during Emergencies**

Because of the Iraq crisis environmental health during emergencies received
CEHA’s special attention during 2002/2003. CEHA’s role was expanded and it provided technical, logistical and administrative support before, during and after the invasion of Iraq. Activities covered Iraq and its neighboring countries such as Jordan, Saudi Arabia and the Syrian Arab Republic. During 2002 and in collaboration with UNICEF water quality surveillance and wastewater collection were improved through human resources development. More than 400 engineers and technicians were trained through 16 training courses on subjects such as simplified water testing procedures, water disinfection, wastewater collection and treatment. Several training and learning materials were Arabized and disseminated to the related experts and agencies.

Seven major projects on water quality monitoring and control; sanitary surveys and compilation of environmental health profiles; water disinfection; solar energy; geographical
information systems and laboratory information management systems were launched in Northern Iraq. Unfortunately and due to the local situation in Iraq these projects could not be completed.

During the war several services were provided to Iraq and its neighboring countries. CEHA provided technical services and advise to Jordan, and the Syrian Arab Republic to help in emergency planning and to improve the environmental health conditions in refugee camps in these countries. The WHO/Iraq staff were evacuated to Jordan and hosted in CEHA premises. Administrative, logistical and telecommunication support was provided to facilitate running the WHO programme in Baghdad through the national staff. Information and guidance was provided to the UN teams and local authorities to help in fighting the cholera epidemics, which occurred after the War.

The WHO team was re-evacuated in September 2003 to Amman and hosted in CEHA premises. Support was provided to 42 professionals who were managing their administrative, logistical and telecommunication services through CEHA facilities.

An action was taken to develop water and hygiene kit to help displaced persons and refugees during the first days of disasters. The kit includes drinking water, hygiene aids and a set of awareness materials on water and hygiene.
Community Water Supply and Sanitation

CEHA programme on community water supply and sanitation during the 2002/2003 biennium was characterized by the following:

► The programme continued to respond to the regional felt needs and priorities, which are:
  ▪ Strengthening the sector monitoring and assessment for improved planning and management;
  ▪ Improving the quality of drinking water supplies through strengthening quality surveillance and monitoring programmes;
  ▪ Identifying effective means for enhancing the quality of intermittent water supplies;
  ▪ Enhancing the security of household water supplies through promoting water demand management and conservation;
  ▪ Extending sanitation and wastewater management services to small communities.

► The programme was largely supported with extra-budgetary resources with little regular budget support.

► The programme provided technical services to EMR countries within the JPRM framework drawing on JPRM funding to support the technical advisory services and training activities.

Environmental Sanitation and Wastewater in Small Communities

Since its modest launch in 2000, the regional initiative on accelerated extension of environmentally sound sanitation and wastewater management services to small communities in EMR countries has expanded with the following products which were achieved during 2002-2003:

► Needs assessment studies and planning exercise conducted in Jordan, Tunisia, Islamic Republic of Iran, and Syrian Arab Republic.
► Two training facilities established at the University of Jordan for Science and Technology and at the University of Teheran to provide continuing education and capacity building services at both national and regional levels.
► A training course handbook on the Design and Management of Wastewater Systems in Small Communities was developed.
► An information clearinghouse was established to identify relevant information and make it accessible to interested audience within the region.

► Training of over 1200 wastewater professionals on small wastewater systems in Islamic Republic of Iran, Syrian Arab Republic, Jordan, Republic of Yemen, Oman, Tunisia, and Morocco.

► Wide recognition of the critical needs and approaches for wastewater management in small communities following implementation of several demonstration projects and training and awareness raising efforts in Islamic Republic of Iran, Republic of Yemen, Morocco and Tunisia.

► Following advocacy efforts at the Seville International Conference on Small Wastewater Systems in the Mediterranean (March 2003), a consortium of researchers from Morocco, Tunisia, Egypt, and Syrian Arab Republic together with European partners from Germany, Italy and Austria obtained three Million Euros grant from the EU to promote efficient, cost effective and environmentally sound wastewater systems in small communities in the Mediterranean countries.

Enhancing Household Water Security in EMR countries

Despite expansion of piped water supplies to urban and rural areas, household water security in terms of safe quality and sufficient quantity remains a big challenge due to water supply shortages and inefficient management of water supply systems and resources. Aiming at enhancing household water security in the region, the programme strives to:

► Place water demand management and efficient utilization of water at the heart of water resources management processes within the region.

► Assess the status of household water security in some EMR countries to generate evidence on the links between household water security and health in order to develop effective approaches to enhancing household water security.

CEHA and UNEP/ROWA jointly sponsored the first dedicated regional
conference on water demand management and conservation in October 2001. As a follow up the programme succeeded in mobilizing a multi-agency partnership with UNEP, ESCWA, FAO and UNESCO for the second Regional Conference on Water Demand Management at the end of 2003.

The programme facilitated the flow of information on successful water demand management experiences by documenting the Tunisian, and Moroccan experiences in water demand management and sharing them with other EMR countries. An information clearinghouse on water demand management was also established to facilitate speedy access to information and planning tools.

An expert consultation on household water security was implemented in December 2003 to identify critical needs for evidence and intervention to enhance household water security. The 2004/2005 plan of action will build on the findings of the consultation and will implement its recommendations.
Health Aspects of Wastewater Treatment and Reuse

One of the main objectives in the last biennium was to disseminate and transfer appropriate technology for wastewater treatment and reuse in EMR. In collaboration with the Arab Fund for Economic and Social Development (AFESD) and WHO/EMRO, CEHA sponsored the following activities in the participating member states:

► Six special studies and applied research on detection and enumeration of Nematode Eggs, Infestation of Intestinal Nematodes among the Population,
► Three special studies on Removal of Nematodes;
► 16 national training courses on health aspects of wastewater treatment and reuse;
► Compilation of wastewater treatment and reuse profiles in 11 countries;
► Supply of equipment to strengthen the capacity of laboratories in six countries to analyze nematode eggs in effluent of wastewater treatment plants; and
► Regional Consultation Meeting for Review of National Priorities and Action Plans for Wastewater Reuse and Management, October 2003. The consultation was attended by 33 experts from eleven Arab EM countries and representatives of five international organizations. The meeting highlighted the need for guidance on microbiological quality for wastewater and grey water reuse.

Healthy Environments for Children

The healthy environment for children initiative at CEHA started in 2003 following the Bangkok conference in March 2002. The initiative components were developed and a proposal for action was approved. The Task Force on EMRO Initiative on Healthy Environments for Children was established by the Regional Director in October 2002 and the Informal Consultation on
Healthy Environments for Children was convened at CEHA in November 2002. The consultation identified regional priority environmental risk factors and outlined broad directions for action. Within CEHA, relevant activities were regrouped and consolidated as a project initiative within the programme with the following achievements:

► Building partnerships and creating popular movements for children through convening national seminars and conferences in Saudi Arabia and Jordan. The Jordan national conference was convened under the Patronage of HM the Queen with the participation of over 200 scientists, senior officials and members from the civic society. Saudi Arabia national seminar drew support from the government, the private sector and the civic society and resulted in establishment of the Ministry of Health initiative on healthy environments for children. Remarkable celebrations marked the occasion of the World Health Day - dedicated to healthy environments for children- in Tunisia, Lebanon, Pakistan, Iran and other countries. In Jordan, a national network on healthy environments for children has been established at the Jordan University of Science and Technology.

► Gathering and dissemination of information on healthy environments for children within EMR countries. The HEC database and information
clearinghouse has been established. Research information and literature is being collected and categorized for increased accessibility.

► Monitoring of indicators on healthy environments for children and assessment of environmental health risk factors is underway. Published research data is being collected and analyzed and incorporated into a numerical database. An assessment of environmental health risk factors and monitoring of indicators on healthy environment for children was planned in Pakistan, Yemen, Oman, Tunisia, and Jordan.

► Funding has been secured for implementing capacity building, education, awareness raising and demonstration projects on healthy environments for children in both Pakistan and Yemen.

### Solid and Hazardous Waste Management

Solid waste is one of the most pressing environmental problems in the Region. In many countries, particularly in the lower income cities, there are serious shortcomings for collection, transportation and disposal of garbage. Beside this, residents in communities should change their behavior towards handling of solid waste in order to avoid attraction of animals, mosquitoes and rodents to their cities and also to safeguard the aesthetic view of their community environment. Community based solid waste management scheme is a solution for this problem and may play a major role in raising the awareness of local community and in a successful implementation of primary and secondary collection of solid waste.

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In the framework of the WHO/CEHA-World Bank joint project entitled mainstreaming healthcare waste management into health investment projects, a draft manual of good practices was developed. This manual was drafted in
view of the findings of technical assessment missions in Morocco and Jordan which were completed during 2002-2003.

A technical assessment mission on solid and hazardous healthcare waste management was implemented in Sudan and a proposal was submitted to the UN inter-agency appeal for 2003 for improving the healthcare waste management situation in the South of Kordofan state.

In Pakistan, AGFUND sponsored WHO/CEHA-Ministry of health forum on healthcare waste management in May 2002. CEHA provided technical assistance to improve the situation of healthcare waste management in some hospitals in Jordan during 2002. Moreover, CEHA took part in many meetings on healthcare waste management in Jordan.

AGFUND and CEHA co-sponsored a pilot project on community based solid waste management scheme in Lebanon. The project was completed in early 2003. Training materials and brochures were produced. Model for community based solid waste management scheme was tested in presence of community target groups such as women, children and traders. Preparatory action to replicate this project in the Republic of Yemen was initiated in late 2003.

**Environmental Health Impact Assessment of Development Projects**

Environmental health impact assessment (EHIA) of development projects is an emerging EH priority in the EMR. Many countries in the region do not have procedures for assessing the impacts of development projects to mitigate or eliminate negative impact on human and environment. On the other hand existing EIAs in some member states do not address health impact assessment in a comprehensive manner.
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A regional project for strengthening national capabilities in the area of EHIA was sponsored by AGFUND and CEHA. In the framework of this project, Jordan, Oman and Tunisia developed procedures for assessing the health impacts of development projects in 2003. These procedures are conducted as an integral part of their existing EIA guidelines.

In 2003, Morocco held a workshop and developed health impact assessment procedures for project proponent and government institutions to help in assessing the health impact of development projects.

The Islamic Development Bank (IDB) continued its support for CEHA activities in this area by sponsoring a multinational workshop on EHIA of development projects, which was held in Bhurban, Pakistan in May 2002.

**Promotion of Food Safety**

Regional projects on HACCP, and lead poisoning in food were sponsored by AGFUND. Implementation of these projects started in 2002 and will continue during 2004-2005.

In 2002, technical missions followed by training courses on HACCP were implemented in both Morocco and Oman. Also, training courses on HACCP were implemented in Lebanon and Syrian Arab Republic. An assessment mission on HACCP and food irradiation was implemented in Tunisia.
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Imported food inspection systems in some countries were assessed and strengthened. Exposure to lead and its health impacts particularly on women and children were introduced to trainees/officials with special emphasis on lead contaminated food and water.

In the area of food irradiation and inspection systems, two training courses were held in Bahrain and Oman. A third workshop for development of food safety profile was held in the United Arab Emirates. Imported food inspection systems were assessed in Jordan and Qatar.

Training courses on lead poisoning were conducted in Bahrain, Saudi Arabia and Oman. In view of the need for standards traditional food in the Region, "guidelines on the generic HACCP system for traditional popular food in the region" were developed, reviewed by national and international experts, and will be presented before finalization to the Regional Codex Alimentarius meeting which will be held in 2005 in Amman, Jordan.

**Environmental Health Awareness Raising**

Document exhibitions parallel to EH activities was a successful approach to raise EH awareness and to promote CEHA and its activities. Several exhibits were organized in Jordan, Oman, and the Syrian Arab Republic. In Oman two major exhibits were organized on the occasion of two international seminars on wastewater treatment and reuse and health care waste management. These exhibits were followed by massive dissemination of information to about 600 professionals and institutions. In Jordan another major exhibit was organized on the occasion of the UN Day 2002. In the Syrian Arab Republic an exhibit was organized on the occasion of a national training course.

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six posters on Food safety, water conservation, healthy environments for children, environmental health and wastewater treatment and reuse. These materials were disseminated to the 23 countries of the Region.

On the occasion of the World Health Day 2003, several activities were spent to raise the awareness about the need for healthy environments for children. CEHA participated in the Regional celebration of this day in Cairo. A web page on this subject was compiled and made available to users in the Region. Support was also provided to several member states to help them in their national celebrations of the World Health Day.

**Information Management and Services**

Provision of electronic information was the main achievement of CEHANET during 2002-2003. CEHA completed the development of its infrastructure and resources and started providing information services through Internet and e-mail. CEHA’s WWW page was upgraded to provide access to the available EH information resources including a library of more than 12,000 documents, more than 45 international journals, 15 commercial bibliographic and full text databases, and the regional databases of institutions and professionals. Dissemination of information via electronic mail proved to be a reliable and cost effective channel. In addition to saving costs of printing and mailing, this service is shortening the response time from weeks into minutes. Electronic information services are being provided to more than 1200 users in the region. Traditional information services continued to be provided to users where access to electronic information is not reliable. More than 7000 documents were disseminated, and about 300 information requests were handled. In addition to these services, information was provided to support several environmental health projects, which are active in member states. Literature was provided to the MOH and other concerned governmental agencies to support their knowledge.
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about wastewater treatment and reuse, sanitary parasitology, medical waste management, drinking water quality, chemical safety, food safety, and low cost sanitation.

Realizing that more concentrated effort is needed to establish an electronic regional EH information network, CEHA was able to raise extra-budgetary resources to launch an electronic information network among 13 member states. AGFUND approved this project and activities started in late 2002. Efforts are being made to raise more funds to cover the rest of the region. Four technical assessment missions were implemented in Egypt, Islamic Republic of Iran, Syrian Arab Republic, Pakistan, and the Republic of Yemen. These missions emphasized the clear lack of access to electronic information tools and resources. More than 60% of professionals do not have access to Internet and E-mail and more than 70% of professionals do not have access to reliable databases. Therefore, CEHA will be focusing on training of EH staff on digital information management tools and on capacity building by developing web sites and provision of supplies and equipment.

CEHANET noticed the serious lack of information resources in Iraq. This lack was complicated by more than twelve years of sanctions and a damaging war. In collaboration with UNICEF a plan was made to establish water and wastewater resource center within the Mayorality of Baghdad to act as networking node among other related agencies. A technical mission was implemented for this purpose; unfortunately plans were stopped because of the tragic situation in Iraq. However, a project proposal was approved by AGFUND to establish two modern information centers to provide information services to all related agencies. Implementation will start as soon as the situation permits.
Training and Learning Materials (TLM)

Production of environmental health training and learning materials (TLM) witnessed a qualitative and quantitative change this biennium. This was a result of extra resources, which were made available by EMRO as well as through collaboration with interested agencies such as the World Bank, UNICEF and UNEP/ROWA. Arabization of EH literature is the main achievement during this biennium, 28 documents were published and disseminated by the end of 2003.

Electronic publishing is another milestone that distinguishes this biennium. Six documents were published using the CEHA web site and are being disseminated through e-mail. CEHA web site is hosting more than 30 full text documents by the end of 2003. Proceedings of the 1st International Conference on Water Demand Management, Conservation and Pollution Control were published, in collaboration with UNEP/ROWA, in printed as well as electronic format. The proceedings are available in printed format and on CD-ROM.

Several other training and learning materials were finalized in English. This is addition to production of six posters and brochures on food safety, wastewater treatment and reuse, and environmental health awareness. The following is a listing and brief description of the documents published in 2002/2003:

Environmental Health

The development of environmental education is gaining momentum as more countries incorporate educational materials into their educational systems. Several regional meetings agreed on the necessity to introduce an environmental health course into their programmes. This core course on environmental health is intended to help countries in introducing health, environment and development in the curricula of university level primer. The lecture notes are organized into eight chapters and cover the different aspects of environmental health.
Basic Environmental Health (مبادئ صحة البيئة)
This is another text book on environmental health intended for university students. The original English version of this document was prepared in collaboration with WHO, UNEP, UNESCO and Council for Rectors of European Universities. The document is organized in 12 chapters covering the different environmental health aspects. The first four chapters introduce the basic environmental health principles and methodologies, chapters 5-7 discuss the technical aspects of basic environmental health parameters, while last chapters focus on relation with sustainable development.

Basic Steps in the Preparation of HCWM Plans for Health Care Establishments
This document provides practical steps for the development of healthcare waste management plans for small, medium and large health care establishments. The approach in this document is the result of continuous collaboration in the area of healthcare waste management with the WHO Regional Office for Europe through the WHO European Centre for Environment and Health (ECEH), Rome Italy. The English version was issued in 2002, and later on it was Arabized in 2004.

Joint WHO/UNEP First Regional Conference on Water Demand Management, Conservation and Pollution Control, Amman, Jordan, 7-10 October 2001
This is the output of a fruitful collaboration with the UNEP’s Regional Office for West Asia documenting the proceedings of a regional Conference which
was held in Amman, Jordan. It includes the report of the meeting and the full text of the 37 presented papers in printed as well as electronic format on CD-ROM.

**Rapid Health Assessment Protocols for Emergencies**

This document was Arabized from its original document which was produced by WHO in 1999 in response to the urgent need for tools to assist concerned agencies which are dealing with disasters and emergencies. The absence of a common, standardized technical tool for damage and needs may result in contradictory information being channeled to national and international humanitarian agencies. Consequently the response may be one of that fails to meet actual needs, aggravating rather than improving the emergency situation. The document was Arabized to fill in this gap, it brings together in one volume 10 protocols designed to help those involved in the rapid assessment determine the immediate and potential health impact of a broad range of emergencies and assist in planning appropriate responses.
Toolkits for Private Participation in Water and Sanitation
These toolkits were Arabized in collaboration with the World Bank. They consist of three parts: Selecting an option for private sector participation; Designing and implementing an option for private sector participation; and what a private sector arrangement should cover. The toolkits were prepared to transmit the experience gained so far and the lessons this experience offers on what can make or break a private sector participation process. The toolkits are meant to support, not substitute for, independent advice by experienced professional firms.

Tools for Assessing O & M Status of Water Supply and Sanitation in Developing Countries
This document was Arabized from its original document which was produced by WHO in 2000. Nine tools are described in this document. These tools can be used to measure and evaluate the effectiveness of operations and maintenance of water supply and sanitation services. Performance is measured using carefully selected indicators to assess the status of O&M and to highlight successes and failures. Managers can use the information on performance to help them formulate policy and implement plans which are relevant to the problems that have been exposed, and conversely to avoid unnecessary actions.
CEHA Activities and Achievements During the Biennium 2002-2003

O & M of Rural Water Supplies and Sanitation: A Training Package for Planners and Managers.

This document was Arabized from its original document which was produced by WHO in 2000. This document and the training activities described in it are intended for managers and planners who are concerned with the challenging problem of how to implement effective operation and maintenance of rural water supply and sanitation services in developing countries. In addition to the traditional management aspects of operation and maintenance, this training package highlights the importance of community participation, with a right gender balance, in order to make more efficient use of local human resources for sustainability.

Reuse of Wastewater in Agriculture: A Guide for Planners

These guidelines were Arabized in collaboration with the World Bank. They integrate the WHO guidelines for the reuse of wastewater and the FAO water quality guidelines for irrigation. The report summarizes relevant agronomic information including potential benefits of wastewater reuse and its environmental implications. The guidelines suggest consideration of land application as a disposal option even where no urgent need for additional sources of irrigation water exists.
Teacher’s Guide: Management of Wastes from Healthcare Activities

This guide was Arabized from its original English which was published by WHO in 1998. The teacher's guide accompanies the WHO publication management of wastes from health-care activities. It provides teaching material and recommendations for a three day training course, designed mainly for managers of health-care establishments, public health professionals and policy makers.

Water Distribution Operator Training Handbook

This document was Arabized in collaboration with the American Water Works Association. It comprises a comprehensive text for water distribution operator training. It is excellent as a day-to-day reference and certification study text. Chapter topics include: Water resources; Water Production; Storage; Distribution; Public health; Chlorine handling; Utility safety; System hydraulics; Pipe types, installation, and maintenance; Meters, pumps, and motors; Public relations; and Overall system operations.
This guide was published in Arabic by CEHA in collaboration with Royal Scientific Society, Jordan. The English version is planned for publication before the end of 2004. This guide is intended as a comprehensive guide for the sanitary parasitology: physical, chemical and biological factors influencing the fate of helminth eggs; occurrence and survival in raw wastewater and sludge; helminth eggs indicator; guidelines; methods; viability, monitoring and compliance with guidelines and regulations. The objective of this guide is to provide both an introduction to the material required for the identification of helminthes found in wastewater and working instructions for the methods for the enumeration of parasitic helminthes in wastewater, effluents and sludge.

Guidelines for Evaluation of Environmental Health Services
This document was Arabized from its original English which was published by the WHO European Regional Office in 1999. It aims providing a practical introduction for environmental health professionals and managers to evaluate their services. The first task is to review the most critical components and aim of an evaluation, to see how these relate to the overall framework of environmental health service management. The book is designed to guide practitioners towards questions that must be answered to evaluate and improve services. With this in mind, references and suggestions for further reading appear at the end of each chapter, and key recommendations are presented in boxes throughout the text.
This package was published in Arabic by CEHA in collaboration with the WHO Representative Office in Lebanon and local Lebanese partners. It consists of a training manual and 13 training aids promoting community participation as an effective tool for healthy solid waste management. The training manual was written in a simple language to be used by local trainers (community leaders and health educators). The package provides the trainer with 13 exercises supported by posters to facilitate the training process.