

CEHANET regional environmental health information network for improving access to water supply and sanitation in the Eastern Mediterranean Region

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Summary

CEHANET experience in improving the access to community water supply and sanitation literature in the EMR is presented focusing on its achievements and main constraints and difficulties that are obstructing the flow of information. Achievements could not have been achieved without the strong collaboration and coordination efforts between national and international water related agencies. Constraints and obstacles are, more or less, the same that are facing information exchange activities in developing countries. However, the problem is being magnified by additional language constraints and barriers, poor networking and communication at the national levels, and lack of awareness of the importance of information in supporting decision-making. CEHANET plans and activities to overcome these constraints can be categorized in two categories, first is provision of reliable technical information, and second is strengthening the national information exchange capacity and networking. The article also provides brief description of CEHA's efforts in monitoring the water supply and sanitation sections. The article was concluded by some lessons that have been learned by CEHANET throughout its experience in the Region.

1. Introduction

The Regional Centre for Environmental Health Activities (CEHA) was established by the World Health Organization's Regional Office for the Eastern Mediterranean in Amman, Jordan in 1985. The main purpose of the centre is to provide scientific and technical cooperation to the 23 countries of the Eastern Mediterranean Region (EMR) for promoting their EH capabilities and programmes. Although CEHA's scope is the wide environmental health spectrum, major focus is being put on community water and sanitation issues as the main priority in the Region. This is a result of the critical water scarcity being faced by most of the countries of the Region. Water scarcity is not new to the Region; and it was declared through regional and international meetings and conferences. Recently, ministers of health, water, environment and development in the region reemphasized the need to put water on top of the environmental concerns in the region (WHO/EMRO, 1996). The same was reflected in the plans of action for health and environment in the EMR for the coming 8-10 years (WHO/EMRO, 1997). CEHANET response to such priorities was reflected in that more than 70% of the information flowing into its branches is related to water. Therefore, one can easily claim that CEHANET is acting as a regional water information network.

2. Lack of access to water information in the EMR

Only 6% of water professionals in the EMR think that they have proper access to water information. This was the result of a survey, which had been conducted in the EMR in 1987 (Al-Shorbaji, N., 1992). Unfortunately, it seems that such lack of access still exists in most of the countries of the region (WHO/EMRO, 1996). Although, recent surveys were not conducted on this regard, several researchers from the region are reflecting that lack of proper access to information on one hand and reliability of the available information on the other hand is one of the main obstacles being faced in their research work (Naff, T. 1999), (Wolf, A., et. al. 1995), (Hamdy, A. et. al, 1995), (Sahay, S., Walsham, G., 1995), (Chaudhry, A., 1993).

Lack of access to reliable water information in the EMR is not quantified yet. Therefore, its impact on the overall water related sectors is very difficult to predict. However, the following analysis of the “2001 Sustainability Index Report” will help in imagining the size and the impact of information poverty on the sustainable development in the EMR.

The Environmental Sustainability Index (ESI) is a measure of the overall progress towards environmental sustainability developed for all the countries of the world. The ESI scores are based upon a set of 22 core indicators, each of which combines two to six variables for a total of 67 underlying variables. The indicators and variables were chosen through careful review of the environmental literature and available data combined with extensive consultation and analysis. Although, the index is designed to measure the overall environmental sustainability development, it is good to measure the performance of the water and wastewater sectors. 14 out of the 67 variables are water and wastewater related. On the other hand, it is one of the rare methodologies that link access and availability of information to the performance of the sector. Among the chosen indicators the following variables are of great importance to help in quantifying the lack of access to environmental information:

Indicators	Variables
Science and Technology	Research and Development Scientist and Engineers per million Population Expenditure for Research and Development as a percentage of GNP Scientific and Technical Articles per Million Population
Capacity to Debate	Civil and Political Liberties
Environmental Information	Availability of Sustainable Development Information at the National Level Environmental Strategies and Action Plans Number of ESI Variables Missing from the selected data sets

This exercise resulted in the following interesting results:

- Economic conditions affect, but do not determine, environmental conditions. Comparisons of the ESI with measures of economic performance (such as GNP) suggest that the decisions of how vigorously to pursue environmental sustainability and how vigorously to pursue economic growth are in fact two separate choices.
- Serious gaps in information availability limit the ability to measure environmental sustainability and precluded the analysis of nearly 100 nations (of which are 11 in the Eastern Mediterranean Region). Filling these gaps should be a policy priority at the local, national and international scales.
- Access to environmental information was one of the most correlated indicators to sustainable development.
- Only 12 EMR countries were qualified (based on availability of information) to be included in the process. This by itself could be a good indication about the size of the problem in the Region. The ranking of the twelve countries (Egypt, Islamic Republic of Iran, Jordan, Kuwait, Lebanon, Libyan Arab Jamahyria, Morocco, Pakistan, Saudi Arabia, Sudan, Syrian Arab Republic, and Tunisia) ranges from 76 to 121 out of 122 countries. This is a very clear lacking situation.

Tables 1 and 2 summarize the values of environmental information indicators in the 12 EMR countries in comparison to the rest of the world. Lack is very clear. As clear from, mid income EMR countries are performing better than rich countries.

Different reasons are behind such serious lack of access to information. Most of these reasons are similar to the traditional barriers that are facing information exchange and management in developing countries including lack of financial and skilled human resources, poor infrastructure, and lack of awareness of the importance of information and its link to socio-economic development (Sahay, S., Walsham, G., 1995). In the region, Lack of financial resources and foreign reserves is still the main reason. Practically speaking, in most of the water related agencies in the Region, very small budgets are being allocated for information exchange and management. These agencies are completely relying on free of charge information coming from regional and international organizations. Even in rich countries, lack of

Tables 1. Variable at the global level

Variable	Code	Minimum	Maximum	Median
Research and Development: Scientists and Engineers per Million Population	RDPERS	3	4909	663.5
Expenditure for Research & Development as a Percentage of GNP	RDEXP	0.01	3.76	0.64
Scientific and Technical Articles per Million Population	ARTPOP	1.84	395.6	109.36
Availability of Sustainable Information at the National Level	SDIINF	1.50	4.00	2.57
Environmental Strategies and Action Plans	PLANS	0	7	2
Number of ESI Variables Missing from a Subset of All Variables	ESIMIS	0	18	12

Source: YCELP, 2001

Table 2. ESI variables in twelve Eastern Mediterranean Region countries

Country	RDPERS	RDEXP	ARTPOP	SDIINF	PLANS	ESIMIS
Egypt	459	0.22	14.32	2.71	4	8
Iran, Islamic Republic of	560	0.48	–	–	1	9
Jordan	94	0.26	–	–	1	10
Kuwait	230	0.16	–	–	0	17
Lebanon	–	–	–	2.29	0	17
Libyan Arab Jamahiriya	362	0.22	–	–	0	16
Morocco	–	–	–	–	1	12
Pakistan	72	0.92	–	–	4	9
Saudi Arabia	–	–	–	–	0	18
Sudan	No Data	–	–	–	0	13
Syrian Arab Republic	30	0.20	–	2.00	0	14
Tunisia	125	0.30	–	2.14	2	12

Source: YCELP, 2001

awareness of the role of information in developing the sector is resulting in poor water information budgets. Lack of financial resources is accompanied usually by lack of trained and skilled human resources. Relatively speaking, information infrastructure is good in most of the countries of the region. Modern telecommunication channels already exist. However, the problem is the poor utilization of such important channels by the water sector. Some way or another, this is related to the availability of financial resources and awareness within the water sector. The above reasons are natural results of the lack of awareness of the importance of information in decision-making and its link with socio-economic development. Fortunately, this lack of awareness is decreasing noticeably in the region, leaving lack of resources and poor infrastructure as the main reasons behind the poor access to water information.

In addition to the above traditional barriers there are some local ones in the region. First of these barriers is language. Most of the available information resources are available in English, while end users (other than senior officials and decision makers) are facing language problems. The problem is even worse in some of the countries of the region where users prefer to retrieve information in French or even in local languages such as Arabic, Urdu, and Persian. Unfortunately, the problem is being magnified by the lack of information management tools (including computer software), which is essential for processing information. Poor networking within the water sector, is another local barrier that is seriously affecting the flow of water information to the end users. During the last three decades, most the efforts were focused on

meeting the agricultural, domestic and industrial water demands. These efforts were done by several governmental institutions (in most of the cases) with no clear water policies (Jayyousi, O. and Shatnawi, M. 1995). Ministries of water, agriculture, health, industry, power, energy, electricity, natural resources, planning, public works, etc. were involved in such huge development efforts. Unfortunately, networking and coordination among all these agencies was poor in most of the countries of the region which result in producers as well as users of water information setting in isolated islands within the same country. However, during the last couple of years, some of the EMR countries started to reform the water sector in such a manner that guarantees better coordination, collaboration and information exchange.

3. CEHANET approaches to improve the access to water information

In order to improve the access to water information, CEHANET followed two main approaches. First, building a regional water information centre and launching several information exchange services. Second, strengthening national water information exchange and networking capacity.

A modern regional water information centre is being operated by CEHA. This centre includes several reliable water information resources including more than 10,000 documents (database is available on-line <http://www.emro.who.int/HIS/VHSL/Cehalib.htm>), 32 national and international journals since 1987 (Database of articles available at CEHA library is available on-line <http://www.emro.who.int/HIS/VHSL/Cehaart.htm>), 12 bibliographic and full text databases on CD-ROM, more than 1,000 training and learning materials, and a regional environmental health bibliography of more than 10,000 abstracts (<http://www.emro.who.int/HIS/VHSL/RegBib.htm>). Several free of charge information services are being offered to about 3000 water related institutions and professionals. These services include, an on-line news servicer, current awareness services, document delivery services, reference services, and selected dissemination of information services. All available communication channels are being used to deliver information including the traditional mail and fax services and the modern Internet and e-mail tools. These services are mainly sponsored by WHO and some regional donor agencies such as the Arab Gulf Programme for the UN development Organizations (AGFUND) and the Islamic development Bank (IDB). High cost of information services is the main obstacle being faced by CEHA. Efforts to share costs with end users or any other cost recovery attempts has been faced by the lack of financial resources at the national level. Two approaches are being followed to handle this problem. First by looking into more cost effective dissemination channels such as Internet and e-mail and it is planned to convert all the above services into electronic ones through CEHA www site <http://www.emro.who.int/ceha> and through e-mail. The second approach is continuing collaborating with donor agencies to sponsor such vital service.

Converting CEHA's information centre into a virtual one is receiving great attention. All the available resources are being digitized and made available through the Web, information is being channeled through e-mail instead of the traditional mail carriers, and several e-mail discussion groups and listing services are being launched. Specialized clearinghouses on water demand management and sanitation in small communities are under construction and will be launched in the near future. Collaboration with other information providers at global and regional levels is proving to be a good tool for improving access to information. CEHA is acting now as the Regional node for the Sanitation Connection. Several links and documents are being made available through this network. Arabization of this portal is being discussed with other partners.

Strengthening the national water information exchange and networking capacity is another approach that is being followed since 1988. Efforts include human resources development, development of information processing and management tools, promoting national and regional networking activities, and limited capacity building. More than 120 water information specialists were trained on standard information processing and management with clear focus on modern information tools. Training was done at national and regional levels. Those 120 experts are acting as focal points from information collection and dissemination in the Region. During the last three years focus was put on providing water information specialists with an annual opportunity for extended training on modern information tools and channels. Such activity is being done in collaboration with some international and regional donors. Development and promotion of standard information tools is one of CEHANET achievements in the Region. These tools are: English/ Arabic Interwater Thesaurus (in collaboration with IRC and Shoman Foundation); Classification

Scheme; Subject Analysis Handbook (Arabic and English), CEHANET Procedures manual (Arabic and English), and Training course material on information services and networking.

Establishment/strengthening of modern documentation centers is another achievement that CEHANET is proud of. A modern documentation unit was established in the Republic of Yemen in collaboration with Environment Protection Council, Sana'a, Yemen and the Government of the Netherlands. This centre is now offering reliable information services to end users, offering training and problem solving opportunities for local partners in Yemen, and operating a national network among all the governmental and non-governmental water related sectors. Similar centers were established in Gaza strip and West Bank. Two other centers are being established in Lebanon and Iraq.

CEHANET efforts in promoting regional and national networking are continuing since 1988. A regional EH bibliography contains now about 10,000 abstracts, of which more than 8,000 are related to water issues in the 23 countries of the region. (<http://www.emro.who.int/HIS/VHSL/Regbib.htm>). Links were established with more than 200 water related institutes and about 2000 professionals in the region. Several thematic regional networks were established including water quality, wastewater treatment and reuse, decentralized wastewater management, water resources management, etc.

4. Other water information related activities

It is clear from the above description that CEHANET activities are targeting improving the access to the literature part of the water information. Numerical water data and indicators is another important concern to CEHA. Focus was put on the first part believing that it is prerequisite to the second part. However, CEHA in collaboration with other international partners such as UNEP/ ROWA, GEMS/ Water, UNESCO and UNICEF implemented several activities regarding collection, processing and management of water data. CEHA is participating actively with UNEP in the compilation of the Global Environment Outlook (GEO), which includes a section on the Region. Input was made to the preparation of GEO 1 and GEO 2. CEHA participated also in the compilation of the "Global Water Supply and Sanitation Assessment 2000 Report". It is not intended here to evaluate the situation in the region, but it is worth mentioning some of the general comments and observation resulting from CEHA activities during the last decade. Access to water related data is much more weaker than the access to literature. In fact it is not just access, but absence of such data in some cases, reliability in some cases, and fragmentation and incompleteness in other cases. Sensitivity of water related data, due to local and regional problems, is another main constraint. Focus on collecting national figures during the last two decades is another problem. Whenever data exists, it is limited to the overall situation ignoring the local differences at the level of country. For example, knowing that water supply coverage in a certain country is acceptable does not reflect that actual situation that some of the provinces of that country are still do not have adequate access to water.

CEHA is the regional focal point for the Global Environmental Monitoring System on Water (GEMS/ Water). Several activities were conducted in the region to promote systematic and comprehensive collection of water related data. GEMS/ Water operational guide was Arabized by CEHA and disseminated to end users in the Arab countries.

CEHA in collaboration with AGFUND are implementing a regional project on monitoring water and sanitation in the region. Set of regional and national indicators were compiled in a form of water and sanitation profile. Participating countries were offered with the necessary tools to collect information at the local level and aggregate such data to compile national figures. It is expected that some of these profiles will be ready by end of 2000. The first outcome of this initiative is as expected, there is a huge work to be done before claiming that water related data is available and accessible in most of the countries of the region.

5. Lessons learned in the Eastern Mediterranean Region

Lack of financial resources is a main constraint and it will continue to be so for the coming years. Cost recovery attempts have failed so far in covering the real costs involved in generation, processing, management and exchange of water information. This is due budget constraints within the water sector, and lack of awareness among decision makers within the water sector itself and within donor agencies. Cost sharing and funding water information activities seems to be a more feasible approach to overcome

financial constraints. Donors usually do not prefer to sponsor pure information projects, this can be handled by incorporating information components in large projects being proposed for funding.

Most of the water information activities are targeted at water information specialists who are aware of the constraints and problems. Involving decision makers in such activities proved to add to the opportunities of success of water information activities, particularly, allocation of the needed financial resources and support.

Centralization of collection of water related information is an expensive approach, and usually end users at the local levels do not appreciate its value. One of the alternative approaches, which proved to have more chance of success, is collection and use of information at the local level. End users will help in collecting the needed data as it will help them in managing their own duties.

6. References

World Health Organization/ Regional Office for the Eastern Mediterranean/ Regional Centre for Environmental Health Activities (WHO/EMRO/CEHA). *Beirut Declaration on Action for a Healthy Environment: Second Conference on Health, Environment and Development, 14-17 November 1995*, WHO/EMRO/ CEHA, Amman, Jordan, 1996.

World Health Organization/ Regional Office for the Eastern Mediterranean (WHO/EMRO). *Plan of Action for Health and Environment in the Eastern Mediterranean Region*. WHO/ EMRO, Alexandria, Egypt. 1997.

World Health Organization/ Regional Office for the Eastern Mediterranean (WHO/EMRO). *Protection of the Environment: Third Evaluation of the Strategy of Health for All by the Year 2000*. WHO/ EMRO, Alexandria, Egypt. 1997.

Yale Centre for Environmental Law and Policy (YCEIP), Yale University; Centre for International Earth Science Information Network (CIESIN), Columbia University. *2001 Environmental Sustainability Index: An Initiative of the Global Leaders of Tomorrow Environment Task Force, World Economic Forum, Annual Meeting 200, Davos, Switzerland*. 2001. New Haven, Yale Centre for Environmental Law and Policy.

Al-Shorbaji, N. Environmental Health Information Network (CEHANET). *International Journal of Water Resources Development*. 1992, Volume 8, Number 3, pp. 156-165.

Naff, T. Information, Water, and Conflicts: exploring the Linkages in the Middle East. *Water International*, 1999, Volume 22, Number 1, pp. 16-28

Hamdy, A. et. al. Water Resources Management in the Mediterranean Basin. *International Journal of Water Resources Development*. 1995. Volume 11, Number 4, pp. 515-526.

Wolf, A. et. al. Techno-political Decision Making for Water Resources Development: The Jordan River Watershed. *International Journal of Water Resources Development*. 1995, Volume 11, Number 2, pp. 147-184.

Sahay, A., Walsham, G. Information in Developing Countries: A Need for Theory Building. *Information Technology for Development*. 1995, Volume 6, pp. 111-124.

Chawdhry, A. Information Policies in Saudi Arabia and Malaysia. *Information Development*. 1993, Volume 9, Number 4, pp. 228-234.

Jayyousi, O. and Shatnawy, M. An Analysis of Future Water Policies in Jordan using Decision Support Systems. *International Journal of Water Resources Development*. 1995, Volume 11, Number 3, pp. 315-330.