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Workshop on Energy and Environment Statistics

Amman, Jordan 8-12 September 2013

Session 1:
Environment and Energy: Conceptual and Policy Issues

GEO5

The West Asia region

West Asia is geographically grouped into two sub-regions:

The Arabian Peninsula, including Yemen and the Gulf Cooperation Council (GCC) countries of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates; and

The Mashriq, which includes Iraq, Jordan, Lebanon, the Occupied Palestinian Territories (OPT) and Syria.

Environmental Challenges

The region faces major environmental challenges in the need to address:

- **Water scarcity**
- **Land degradation and desertification**
- **Increasing fossil fuel-based energy production and use**
- **Conservation and sustainable use of marine and coastal resources.**

Climate change is becoming one of the region's main problems with potentially adverse impacts on the economy and human-well being.

Water availability is projected to drop in most of the region by 2050, mainly due to rising temperatures and decreased precipitation. Much of the coast is vulnerable to sea level rise, which threatens large areas with inundation and saltwater intrusion.

Drivers of Environmental Change

The drivers of environmental change in the region are linked to peace and security, demography and the state of the economy:

- International desire to secure valuable energy resources and disputes including current political conflict are playing a major role in the ongoing environmental degradation in the region. Environmental damage is escalating and the number of displaced people increasing, straining the environment and contributing to degradation of land and water resources.

- The rapid development of the past 30 years has been the main driver of continued degradation of the environment in West Asia. In spite of progress achieved to meet the MDGs, more effort is needed. Governments of the region are dealing with these challenges by creating suitable conditions and empowered communities, with national environmental policies having been developed in all West Asian countries.

Environmental Policies

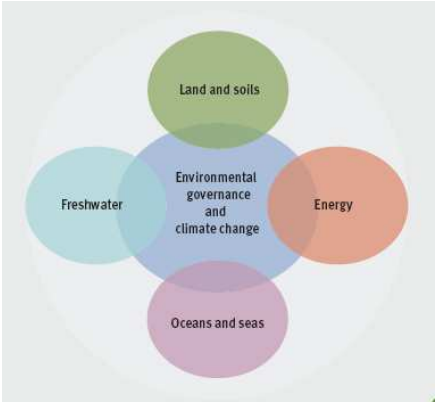
Environmental institutions have been accorded high priority and status in all countries of West Asia, and a range of institutions have been established to implement policies, enforce laws and set standards and norms.

- However, these policies remain sectoral in nature and participation of major public groups in environmental governance remains weak. There is no clear policy for the integration of these groups in the environmental governance process at either national or regional levels.

- The environmental policies of West Asian countries rely mainly on command-and-control mechanisms rather than on economic instruments, though there have recently been various initiatives to use market-based instruments to offer incentives and change behaviour.

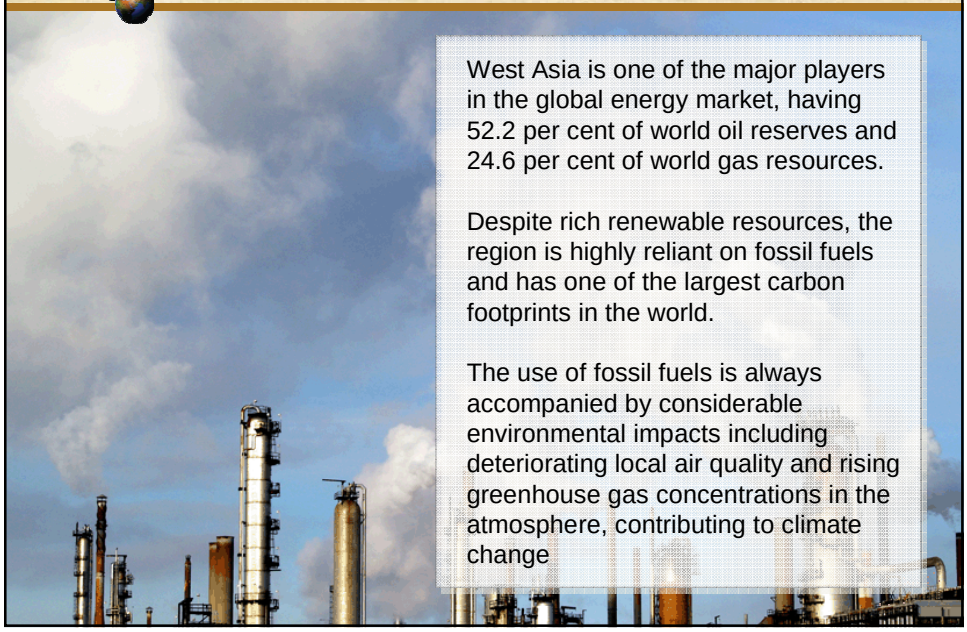
Priorities for action in West Asia

Through a consultative process, the four most pressing environmental challenges identified in West Asia are: **freshwater; soil, land use, land degradation and desertification; energy; and oceans and seas.**



Policies and policy considerations relating to the cross-cutting issues of environmental governance and climate change have been incorporated into the four priority areas:

Energy



West Asia is one of the major players in the global energy market, having 52.2 per cent of world oil reserves and 24.6 per cent of world gas resources.

Despite rich renewable resources, the region is highly reliant on fossil fuels and has one of the largest carbon footprints in the world.

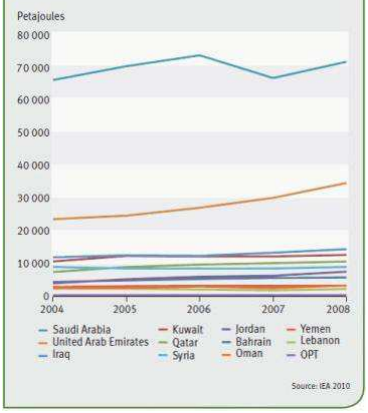
The use of fossil fuels is always accompanied by considerable environmental impacts including deteriorating local air quality and rising greenhouse gas concentrations in the atmosphere, contributing to climate change

Energy Resources in West Asia

- With accelerating rates of development and rapid urbanization in the majority of the region, energy demand is now increasing drastically in all sectors, including electric power production, domestic energy use and transport.

- In view of energy security and safety issues, the sharp increase in oil and gas prices, climate change and environmental considerations, as well as technological advances, energy planning in several countries is now addressing more decentralized energy generation options.

Figure 14.3. Primary energy consumption in West Asia, 2004–2008

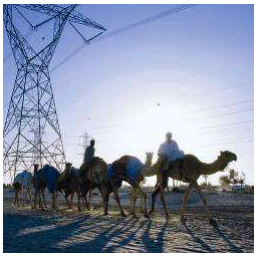


The region is characterized by rich renewable resources including solar, wind, geothermal and, to some extent, biomass

Over the past decade there has been a shift in policies towards diversification of energy sources, with energy efficiency and renewable technologies high on national policy agendas:

Renewable energy targets for selected countries	
Jordan	Wind: 600–1 000 megawatts; solar photovoltaics: 300–600 megawatts; waste-to-energy: 20–50 megawatts
Kuwait	Renewable capacity: 5% by 2020
United Arab Emirates (Abu Dhabi)	Electricity generating capacity: 7% by 2020
Lebanon	Renewable capacity: 12% by 2020
Occupied Palestinian Territories	Renewable capacity: 20% by 2020

Energy policies for WA



- Building and systems energy performance
- Promoting renewable energy resources
- Diversifying energy supply options

Energy for WA

Indicators for measuring the progress of the selected energy policies are:

- Energy savings in percentage terms or cost terms, reduced air conditioning system sizes and impacts on local markets.
- Total surface area of solar water heaters installed (market penetration).
- Diversification of energy sources as part of countries' plans, and renewable energy capacity as a proportion of total capacity.

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- These policies may have high potential for replication in countries with similar climate or socio-economic characteristics and similar regulations to those of West Asia.
- Regional policy interventions for improving buildings' energy performance and implementing renewable energy enhancements are directly linked to policy formulation regarding population growth, urbanization, and associated economic activities and technological affordability.
- Further policies of equal importance, but have only recently been formulated, address public transport, car fleet age and codes for fuel use.

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Energy Conservation in buildings in Kuwait

The Ministry of Energy in Kuwait launched an energy code for buildings in 1983, saving the country billions of dollars over the past 20 years.

Building and systems energy performance

Energy efficiency in the building sector has been a primary national target for West Asian countries

- Thermal guidelines and codes for buildings have been developed and implemented in most of the region and have been successful in reducing electricity consumption.

- By adopting green building technique for roofs, walls and floors that provide high insulation and air tightness, energy savings of 30 per cent and higher have been achieved in Bahrain, Jordan and Kuwait.

- Higher capital costs, the need for short and long-term planning and low skill levels are among the barriers hampering the implementation of other green building codes in West Asia. Nonetheless, the market is open for transfer of green designs and services for buildings.

Promoting renewable energy resources

By enhancing solar water heating, Jordan aims to increase its share of energy from renewable sources to around 7%by 2015 and 10%by 2020, equivalent to 200-600 megawatts of solar energy .

Syria has made the installation of solar water-heating systems mandatory for new buildings.

Solar technologies

- Some West Asian countries have adopted policies to promote the use of solar technologies including solar water heaters, taking advantage of the area's abundance of natural solar energy.

- These policies particularly address the needs of remote and rural populations with only an unreliable supply of conventional energy or none at all.

Barriers to the widespread use of solar water-heating systems include:

- Fossil fuel or electrical energy subsidies
- Lack of financing schemes and incentive programmes low levels of public awareness
- Limited distribution
- Lack of qualified technicians

Governments can develop the market by establishing energy standards and labeling programmes, regulatory instruments to mandate installation in new residential and commercial buildings and financing schemes.

Strengthening the legislative and institutional framework is indispensable in the diffusion of green energy technologies.

- To overcome the barrier of high up-front costs, governments can provide financial incentives, as in Jordan, Lebanon and Syria, and/or make concessional funding available to consumers.

- In addition, marketing campaigns that educate the public about the economic and environmental benefits of renewable energy are vital.

- All these need to be complemented by building local capacity through training and education programmes.

Diversifying energy supply options

Emerging technologies are expected to accelerate diversification of energy supply options for the region, which has a proven abundance of renewable energy resources, especially solar and wind.

Diversifying energy supply options

- Oil-importing countries such as Jordan and Lebanon have already adopted polices to diversify their fuel mix by using renewable energy technologies. The same policies are at the early stages of development in the oil-rich countries of the GCC.

- A diversified energy supply enables oil-importing countries to secure their supply, avoid the volatility of the global oil market, reduce dependence on imports, and minimize burdens on the state budget.

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Diversifying energy supply options

A number of barriers often put renewable energy solutions at an economic, regulatory or institutional disadvantage. These include:

- Lack of or weak legal and institutional frameworks
- Slow and incomplete market-liberalization processes
- Poor capacity for managing and disseminating information about the opportunities provided by renewable energy technologies
- Low levels of consumer awareness leading to low demand
- Lack of national standards
- Testing and certification schemes
- Weak capacity in local assembly and manufacturing
- Distribution
- Installation and maintenance
- A lack of proper financing schemes together with heavily subsidized prices for oil and gas.

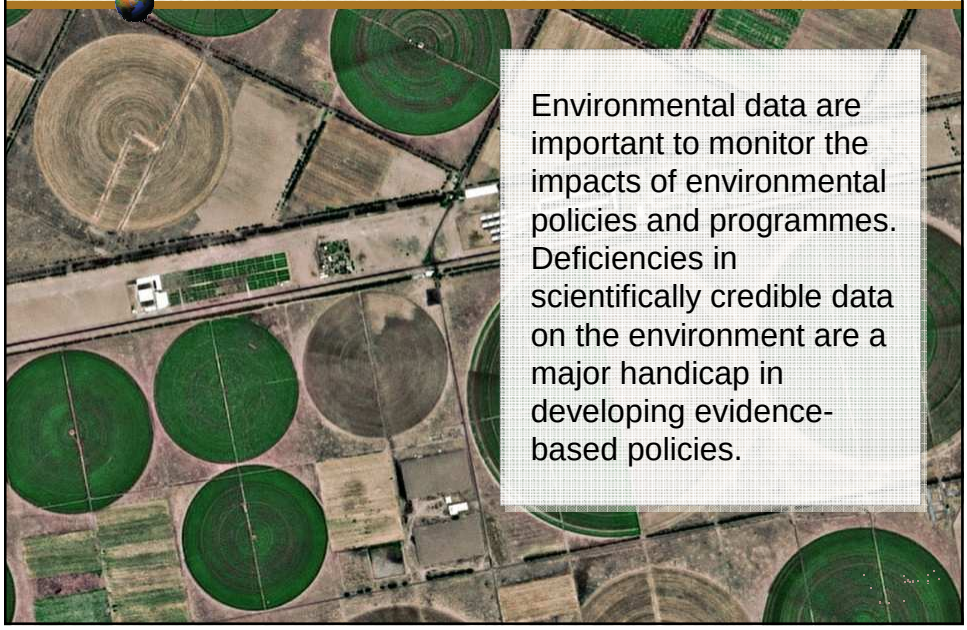
Diversifying energy supply options

Diversification of the energy supply has high potential for replication in the region. Several countries have already started to develop national energy strategies that include this policy.

- Governments have a central role to play in setting and developing national energy strategies and master plans. Public-private partnerships are vital for achieving renewable energy objectives, as private-sector investment is often necessary to overcome shortages of capital needed for expanding energy systems.

- Governments need to develop an enabling environment conducive to private-sector participation. Reforming the energy sector, allowing independent power producers to enter the market, and formulating regulatory mechanisms to secure fair market competition would be major steps to achieving this.

Environmental Data & Information in West Asia



Environmental data are important to monitor the impacts of environmental policies and programmes. Deficiencies in scientifically credible data on the environment are a major handicap in developing evidence-based policies.

Analysis of current situation

Environmental information systems in West Asia have achieved very different levels of sophistication and coverage.

- There are many programmes, projects and initiatives related to environmental databases in countries of West Asia, completed, on-going or prospective. They involve very diverse institutions from government agencies, to private research institutions and organizations.

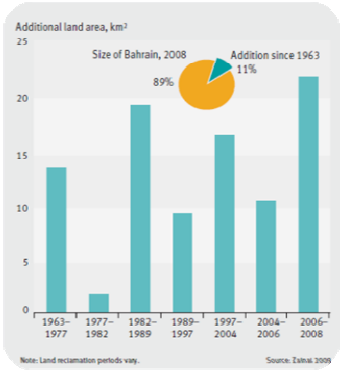
- Environmental data and information cover a wide range of sectors and subjects. Many subjects are common to many countries (e.g. biodiversity, air pollution) but several are country-specific (energy production in GCC countries, impact of sea level on low lying countries like Bahrain)

Analysis of current situation

- In many countries of the region, official statistics on the environment are rarely generated, difficult to access and scattered among different institutions, and reporting is fragmented

- Furthermore, data being collected are not necessarily the right data needed for environment policy and decision making.

- Major thematic gaps and priorities include data on land salinization, coastal and marine pollution, disasters, waste management and transport.

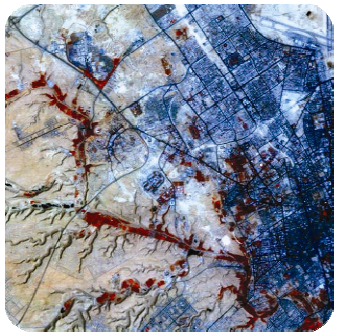


Analysis of current situation

Environmental data and information systems in the region do not meet the current and future needs to support decision making and policy formulation.

- Although significant progress has been made in the region in the development of environmental data and information systems, not all of the programmes and initiatives achieved their intended goals. Too many grind to a halt when funding ends, typically after a couple of years.

- A more coherent and integrated regional to national approach needs to be put in place to make progress on this front.



State of Environment Reporting

Despite a remarkable growth in the availability of environmental data, many countries in West Asia have yet to produce their State of the Environment Report (SOER) in a systematic manner.

- To encourage and promote environmental reporting, UNEP is providing regional and national training on integrated environmental assessment and state of environment reporting.

- SOE Live is a project UNEP and AGEDI launched to provide an online application allowing organisations to upload their data, edit the draft report correcting errors, reducing the time taken to complete the report. SOE Live will develop organically with user input.

Environmental Indicators

- Like most other countries, West Asia countries are also developing indicators and indices to monitor the environment including environmental quality, information technology, sustainable development, etc. Most of these initiatives however appear truncated, very localized, and short-lived.

- At the regional level however, there has been serious efforts to select and harmonize environmental indicators. The League of Arab States (LAS) in collaboration with UNEP, ESCWA and other regional and international organizations have worked together to harmonize a list of Sustainable Development Indicators for the Arab region

Public Access

- Public access to information in West Asia is improving but remains inadequately appreciated and integrated in national policies. The confidentiality, political sensitivity, ownership, cultural and technical issues hinder public access to environmental information.

- Some countries regard public access as an awareness issue; others regard it as the sharing of environmental information between potential users (usually scientists); very few countries recognize public access insofar as the general public has the right to access, view, and retrieve data for his/her information and personal use

Information Policy & Legislation

- Information policy and legislation in West Asia countries is also limited. Most countries have no clear national policy, mechanisms or protocols for sharing and disseminating environmental information and data.

- Research organizations and government agencies however may have in-house data management protocols and quality management systems (such as ISO9001:2000) but there is little overall integration of these protocols and systems.

Institutional Capacity for Managing Data

Many institutions in West Asia countries generate and manage environmental data and information. Several countries report a lack of coordination between those institutions and a noticeable duplication of effort.

- The majority of these organizations face shortages in human resources and technology hampering the swift compilation and analysis of environmental information. Most countries have their environmental information centers or departments either within the national environmental authorities or embedded in National Statistics Centers; a few countries have no designated environmental information center to date.

- Most national environmental or information authorities have a dedicated IT department that caters for data needs and requests. These departments however, appear to be marginalized, receive little technical and financial support and are understaffed.

Financing of Environmental Data and Information

Financing for environmental data and information may come from two sources: (i) national and (ii) international.

- Cash-stripped Mashreq countries are more likely to access international sources of funding including the Global Environment Facility, European Community (EC-Life Third Countries Program), GTZ, CIDA, etc.

- The countries of the GCC are more likely to mobilize national resources to finance environmental data. But even GCC countries allocate very modest resources (from national budgets) for environmental information. Although environmental agencies usually recognize the value of information, they typically prioritize other environmental sectors. The Abu Dhabi Global Environmental Data Initiative (AGEDI) is an inspiring example of government financing to support environmental information.

Effectiveness & Efficiency of Current Systems

The effectiveness and efficiency of current information systems in West Asia countries is very diverse.

Strengths:

- Diversification of data-acquisition methods
- Dissemination of electronic culture (in rural areas also through government programs)
- Cost reasonableness for computer and Internet access (in some countries)
- Integration of environmental information in other information portals (e.g. statistics)
- Proliferation of geographic data and GIS applications
- Private-sector participation in data generation
- National environmental indicators (in some countries)

Effectiveness & Efficiency of Current Systems

Weaknesses:

- Poor consolidation and duplication of efforts
- Little continuous data monitoring
- Cacophony of environmental indicator programs that are disconnected
- No dissemination of environmental data real-time
- Lack of data classification for purposes of disclosure
- Lack of qualified staff to run technical programs and complex information systems
- Concentration of environmental data in the capital; no direct sharing with regional departments
- Keeping pace with technological advances
- No public pressure on government agencies to release environmental data

Constraints and Barriers to Availability and Accessibility of Environmental Data in WA

- Disclosure/confidentiality
- IT infrastructure & Internet connectivity
- Data consolidation/storage
- Funding
- Bureaucracy

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1. Disclosure/Confidentiality

- Disclosure of information in West Asia countries is limited. Most of the data is considered “classified” or propriety data for limited or internal use within agencies and therefore only accessible to a handful of individuals or institutions.
- For example, in the UAE, despite having an enviable IT infrastructure and solid environmental databases across many topics, information sharing among organizations is very limited which consequently reduces the overall efficiency in data management.
- AGEDI is trying to remove barriers to information exchange in the UAE.

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2. ICT Infrastructure & Internet Connectivity

- There is a great disparity in ICT infrastructure between the West Asia countries, with very low levels in Iraq and Yemen compared to advanced infrastructure in Bahrain and UAE. Disparity also exists in the penetration of PCs and Internet between city and rural dwellers.

- Most West Asia countries have initiated several programmes or projects to automate their public offices and administrations. The rates of accomplishment differ greatly however, and many government documents remaining in their old conventional formats.Implementation plans for e-government remain slow in many countries, with Bahrain registering the highest e-government readiness score, compared to Yemen the lowest.

3. Data Consolidation/Storage

Most West Asia countries have argued that the lack of data consolidation and coordination among data generators hampers the availability of and accessibility to environmental data.

- Notwithstanding potential restrictions on data disclosure, if the data are scattered, not electronic or stored in a manner that makes them easily retrievable, then the data are considered unavailable. Recognizing the need to consolidate data from multiple sources is easy; each country must however develop its own mechanisms and protocols to achieve this.

- Another problem related to data dissemination is volume. A wealth of data is not always useful because it can be difficult, if not possible, to interpret and transmit. It is therefore important to define the user groups and tailor information to them.

4. Funding

Data management is expensive. It requires West Asia countries to develop effective monitoring systems, storage systems, reporting systems and Quality Assurance systems to verify data accuracy and reliability.

- Several countries, mostly Mashreq countries and Egypt, have received significant international funding to implement biodiversity, air and water quality, and data management systems. The challenge is always to institutionalize the projects and programmes before funds run out.

- The countries of the GCC naturally have access to significantly larger resources but do not necessarily enjoy higher levels of funding. This will require increased recognition by their governments that environmental data and information can positively influence decision-making and promote sustainable development.

5. Bureaucracy

Environmental data, like any other data, are often difficult to obtain especially if they are managed by large public organizations or government agencies.

- Data requests are typically channeled vertically, from one department to another, and require approval from a senior representative of the organization. The hierarchical flow of data (and decision) is time-consuming and can reflect negatively on the organization itself.

- Vertical communication could be mitigated if there was public pressure on the authorities to publicize the data.

- Clearly, reducing bureaucracy and improving disclosure will require a cultural change in the way people perceive data sharing and exchange. Policies favoring data sharing could also help.

Regional & International Cooperation

Various networks of cooperation exist in the region. UNEP has initiated several forms of cooperation with regional organizations in the region including AGEDI, ASCAD, CEDARE, PERSGA, and ROPME. These organizations have also started to cooperate directly, thus leveraging resources and skills in key environmental areas and regions. PERSGA is a good example of sub-regional cooperation.

Many regional organizations can facilitate and promote the management of regional environmental information including:

- Council of Arab Ministers Responsible for Environmental Affairs.
- Regional Organization for the Protection of Marine Environment (GCC countries).
- Gulf Cooperation Council (GCC).
- Africa Environmental Information Network (AEIN)
- United Nations Economic and Social Commission for Western Asia (ESCWA).

Regional & International Cooperation

- Center for Environment and Development in the Arab Region and Europe (CEDARE).
- Regional Organization for the Conservation of the Environment of the Red Sea and the Gulf of Aden (PERSGA).
- The Arab Center for the Studies of Arid Zones and Dry Lands (ASCAD).
- Arabian Gulf University (AGU).
- International Center for Agricultural Research in Dry Areas (ICARDA).
- International Development and Research Center (IDRC) – Cairo office.
- The Arab Network for Environment and Development (RAED): network of Arab NGOs.
- WHO Regional Centre for Environmental Health Activities (CEHA).

Selected Regional Initiatives

- The **Abu Dhabi Global Environmental Data Initiative (AGEDI),** in partnership with UNEP, promotes enhanced collection, dissemination and use of environmental data and information. These and other organizations are co-sponsoring the *Eye on Earth Global Network of Networks initiative*, aimed at effective access to the world's expanding pool of environmental data

- A **core set of environmental indicators** for West Asia, developed by the League of Arab States (LAS) in partnership with the Economic and Social Commission for West Asia (ESCWA) and UNEP, has been established by countries of the region on a voluntary basis

- An **Arab Environmental Information Network** is being developed under the umbrella of LAS, with support from UNEP and in collaboration with ESCWA, AGEDI and other organizations

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Lessons Learned

There are many lessons learned related to environmental data and information in West Asia, but they all converge into one: **the need to design and build environmental information systems that support decision-making and policy development.**

The reasons for this "disconnect" between data generation and decision-making are numerous:

- Decision-makers are not aware of the data/not able to interpret it
- The data is too theoretical to support decision-making
- Data accessibility is inadequate
- Information systems are not designed on the basis of decision making needs and do not provide the flexibility and the products needed for policy and decision makers.

Good examples of environmental information systems that support decision-making are emerging in several countries and must be explored further, as well as expanded and replicated in other countries.

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Thank you