

# The GRC Environment

Research Bulletin



**Gulf Research Center** Knowledge for All



The Gulf region is one of the world's most naturally well-endowed and economically prosperous regions. It also scores well in terms of several social parameters. It is the world's richest region in oil and gas reserves and poorest in renewable water and arable land. It continues to rely excessively on natural resources as a development strategy. Water and oil are being

tapped at unsustainable level.

The Gulf Research Center (GRC), as a leading research institute in the region cannot just concentrate on political, economic, security, and social issues: it is our responsibility to promote environmental research and awareness as well. Governments in the region are definitely putting environmental issues on the top of their agendas, but it is our duty as research institutions to bridge the data gap that exists in this area and to make sure regional policies evolve further and make their mark in the international arena as well.

As part of its expansion, a main area of concentration for the GRC is the development of research programs. Looking to the future, I think it is more important than ever for the Gulf Research Center (GRC) to organize programs that serve this global movement and to discuss issues and identify goals concerning the Gulf region. For this reason, GRC has placed a special emphasis on the environment and seeks to document relevant information about specific concerns related to the Gulf in order to deepen the awareness and understanding of environmental issues. The GCC Environment Newsletter is one attempt to serve this purpose.

I hope you will find this bulletin informative and thought-provoking. Please get back to us with your comments once you have had the opportunity to go through this inaugural issue. Those interested in receiving the GCC Environment Newsletter can do so by getting in touch with us at [raouf@grc.ae](mailto:raouf@grc.ae).

Regards  
Abdulaziz Sager  
Chairman  
Gulf Research Center

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## A Closer Look at the GCC-Environment Web Portal

The main focus of the Gulf Research Center is the development of research programs on critical issues of concern for the Gulf region. This is because in many of these areas, there exists a significant information deficit in terms of factual information, the exchange of data, objective analysis, and scholarly research. With the implementation of dedicated research web portals, the GRC seeks to overcome this divide and close the gap in terms of social science research in a Gulf context.

The intention behind such a program and how it is envisioned to work can

be illustrated by a closer look at the Web portal on GCC-Environment Research Program.

The portal is a dedicated site within the broader focus on GCC and environment issues under the Social Research Program link on the GRC website. It is necessary to register with the GRC before being able to access the site. Once registration is completed, the user will receive a separate username and password.

The GCC Environment research program page contains the following features:

- An introduction to the program, including a short background paper outlining the GRC focus and the objectives of the GCC environment research program.
- GRC resources including the program news bulletin (present and past issues), GRC publications, such as policy and research papers, and a call for papers for interested scholars.
- GRC events including workshops and lectures related to the topic of the program. This will typically include an overview of the event itself, a list of attendees, a summary document, and

The screenshot displays the GCC-Environment Web Portal interface. On the left is a vertical navigation menu with links: Home, Research Programs (with sub-links for GCC Political Systems, GCC Foreign Relations, GCC Economic Issues, GCC Social Issues, GCC Defense and Security Issues, and Gulf Energy Program), Call for Papers, Publications, eLibrary, Research Gateway, Academics & Researchers, Social Sciences Forum, Executive Learning Program, Multimedia, Events, Gulf in the Media Premium, Press Room, Services, GRC Publications Store, and Arab Human Development Report. The main content area is titled 'Research Program Detail' and shows a breadcrumb trail: Home > Research Programs Categories > Research Programs > Research Program Detail. Below this is a banner image with the text 'GCC and the Environment Issues'. The text below the banner reads: 'Environmental issues have assumed alarming proportions by raising more questions than viable solutions and have become an important concern on the international agenda during the last three decades. It has become apparent that life on our planet is threatened by serious environmental dangers such as global warming, climate change, pollution, ozone depletion and the degradation of natural resources. International and regional efforts are ongoing to combat these dangers and to find appropriate solutions.' Below this, another paragraph states: 'The GCC states are subject to these environmental dangers because many are of a global nature but these very states also have their own particular environmental problems. They are part of the arid lands which suffer from desertification and severe fresh water shortages; in addition, the GCC states are oil producing countries and therefore vulnerable to the pollution associated with oil drilling, particularly in the Gulf waters. The three successive Gulf wars have also contributed to the process of pollution in the Gulf.' On the right side of the page is a 'User Login' section with fields for 'Login Name' (containing 'raouf') and 'Password', a 'Private Terminal' checkbox, 'Submit' and 'Reset' buttons, and links for 'Register' and 'Forgot Password?'. Below the login section is a 'Home' section with a link to 'Program Overview', followed by a 'News' section with links to 'Latest News', 'Reuters', 'AP', 'AFP', 'UPI', 'Euronews', and 'BBC Monitoring'. Below this is a 'GRC Resources' section with links to 'Articles' and 'Experts', followed by an 'Events' section with links to 'Workshop' and 'Conference', and finally an 'External Resources' section.



any available papers.

- An overview of the latest news on the subject through a link to the Gulf in the Media website ([www.gulfinthemediasite.com](http://www.gulfinthemediasite.com)).

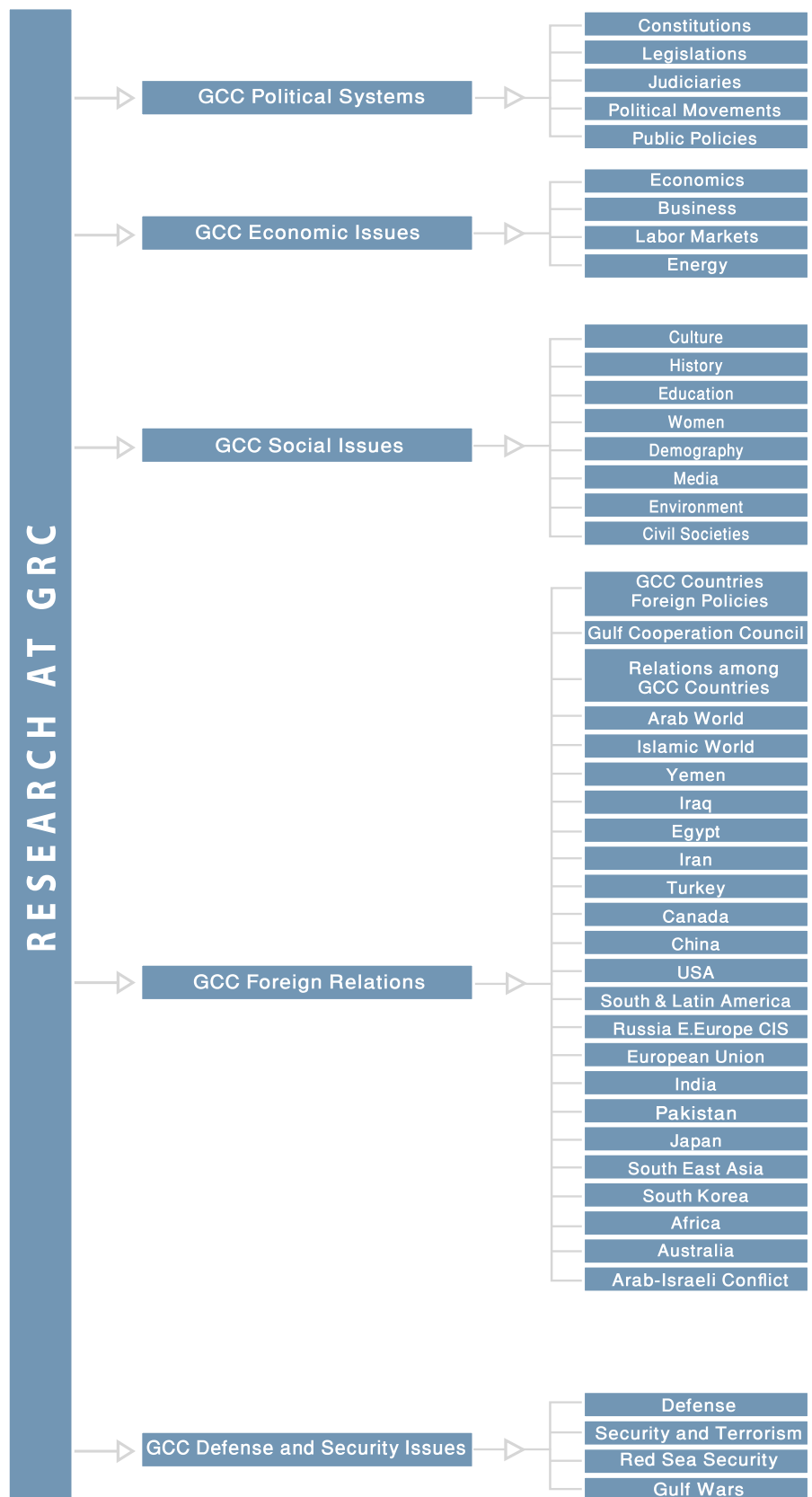
- Access to a list of experts and specialists working in the field of the GCC environment, with their areas of specialization and details of their publications. The idea behind the network is to be able to link researchers together, disseminate their work, and develop a contact base in order to promote new projects and original research.

- A related features section which documents relevant books, with abstracts, research reports, academic studies, and articles produced by official organizations, other research institutes, and individuals on the topic.

- A multimedia section displaying data related to the program in a visual format.

- Necessary background material, including items such as official documents, treaties, and agreements.

It is eventually hoped that as the web portal develops its resources, it will become a key medium for the collection and distribution of research on the issue of the GCC environment, and will promote the overall development of the field. It is aimed at both the generalist who requires accurate and timely data and information, and the specialist who desires a deeper insight into the issue as it affects the Gulf region. Those interested in participating and who have not already registered can do so under the Academics and Researchers link on the main menu of the GRC website ([www.grc.ae](http://www.grc.ae)).







### Global Deserts Outlook

By UNEP

Publisher: UNEP

Year of Publication: 2006

#### Abstract:

The Global Deserts Outlook is the first thematic assessment report in the Global

Environment Outlook (GEO) series of the United Nations Environment Programme (UNEP). A UNEP contribution to the International Year of Deserts and Desertification in 2006, the report aims to help raise global public awareness of the state of the world's deserts.



### Solid Waste Management

By UNEP

Publisher: UNEP

Year of Publication: 2005

#### Abstract:

This publication looks at the use of technologies that are environmentally sound

for managing municipal solid wastes in developing countries. It is designed as a sourcebook on solid waste management, covering a multitude of topics including the principles of solid waste management, processing and treatment, and final disposal. It also covers key non-technical aspects, and offers regional overviews on SMM.



### Challenges to International Water: Regional Assessments in a Global Perspective

By UNEP

Publisher: UNEP

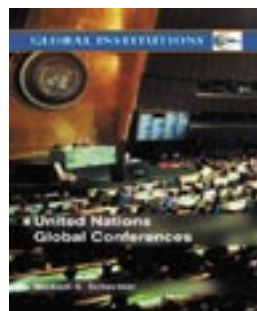
Year of Publication: 2006

#### Abstract:

The Global International Waters

Assessment (GIWA) is a holistic, globally comparable assessment of the world's transboundary waters that recognizes the inextricable links between the freshwater and the coastal marine environment and integrates environmental and socioeconomic information to

determine the impacts of a broad range of influences on the world's aquatic environment.



### United Nations Global Conferences

By Michael G Schechter

Publisher: Routledge (UK)

Year of Publication: 2005

#### Abstract:

United Nations Global Conferences discusses the origins,

meaning, purposes, trends, and controversies concerning the convening and impacts of United Nations global conferences. It is a particularly propitious time for such a study since there are 30 such conferences to compare, and many argue that they have not been worth the money expended on them. Others, however, suggest that the only effective way to address global problems like racism, sexism, overpopulation, environmental degradation, over-fishing, urbanization, and the proliferation of small arms is through the convening of such conferences.



### Water and Indigenous Peoples

By UNESCO

Publisher: UNESCO

Year of Publication: 2006

#### Abstract:

Indigenous peoples from all corners of the globe continue to

struggle for acknowledgement and recognition of their unique visions of water, both at home and in national, regional, and international forums. But almost without exception, their voices remain obscured by a mainstream discourse rooted in the conception of water as a mere commodity. This book is based on the papers delivered on the occasion of the Second and Third World Water Forums (The Hague in 2000 and Kyoto in 2003). It brings to the fore some of the most incisive indigenous critics of international debates on water access, use and management, as well as indigenous expressions of generosity that share community knowledge and insight, in order to propose remedies for the global water crisis.



## United Nations Environment Programme (UNEP)



UNEP is the designated authority of the United Nations system in environmental issues at the global and regional level. Its mandate is to coordinate the development of environmental policy consensus by keeping the global environment under review and bringing emerging issues to the attention of governments and the international community for action. Some of UNEP's responsibilities that are met through the UNEP website include:

- Promoting international cooperation in the field of the environment and recommending appropriate policies.
- Catalyzing action to address major environmental threats.
- Helping, upon request, environment ministries and other environmental authorities, in particular in developing countries and countries with economies in transition, to formulate and implement environmental policies.
- Providing leadership and encouraging partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.

The UNEP website provides resources for governments, scientists, business persons, journalists, civil societies, children and youth. Under the "in focus" section, current news concerning environmental issues of our world is offered, featuring media contacts, press releases, speeches, photos, animations, films and videos, posters, and e-cards. Useful information about the UNEP organization, offices, news centres, publications, events, meetings, awards, milestones, and the UNEP store is also available free of charge on this link.

## EarthTrends Environmental Information



EarthTrends, a resource for researchers, journalists, teachers, and students, is a unique online environmental information database that gives free of charge access to current information, and a variety of exclusive features. EarthTrends is a comprehensive online database, which is maintained by the World Resources Institute, and is sponsored by the World Bank, UNEP, the Netherlands Ministry of Foreign Affairs, SIDA, UNDP, and USAID.

This unique database emphasizes on the environmental, social, and economic trends and styles that shape our planet. It covers various research topics including coastal and marine ecosystems, water resources and freshwater ecosystems, climate and atmosphere, population, health, and human well-being, economics, business, and the environment, energy and resources, biodiversity, and protected areas, agriculture and food, forests, grasslands, and drylands, environmental governance and institutions, and offers five ways to explore the site: a searchable database, pre-formatted data tables, maps, country profiles, and text and graphics "Features" articles.

In addition, EarthTrends provides up-to-date environmental news, recent monthly updates, special collections, and world resources reports to satisfy curiosity. EarthTrends users range from individuals who influence environmental policy—whether in governments, academia, corporations, think-tanks, or other civil society groups—to educators, students, and the public at large. To meet their diverse needs, EarthTrends presents information in multiple formats and differing levels of complexity.



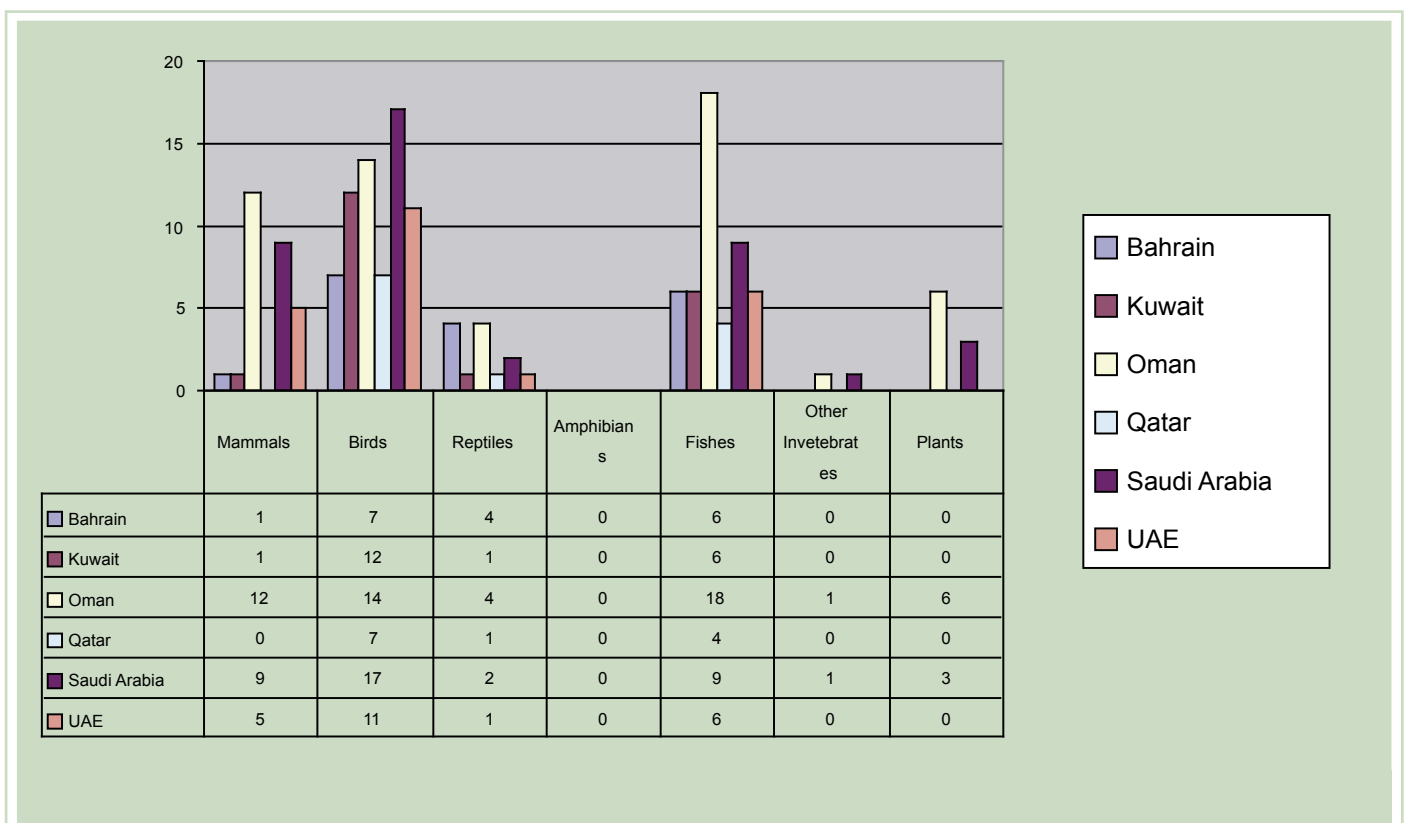
## Land and Terrestrial Biodiversity

Selected statistics from GRC Green Gulf study, July 2006

Land use pattern of GCC countries in 2002 (Area in 1000 ha)

Country	Total area	Arable land	Permanent crops	Permanent pasture	Forest area*			Others
					Natural forests	Plantations	Total	
Bahrain	71	2	4	4	n.s.	n.s.	n.s.	61
Kuwait	1782	13	2	136	n.s.	5	5	1626
Oman	30950	38	43	1000	n.s.	1	1	29868
Qatar	1100	18	3	50	n.s.	1	1	1028
Saudi Arabia	214969	3600	194	170000	1500	4	1504	39671
UAE	8360	75	191	305	7	314	321	7468
Total	257232	3746	437	171495	1507	325	1832	79722

Endangered species





## Greening the Desert – Causes and Cost-effect Scenarios

A few years ago, I proposed to present a paper with the above title in a symposium on 'Greening the Desert,' jointly organized by a university, an oil company, and a foreign research agency in one of the Gulf countries. My objective was to show, based on research in the Sharqia region of Oman, that greening the desert, in the sense it is perceived, is not necessarily a desirable option and attempts to do so have been incurring enormous environmental costs. My paper was not accepted and I suspect that the contents of my paper must have alarmed the organizers, who were hoping to paint a pretty positive picture of 'Greening the Desert.' Here, I reopen this issue by asking why we want to green the desert and how we are greening it. In the Gulf countries, I identify three main causes:

Intensive agriculture is an important cause; it modernizes traditional agriculture, resulting in very large farms. The intent is to increase food or fodder production, a desirable objective that unfortunately accompanies the planting of non-native species that require vast quantities of irrigation water. Large areas of drab deserts and semi-deserts subjected to this practice turn green, but for how long will they remain so is another question.

Oil exploration and mining activities are another reason that large tracts of deserts are disturbed. Desert woodlands providing patchy green landscapes have to be destroyed during these activities. Soil instability, erosion, and barren landscapes are the results. The explored lands do not return to their earlier 'green' states for a long time. Greening the desert by planting trees in the hope of reestablishing woodlands to combat desertification, restore soil stability, and combat erosion is considered a good strategy.



**Reginald Victor**

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In most cases, oil exploration also produces large quantities of wastewater. Industrial wastewater is a noxious cocktail of hazardous heavy metals in brine, and its disposal is a problem. Several disposal options have been considered by the industries, with varying degrees of success. The option relevant to greening the desert is the reed bed technology using plants like *Phragmites* and *Typha* to strain out the heavy metals in wastewater. Vast areas of reed beds green patches of desert, creating artificial wetlands that may attract wildlife.

Landscape planting and recreation in urban areas also green the desert. In Gulf countries, beautification of the urban environment and the creation of green parks using horticultural know how, is a common practice. Treated sewage effluents and treated or untreated grey water are predominantly used for irrigation.

### What are the environmental costs of greening the deserts for all above causes?

Poor water use efficiency resulting from intensive agriculture is a serious environmental issue. Groundwater is a renewable resource. However, its abstraction should not exceed the potential for replacement by recharge of aquifers. Desert areas have irregular and unpredictable precipitation patterns. Many areas suffer from long spells of rainless periods. Vast tracts of agricultural lands in the Batinah and Sharqia regions of Oman, for example, suffer from the salinization of groundwater due to seawater intrusion. Date palm plantations on the coasts have been affected seriously and many farms have been abandoned. Scientific evidence shows that seawater intrusion is caused by over-abstraction of groundwater,





and seawater is advancing inland at a rapid rate. It is inevitable that unwisely planned intensive agriculture will write its own death warrant when salinization reaches its premises.

Intensive agriculture of non-native species also facilitates new pest outbreaks. Harmless animals at low population densities proliferate and reach pest proportions in the presence of new food plants available in abundance. As a consequence, a wide variety of pesticides are used to protect crops. These pesticides not only control pests, but also decimate non-target organisms, many of which are beneficial (e.g. pollinators like bees, dragonflies). In addition, pesticides used in agricultural lands contaminate groundwater. The extensive use of fertilizers in the agricultural industry also causes groundwater pollution, especially by nitrates. Thus the environmental costs of greening the desert by intensive agriculture are by no means trivial.

Oil is a lifeline and 'black gold' puts food on our tables and roofs over our heads. Exploration for oil and gas should be pursued with vigor, but the restoration of the explored and mined lands should not be ignored. Physical restoration by the removal of temporary installations, unused facilities, and debris is a must for the land to begin its own natural recovery. Intervention by planting trees for stabilizing soil should be restricted to native species, preferably those naturally occurring in the area. The planting of introduced exotics like *Prosopis juliflora* (Ghaf al Bahri) should be avoided unless they are already in the area and cannot be eradicated. Let the greening of these areas take its own course through natural ecological succession.

Using reed beds to treat industrial wastewater results in the formation of green, constructed wetlands. Despite improving the biodiversity of the area, these are man-made. Their effect on the functioning of the natural ecosystem is not known. Areas greened during this process are relatively small, and the disposal of the hyper-saline water draining through the reed beds is still a problem. Wetlands are also created when exploration drill holes yielding sulfurous water are not capped.

Again, the biodiversity of the area improves, but the process brings deep, non-potable fossil water to the surface to form an artificial lake, which contaminates shallow freshwater aquifers through infiltration.

Greening urban landscapes with grass and a variety of flowering and non-flowering plants is also environmentally expensive. In most cases, treated sewage effluents are used to irrigate these areas, but it is well-known that this source of water is grossly inadequate to support the vast areas cultivated. The shortfall is managed by the use of expensive desalinated water. People traveling along roadways bordered by this urban vegetation often notice the foul smell of sewage and this is an indication that treatment facilities are not completely safe. Technical failures, even for short durations, causing the delivery of unsafe water are a serious health hazard. Plant species used in urban landscaping are predominantly alien with high water consumption rates. In addition, the transport of these species has introduced unwanted invasives like garden slugs, and in one case, even a large lizard. Invasive birds like the Indian house crow and common mynah are proliferating in some of the Gulf countries, and their favorite feeding grounds are the urban greens. When urban areas are being beautified by greening, the use of native or arid zone species that are environmentally friendly should be seriously considered.

I wish to conclude by asking another question – should we green the desert or leave it alone? Before answering, consider the environmental costs discussed here in the context of greening in its literal sense, and the way greening has been practiced so far in the Gulf region. A while ago, I greened my small backyard patch with a vegetable garden and grew cauliflowers that cost 10 Omani rials a head, while the same money could have bought me more than 10 heads in the market! Now, my backyard is paved with cement and has a number of cacti in pots. Which of these two scenarios represents the sensible greening of my small desert backyard patch? I will leave the response to the readers with the hope that common sense will prevail.





## Arab Network for Desertification Monitoring and Assessment

Most of the West Asia and North Africa (WANA) region, where the Arab countries are located, falls within the arid and semi-arid zones. This is considered one of the most fragile ecosystem regions worldwide (FAO, 1996), receiving an average annual rainfall of up to 400 mm with a growing season of 60-120 days. The rural sector is an important contributor to the economies of most WANA countries, as agriculture employs between 20-40 percent of the labor force, and contributes 20-30 percent of the gross domestic product (GDP) on average. The drylands support the livelihoods of 60 percent of the total population living in the region, in spite of their limited resources. However, the degradation of natural resources (land, water, and vegetation) has seriously affected the agricultural production capacities of the WANA countries, with severe repercussions for economic growth, food security, and poverty alleviation. According to the recently revised World Bank Environmental Strategy for Middle East and North Africa (MENA), the cumulative impact of land degradation is estimated to cost about \$1.15 billion a year in lost agricultural productivity.

Resource degradation and its subsequent impact on the agricultural production capacity of the WANA region have various causes. The primary causes of land degradation are policy and institutional distortions, failures on the part of the public or the government, and inadequate government policies. In addition to recurrent droughts and high variability in rainfall, which cause drylands to be progressively more vulnerable to climatic changes, intensive forms of land use, including over-grazing, excessive irrigation, and intensive tillage and cropping have also been identified as factors. As a consequence of these problems, the sustainable development of the countries is severely impaired.



**Dr. Erian W. F.**

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The Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD) was established in Damascus, Syria in 1968. ACSAD is a specialized Arab organization working within the framework of the League of Arab States with the objective of unifying the Arab efforts which aim to develop scientific agricultural research in the arid and semi-arid areas. The main mission of ACSAD is to meet the challenge posed by the arid and semi-arid environments which are characterized by fragile farming systems through the provision of scientific and applied data and advanced techniques in a way that allows the large-scale implementation of the tasks of agricultural and social development and the optimum exploitation of the renewable natural resources in the arid areas.

Supporting Arab countries in the implementation of UNCCD, including monitoring, assessment, and rehabilitation, is considered to be an important role for ACSAD. To achieve ACSAD's role in the monitoring and assessment of desertification, a partnership with the German technical cooperation (GTZ) was started to undertake the following tasks:

- Establish Regional Early Warning system (REWs)
- Establish Desertification Monitoring and Assessment (ADMAnet),
- Standardize and harmonize ADMAnet members' work in applying RS/GIS techniques, and recent approaches related to DMA.

Since 2003 ACSAD has collaborated with the Remote Sensing Department at the University of Trier. This cooperation provided technical support and training courses in the fields of DMA, early warning, exploration, and the development of joint research activities connected with desertification, as well as an



exchange of knowledge and materials in the fields of contemporary issues on desertification. This was aimed at supporting the establishment of a regional desertification monitoring system at the current stage and a national one at a later stage.

Significance of the regression coefficient (t-test) in a linear trend model applied to annual NDVI Pathfinder data (1982 – 1999). The related significance describes the likelihood that the actual regression coefficient of non-parametric trend models equal zero. The modeled absolute NDVI changes (Dec. 1999 – Jan. 1982) using a complete trend model including linear and non-linear terms.

Applying the trend model used in the TimeStats software package to NOAA-AVHRR – MEDOKADS archive of Freie University in Berlin or to the SPOT vegetation archive will put ACSAD in a position to issue 'early warning signals' whenever significant deviations from long-term (average) conditions are detected in the region. Once more, the verification and more detailed analysis of such events will be done on a more detailed

level of scale through the national counterparts of ACSAD.

In order to secure a more detailed level of monitoring and assessment studies through ACSAD's national counterparts, detect and identify 'desertification hot spots,' and harmonize efforts among the Arab national bodies of remote-sensing centers, ACSAD called for the establishment of ADMAnet. The main goal of ADMAnet is to provide a scientific and programmed mechanism for decision-makers for better and sustainable management to preserve the land cover through comprehensive long-term monitoring of the Arab area.

For the assessment of desertification status, it is important to standardize and harmonize ADMAnet members' application related to DMA and to produce relevant scales of mappings including layers such as: agro-climatic regions, land-use/land-cover maps, and land degradation 'hot spots' and 'bright spots.' Accordingly, ACSAD established a strategic partnership with main UN partners:

- FAO/UNEP Land Cover Classification System (LCCs).

### **Country Mapping – completed/ ongoing**



**Egypt**  
**Iraq**  
**Libya**  
**Oman**  
**Sudan**  
**Yemen**

**Jordan**  
**Lebanon**

**Algeria**  
**Bahrain**  
**Kuwait**  
**Morocco**  
**Palestine**  
**Qatar**  
**Saudi Arabia**  
**Syria**  
**Tunisia**  
**UAE**

### **Country Mapping – under consideration**



- FAO/UNEP Land Degradation Assessment of Drylands (LADA) Programme.

The League of Arab States (LAS) is represented in the Global Land Cover Network GLCN project by ACSAD. The current status of the GLCN Project within the Arab region is shown in Figure 1 (Latham, 2005).

The FAO/UNEP LADA Programme agreed to cooperate technically with ACSAD as a regional agency for the implementation of LADA. The same steps as LADA will be followed to develop standardized and improved methods for dryland degradation assessment within the Arab region. Using these methods, the national and regional baseline condition of land degradation will be assessed with a view to highlighting the areas at greatest risk. Accordingly, ACSAD, together with FAO/RNE, organized a regional workshop in Damascus during July 2004 to promote LADA Programme in West Asia and the Near East.

The ACSAD Partners for implementing a regional project concerning DMA, are shown in Figure 3. These partners will contribute by supporting the implementation. Thus, ACSAD is preparing a regional project for LADA implementation. By the end of the project ACSAD, in close cooperation with FAO LADA and UNCCD/TPN1, will have:

- Developed a standardized methodological framework to address the process of dryland degradation.
- Completed regional baseline degradation assessments.
- Contributed to the guidelines for dryland degradation assessment preparation efforts.

These regional assessments (from existing information sources) will be a baseline to identify priority 'hot spots' where the potential impact on ecosystems is severe.

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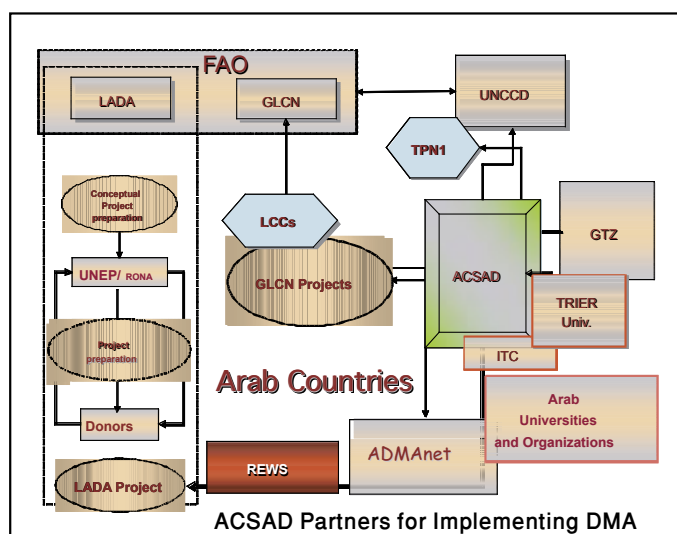
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# Policy Tools for Sustainable Use of Water Resources in the Gulf Region

The limited availability of freshwater in the Gulf region has for decades presented a significant challenge to the people and the governments of the region. Scarce rainfall together with a high rate of evaporation and consumption, leads to deficits in the water budgets of the countries of the region.

The major causes of increasing pressure on water demand include population growth and rapid urbanisation besides wasteful consumption patterns both in domestic and agriculture sectors. These factors have led to the investigation and implementation of non- conventional methods of obtaining freshwater supplies. Desalination and the re-use of treated wastewater are among the most successful alternatives, with almost half of the world's desalination capacity in the GCC countries alone. Wastewater reuse is an important conservation practice being promoted for non-potable uses such as irrigation.

The first and foremost strategy for sustainable use of water resources is to protect and conserve the available resources. This calls for harvesting every drop of water through rainwater harvesting, protecting the natural and manmade storage reservoirs as well as groundwater aquifers. Besides developing new systems and technologies, protecting the traditional systems such as the Aflaj in Oman is also imperative.

More importantly, reliance on desalinated water alone could be a risky policy considering the volatile nature of oil prices and revenues. The sustainable use of groundwater resources should be a consideration in the overall integrated water resource management policy of each country.

## Desalination

Since the last 20–30 years, most of the potable



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water demands are being met through desalinated water. In spite of being the forerunner in the desalination technology, the cost of desalination in the Gulf countries is not comparable to the world average. With this consideration, it is essential that the water produced is used efficiently.

Most of the existing desalination plants were built during the 1970s and 80s and have operated at almost their maximum capacity. It is reported that some of the plants have faced interruptions in operations, resulting in intermittent water supply during repair periods.

Furthermore, the increasing level of salt concentration in the Gulf region owing to large amounts of highly saline brines discharged from desalination plants could render the operation of desalination plants more costly and challenging in the future (World Bank 2005).

Other issues of consideration include pollution caused by reject brine and the rise in temperature due to high temperatures of the same. Any chemicals added to the desalination process for scale prevention, corrosion reduction and corrosion products might be discharged to those water bodies together. Likewise, inland brackish water desalination plants can also face major challenges in disposing of brine discharges in a safe manner and incur heavy treatment costs.

## Efficient sectoral allocation

Water allocation is about sharing available water between economic development and environmental considerations of the present and the future. It is also about social equity, not only sharing between current and future generations, but also about sharing amongst sectors (public water supplies, industry, agriculture and recreational use). Water allocation between various uses is an essential mechanism—perhaps the most





essential—for adapting to the constraints on water distribution. In the Gulf region, agriculture consumes around 70% of the total water and therefore reallocation of even a small amount of water away from agriculture could be translated into a very high increase of water available to other sectors.

In this regard the concept of “virtual water” also holds immense relevance for the water-scarce countries. By assessing how much water can be saved through the import of certain food items (particularly those that consume high amounts of water such as fodder for dairy production), and other products such as wheat, a huge amount of water can be saved and appropriately utilised. According to the World Water Council, “Virtual water is the amount of water that is embedded in food or other products needed for its production. Trade in virtual water allows water scarce countries to import high water consuming products while exporting low water consuming products and in this way making water available for other purposes.” Analysis of “virtual water” should be included in development plans as a means to relieving pressure on the scarce water resources of GCC states. For example, Oman estimated that “virtual water” imports into the country in 1998 was approximately 3 860 MCM, which represents about three times the total annual replenishment of the natural

water resources of the country.

This provides strong insights as to how much water could be saved by importing food and possibly shifting the saved water for other higher economic purposes or future generations.

### ***Need for demand management***

Government policies have primarily focused on the supply side of producing water from either aquifers or desalination plants while demand management has been by and large neglected. The average daily water consumption in GCC for instance per capita ranges between 300 – 750 liters, which ranks the highest in the world. (World Bank 2005).

A number of measures can be used to achieve effective utilisation of the available natural resource as well as the cost intensive desalinated water, which include appropriate pricing, rationalising subsidies, etc. as discussed below.

### ***Appropriate pricing***

Inefficient pricing techniques and subsidisation in some of the sectors have resulted in overexploitation of water resources. Efficient sectoral water allocation cannot occur unless prices reflect the true costs of water provision and the scarcity value of water itself. Getting the price right at the sub- sectoral level is fundamental to achieving optimal water use not only within, but also across sectors. The appropriate pricing of water promotes resource conservation by encouraging efficient use of water and facilitates cost recovery and the generation of revenue to operate the sector. Water tariffs must conform to a set of conditions, of which the most important is that they are affordable for all, especially the poor, that they are acceptable to the population and that they are administratively and institutionally feasible.

Experiences suggest that the introduction of pricing regimes for improved irrigation efficiency must go hand-in-hand with wider application of water-saving technologies and improvements of water governance systems, such as clearly formulated and enforced water



rights and improved management efficiency. Effective pricing mechanisms seem to be difficult to apply in developing countries due to: it must be tailored to specific local conditions. This means that even within countries there must be various pricing regimes, such as between groundwater and surface water or between hydroclimatic sub-zones and, if socially motivated, also between income groups.

### ***Rationalising government subsidies***

One of the primary reasons for the unsustainable exploitation of groundwater resources has been the provision of direct and indirect subsidies to well excavation, pumps, fuel and other inputs as well as price support programs and trade protection.

Generous subsidies for agriculture have enabled farmers to produce crops, which have low returns to water, such as forage crops, alfalfa, and low value-added vegetables grown in open fields. Current government policies of heavily subsidising the water sector could become counter-productive in the future. These subsidies distort costs and revenues, and many of the agricultural activities in the GCC countries are financially profitable only because of government subsidies and incentives. Heavy reliance on subsidies will not only exacerbate the rapidly rising water demand, but will also place an intolerable burden on national budgets. A substantial amount of water will have to be supplied by costly desalination plants. Even though newer and more cost-efficient desalination technologies have become available, water subsidies alone could take away up to 10% of oil revenues in some GCC countries by 2025 (World Bank 2005).

### ***Institutional arrangements***

Sustainable water resource management depends on the role played by institutions, their impact on people, people's confidence in them, and their transparency. Development of separate ministries for water resources, responsible for water resource management and planning would result in:

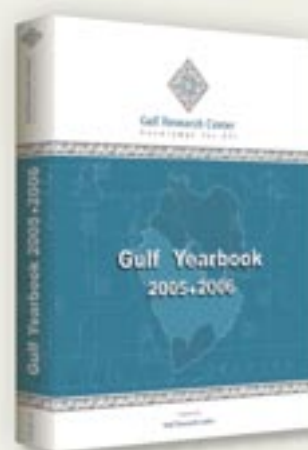
- Development of specialisation and concentration

of expertise on water-related matters within a single institution;

- A separate ministry serves in itself to reflect the government's concern for water issues;
- Equal status in dealings with other sectoral ministries.
- some GCC countries, the responsibility for the administration, regulation, and development of water supplies is rather fragmented between many government entities, while Oman and recently Saudi Arabia have embarked on institutional reforms for integrated water resources management. Fragmented arrangements frequently result in conflicting policies, political competition between agencies, and lack of a comprehensive and coordinated policy for the allocation, management and use of water supplies, which needs to be addressed on a priority basis.

Finally changing people's habits and the ways they use water is a challenge that involves changing deep-rooted attitudes held by individuals, institutions, water professionals and civil society organizations. This can be brought about by more education curricula on water related issues, regular training of water professionals and communication with stakeholders and water campaigns.

### ***Gulf Yearbook 2005-2006***





# World Environment Day, June 5, 2006

## 'Don't Desert Drylands!'

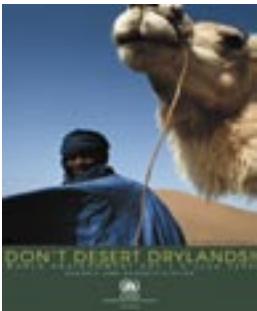


### What is WED?

Each year, the United Nations Environment Programme (UNEP) joins forces with a broad range of partners through the United Nations and other organizations to provide information regarding the Earth's natural resources and their importance in sustainable development. World Environment

Day (WED) is one of the principal vehicles through which the United Nations stimulates worldwide awareness of the environment and enhances political attention and action.

World Environment Day was established by the United Nations General Assembly in 1972 to mark the opening of the Stockholm Conference on the Human Environment. WED is observed globally on June 5, and each year the UN selects one major city to host the celebrations. The weeklong festivities are similar to a combination of Earth Day and the Olympics celebrations.



### What happens on world environment day (WED)?

World Environment Day, an event for all people, is marked by street rallies, bicycle parades, green concerts, essay and poster competitions in schools, tree planting, as well as recycling and clean-up programs. This day provides an opportunity

for individuals, communities, businesses, industries, and local and national governments to focus on the world's environmental challenges. Heads of state, prime ministers, and ministers of environment deliver statements and commit themselves to care for the earth by signing or ratifying international environmental conventions.

WORLD ENVIRONMENT DAY • 5 June 2006  
DESERTS AND DESERTIFICATION



### WED 2006 selected theme: deserts and desertification

This year, World Environment Day, one of the most important events on the international environmental calendar, will be commemorated in Algeria. The theme selected for the celebration is 'Deserts and Desertification.' The significance of protecting drylands, which cover more than 40 percent of the earth, is emphasized in the slogan 'Don't Desert Drylands.' This ecosystem is home to one-third of the world's people, who are more vulnerable members of society.

The day's agenda is to involve humans in the environmental issues of the planet; inform and empower people so that they become active representatives of sustainable world development; establish the understanding that governments can be flexible in their attitude towards environmental issues, and; support partnerships that are meant to ensure all people live in safer and more prosperous nations.



### Previous World Environment Days:

WED 2005: 'Green Cities – Plan for the Planet!' San Francisco, USA

WED 2004: 'Wanted! Seas and Oceans – Dead or Alive?' Barcelona, Spain

WED 2003: 'Water – Two Billion People are Dying for It!' Beirut, Lebanon

WED 2002: 'Give Earth a Chance,' Shenzhen, People's Republic of China





WED 2001: 'Connect with the World Wide Web of Life,' Torino, Italy and Havana, Cuba  
WED 2000: 'The Environment Millennium - Time to Act,' Adelaide, Australia  
WED 1999: 'Our Earth - Our Future - Just Save It!'  
WED 1998: 'For Life on Earth - Save Our Seas'  
WED 1997: 'For Life on Earth'  
WED 1996: 'Our Earth, Our Habitat, Our Home'  
WED 1995: 'We the Peoples: United for the Global Environment'  
WED 1994: 'One Earth One Family'  
WED 1993: 'Poverty and the Environment - Breaking the Vicious Circle'  
WED 1992: 'Only One Earth, Care and Share'  
WED 1991: 'Climate Change. Need for Global Partnership'  
WED 1990: 'Children and the Environment'  
WED 1989: 'Global Warming; Global Warning'  
WED 1988: 'When People Put the Environment First, Development Will Last'  
WED 1987: 'Environment and Shelter: More Than a Roof'  
WED 1986: 'A Tree for Peace'  
WED 1985: 'Youth: Population and the Environment'  
WED 1984: 'Desertification'  
WED 1983: 'Managing and Disposing Hazardous Waste: Acid Rain and Energy'  
WED 1982: 'Ten Years after Stockholm (Renewal of Environmental Concerns)'  
WED 1981: 'Ground Water; Toxic Chemicals in Human Food Chains'  
WED 1980: 'A New Challenge for the New Decade: Development Without Destruction'  
WED 1979: 'Only One Future for Our Children - Development Without Destruction'  
WED 1978: 'Development without Destruction'  
WED 1977: 'Ozone Layer Environmental Concern; Lands Loss and Soil Degradation'  
WED 1976: 'Water: Vital Resource for Life'  
WED 1975: 'Human Settlements'  
WED 1974: 'Only One Earth'

## World Day to Combat Desertification June 17, 2006

"Look out of a window and you view a world in the thrall of climatic upheaval. Although nothing can be seen, the world is undergoing an environmental shift of a type and scale to rival a geological cataclysm – and one of the most rapid ever to overtake the Earth. To confront it we need a parallel change in our inner world, our world of perception and understanding." Norman Myers



Location: Worldwide

Chief Organizer: United Nations

### What is WDCD?

The World Day to Combat Desertification (WDCD), celebrated each year on June 17, is an international movement organized by the United Nations to tackle global environmental deterioration, in particular the spread of drylands. The day marks the anniversary of the implementation of the United Nations Conference to Combat Desertification.

WDCD provides an opportunity to raise awareness about desertification, and also acknowledge the significance of this deterioration challenge that so many of the world's regions are facing. World Day to Combat Desertification is celebrated all over the world in order to highlight the fact that desertification and drought is of global concern, and to emphasize the importance of drylands on the international environmental agenda.

### *This year's theme: deserts and desertification*

With 'Deserts and Desertification' being the theme for this year's World Environment Day, and 2006 being the International Year of Deserts and Desertification (IYDD),





greater attention is given to the world's drylands issue. Accordingly, IYDD is the focus of the 2006 World Day celebrations, and its message is reflected in this year's theme: 'The Beauty of Deserts – The Challenge of Desertification.'

The fragile beauty and unique heritage of our deserts and the significance of protecting drylands is emphasized in this year's theme. Deserts cover about one-fifth of the Earth's surface and occur where rainfall is less than 50 cm/year. The progression of deserts and the deterioration of delicate lands directly affect the lives of more than 650 million people in 110 countries, threatening more than one billion people. The hardest-hit are the rural poor who depend on land for survival. Desertification forces people from their lands and homes. Today, more than 135 million people worldwide are at risk of forced migration due to the problem. Caused mainly by climate change, inappropriate agricultural policies and practices, deforestation, and overgrazing, desertification affects the world's poorest and most marginalized populations (IYDD, 2006).

### **What happens on world day to combat desertification?**

On World Day to Combat Desertification, the international community invites all states to devote the day to promoting public awareness through the screening of documentaries and the organization of conferences, round-table meetings, seminars, and expositions relating to international cooperation to combat desertification and the effects of drought, and the implementation of the provisions of the United Nations Convention to Combat Desertification in those countries experiencing serious drought and/or desertification, particularly in Africa. In the unique celebration of World Day to Combat Desertification in the International Year of Deserts and Desertification, two goals are addressed: to increase efforts to combat desertification as a global sustainable development challenge, and to protect our deserts as a unique natural habitat.



## Partnership

### TERI

The Gulf Research Center and New Delhi-based TERI (The Energy and



Resources Institute) signed a wide-ranging cooperation agreement in Dubai on April 10, 2005 to focus on the natural resources of the region, as well as the state of the environment, both critical to the future of the Gulf and world. Called 'Green Gulf' project, the collaboration is an attempt to join hands in solving some of the unsustainable patterns of production and consumption, especially those associated with managing the Gulf's resources – including land, air and water – in an efficient manner. The project also aims to target and mold children and would seek the involvement of government organizations, as well as energy-related companies and institutions in the region to achieve its goal.

### ACSAD

The GRC and the Damascus-based Arab Center for the Studies of Arid



Zones and Dry Lands (ACSAD) reached an agreement to work together in pursuit of creating greater national, regional and international awareness on issues pertaining to environmental and natural resource conservation and sustainable development in the Gulf region. The organizations agreed to collaborate and support each other in the areas of research, policy facilitation and implementation.

The ACSAD is a specialized Arab organization working within the framework of the League of Arab States with the objective of unifying Arab efforts which aim to develop scientific agricultural research in the arid and semi-arid areas, help in exchange of information and experiences and make use of scientific progress and modern agricultural techniques in order to increase agricultural production.



## Saudi Arabia

Saudi Arabia, with the world's largest continuous sand desert, falls in the tropical and subtropical desert region. The winds reaching the country are generally dry, and almost all of the area is arid. Because of the aridity, and hence, the relatively cloudless skies, there are great extremes of temperature, but there are also wide variations between the seasons and regions. The climate in Saudi Arabia differs between two distinct regions: the coast and the interior. Arid and extreme temperatures

characterize the interior, and high humidity coupled with more moderate temperatures are prevalent along the coast.

### Environmental Resources

**Water resources:** In Saudi Arabia heavy rainfall sometimes results in flash floods of short duration. River beds are dry for the rest of the time. Part of the surface runoff percolates through the sedimentary layers in the valleys and recharges the groundwater, while some is lost by evaporation. The largest quantity of runoff occurs in the western region, which represents 60 percent of the total runoff. The remaining 40 percent occurs in the far south of the western coast (Tahama) which covers only 2 percent of the total area of the country. Total surface water resources have been estimated at 2.2 km<sup>3</sup>/year, most of it infiltrating the ground to recharge aquifers.

**Natural Resources:** Saudi Arabia's vast oil resources have shaped the Kingdom's development. The country also has large natural gas reserves, as well as deposits of bauxite, coal, copper, gold, iron, phosphates, platinum, silver, tungsten, uranium, and zinc. Non-mineral resources include limestone, glass sand, and stone.

**Principal Rivers:** Saudi Arabia has no permanent rivers. However, in eastern Arabia, artesian wells and springs provide valuable water resources.

Additionally, in many areas of northern and eastern Arabia, significant underground aquifers lie beneath the desert. The largest of these aquifers, Wasia, contains more water than the entire Arabian Gulf.

### Environmental Challenges

Saudi Arabia faces numerous environmental challenges: desertification; the depletion of underground water resources; the lack of perennial rivers or permanent water bodies, which has prompted the development of extensive seawater desalination facilities; coastal



pollution from oil spills, and; natural hazards such, as frequent sand and dust storms.

The most important environmental concerns addressed by the government are:

- Air pollution caused by heavy reliance on cars and the oil and petrochemicals industries
- Overuse of the country's limited water resources, which are obtained principally through tapping underground aquifers and the desalination of sea water
- A shortage of municipal waste facilities
- Contamination of the land from the improper disposal of hazardous industrial and military waste, with the desert often used as a dumping ground.

### Environment-International Agreements

Party to: Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Ozone Layer Protection.

### Environmental Authorities

- The Ministerial Committee on Environment (MCE)
- Meteorology and Environmental Protection Agency/ Administration (MEPA)
- The National Commission for Wildlife Conservation and Development (NCWCD)

### Regional Agencies:

- Regional Organization for Protection of Marine Environment (ROPME)



- The Red Sea and Gulf of Aden Environment Program.

Non-governmental Organizations (NGOs):

- Saudi Environmental Society
- Saudi Biological Society

In general, the authorities' responsibilities are: (i) to formulate a national environmental strategy; (ii) to coordinate and follow up on environmental activities within the Kingdom; and (iii) to establish the Kingdom's position on environmental issues at the national, regional, and international levels.

In recent years, Saudi Arabia has been increasing its efforts to protect the country from various environmental hazards, while attempting to balance these concerns with the country's heavy dependence on hydrocarbon production and export. On the whole, Saudi Arabia is striving to minimize the impact of the country's hydrocarbons sector on its environment (including the waters surrounding Saudi Arabia). Saudi Aramco's Environmental Conservation Policy directs that the company not create undue risks to the environment, and that operations be carried out with concern for protection of the land, air, and water, since the country is keen to protect the environmental safety of the Arabian Gulf and Red Sea.

## FACTS

**Formal Name:** Kingdom of Saudi Arabia

**Capital:** Riyadh

**Population:** 22.67 million

**Location:** The Middle East, occupying about 80 percent of the Arabian Peninsula

**Size:** Between 2,149,690 and 2,240,000 million km<sup>2</sup>.

**Length of coastline:** 2,640 km

**Terrain:** Mostly uninhabited, sandy desert

**Land use:** Arable land: 1.67 percent; Permanent crops: 0.09 percent; Other: 98.24 percent

## GRC Environmental Publications



### Youth and Environment Researches

The driving force behind change in any sphere has to embrace every single section of society in order to influence thinking and action. It is, therefore, extremely essential that the youth of today understand, assimilate and demand answers to crucial environmental issues, which have affected their past and present and will drastically impact their future as well.

This book contains ten student environmental papers discussing a wide range of environmental problems facing the region— who have been chosen by an international panel of experts based on the abstracts received from university students in the UAE, and have been presented in the "Youth Conference on Environment, GREEN GULF: THREATS, CHALLENGES AND SOLUTIONS" Organized by Gulf Research Center, Dubai and TERI (The Energy and Resources Institute), New Delhi in association with American University of Sharjah held at American University of Sharjah on 8 February 2006.





### GRC Co-sponsors an International Environment Conference

The Gulf Research Center cosponsored 'The First International Conference on The State of The Gulf Ecosystem: Future and Threats' held at United Arab Emirates University, Al Ain, UAE from March 5 to 7, 2006.



The conference was organized by Biology Department and Research Affairs Sector, United Arab Emirates University, UAE and the Aquatic Ecosystem Health and Management Society (AEHMS), Canada.

GRC participants in the conference were Dr. Oskar Ziemelis, director of cooperation, who chaired a session on the first day about pollution and other hazardous wastes, Dr. Mohamed Raouf, senior environment researcher, and Lana Foudeh who was responsible for the GRC publications stand. Many regional and international experts and students were interested and impressed by GRC activities, especially the Green Gulf project.

The aim of the conference was to reassess the health of the rapidly changing ecosystem of the Gulf in an integrated fashion. The Al Ain conference focused on the:

- Enhancement of environmental and ecological awareness in the Gulf in light of its continued exposure to intensive anthropogenic stresses and exploitation.
- Adoption of integrated, multi-disciplinary, multi-trophic, and holistic approaches in science and the management of ecosystems.
- Provision of possible remedies for problems associated with oil and gas industry pollution in the air

and water.

- Prediction of the future threats that the Gulf environment faces by adopting ecosystem, habitat, and food web modeling approaches.
- Promotion of international and standard monitoring/research programs to generate an environmental database for the Gulf involving all countries bordering the Gulf.

#### *The conference themes were:*

- Human stressors: oil, petroleum, non-oil, power, desalination, and agrochemicals
- Air quality
- Climate change
- Sediment quality assessment
- Coastal and desert habitats
- Biodiversity and exotics
- Marine ecology
- Wetland ecology
- Habitat degradation
- Ecosystem health and management
- Restoration and remediation
- Desert ecosystem ecology
- Emerging issues

### Celebrating the International Year of Deserts and Desertification (2006)



The Gulf Research Center (GRC) co-sponsored and





co-organized a workshop entitled 'Current Situation and the Future of Arab Deserts' in Damascus, Syria on May 14-16, 2006 held at and co-organized by the Arab Center for Arid Zones and Dry Lands (ACSAD). ACSAD is a specialized Arab organization working within the framework of the League of Arab States. Its objective is to unify Arab efforts aimed at developing scientific agricultural research in the arid and semi-arid areas, helping in the exchange of information and experiences, and making use of scientific progress and modern agricultural techniques in order to increase agricultural production.

Other cosponsors and organizers were Center for Environment and Development for the Arab Region and Europe (CEDARE), the Food and Agriculture Organization (FAO) – Regional Near East in Cairo, and the United Nations Environment Programme – West Asia Office (UNEP-ROWA).

The main goals of the conference were to:

- Identify the main problems facing the Arabian desert ecosystems and ways to solve them.
- Find new approaches to monitor land degradation and biodiversity.
- Exchange expertise in relation to the management and studying the Arabian deserts.
- Present local, regional, and international public and private efforts in relation to the desert ecosystem.

The GRC delivered one of the opening speeches, co-chaired a session, and presented the Green Gulf study, which was carried out by Gulf Research Center and The Resources and Energy Institute (TERI), India. A preliminary study aimed to assess the main environmental issues facing the Gulf region (biodiversity and land issues, water issues, air pollution, coastal and marine environment, and solid waste management).

## **Desert and Compacting Desertification Symposium in Oman**

The GRC received an invitation from the Ministry of Regional Municipalities, Environment, and Water Resources in Oman to participate and present its activities in the field of the environment as well as the Green Gulf study at its symposium entitled 'Desert and Compacting desertification.' The symposium was held in celebration of the World Day to Combat

Desertification, which is celebrated each year on June 17.



## **Al Jebal Al Akhdar First Field Visit**



The GRC participated in a field visit to the mountainous region of Al Jebal Al Akhdar in Oman, organized by Sultan Qaboos University. The GRC will take part in a big research project on conservation and sustainable development in Al Jebal Al Akhdar region, and the visit which took place from June 18 to June 20, 2006, aimed at procuring basic data and getting to know the area under study. The project will study all aspects of flora and fauna, including their socio-economic impact and environmental costs and benefits.



**June 13, 2006**

### **New Water Projects Outlined as City Looks to Reserves**

Abdul Rahman Al-Muhammadi, director general of the water authority in Jeddah, announced in a press conference that the city would take all possible steps in its operations to supply residents with their water requirements.

**June 11, 2006**

### **KISR Spent KD2 million on Water Research**

KISR Assistant Director General Yousuf Al-Sultan announced in a report that the overall cost of water projects executed, in progress, and in planning at Kuwait Institute for Scientific Research (KISR) was KD 1.970 million.

**June 7, 2006**

### **Ministers to Set a Green GCC Agenda**

A two-day meeting coinciding with World Environment Day will be held by GCC environment ministers and directors at the Ritz-Carlton Bahrain Hotel and Spa to discuss water scarcity, pollution, and energy conservation.

**June 7, 2006**

### **GCC Environmental Meeting Underlines Joint Action**

President of the General Commission for Protection of Marine Resources, Environment and Wildlife, Shaikh Abdulla bin Hamad Al Khalifa, chaired the 10th Meeting for GCC Ministers in Charge of Environmental Affairs, which was held in Manama, Bahrain.

**May 31, 2006**

### **Integrated Database for Water Wells Planned**

A top environmental official has announced that an integrated database for water wells in the emirate of Abu Dhabi will be established to help decision-makers make appropriate decisions.



**May 8, 2006**

### **Shaikh Khalifa Amends Law on Eco Protection**

A federal law revising Articles 12 and 83 of Federal Law Number 24 of 1999 on the protection and development of the environment was issued by the president, Shaikh Khalifa bin Zayed Al Nahyan. The law, which took affect



from its date of issue, reads as follows: "It is prohibited to hunt, kill or capture birds, wild or marine animals identified in the appendixes No. 1 for mammals, 2 for birds and 3 for reptiles. Under the law, it is forbidden to possess, transport, sell or roam with these animals – live or dead – without obtaining license from the competent authority..."

**May 5, 2006**

### **Oman to Celebrate World Environmental Day**

Oman, represented by the Ministry of Regional Municipalities, Environment, and Water Resources celebrated World Environment Day. This year's celebration was held with the motto 'Deserts and Desertification: Don't Desert Arid Lands,' and was aimed at attracting the world's attention to the importance of the environment and at enabling local communities to contribute to achieving sustainable development.

**April 30, 2006**

### **Voluntary Group Names UAE National to Board**

The world's largest voluntary initiative has appointed a UAE national woman for the first time. Habiba Al Marashi, chairperson of the Emirates Environment Group (EEG), has been appointed to the UN Global Compact board. It brings together businesses, UN agencies, labor, civil society, and governments to advance issues in the areas of human rights, labor standards, the environment, and combatting corruption. UN Global Compact, launched in 2000, has named a group of 20 business, labor, and civil society leaders to serve on its board.



**April 20, 2006**

**Dubai Water Consumption 100 Gallons Per Person**



Experts have announced that Dubai produces 80 million gallons of sewage water every day; best practices and partnerships between government bodies and people could reduce the figure by up to 10 million.

**April 17, 2006**

**Environment Agency Gives Green Light to 121 Projects**

121 environmental permits were issued to new projects, and 1,459 environmental inspections of facilities were completed successfully by the Environment Agency – Abu Dhabi (EAD) last year.

**April 17, 2006**

**EAD Issues Annual Report: Presenting a New Look and Future Focus on Sustainable Development**

The Environment Agency in Abu Dhabi issued its Annual Report for 2005, offering a new look for the agency and a future focus towards sustainable development. "Every year, EAD sets increasingly ambitious goals for itself to achieve the best possible results for the environment. If we can find more efficient ways to work, we'll do it. If by changing our systems, methods, and services we can find more effective ways of improving the environment, we'll change," said Mohammed Al Bowardi, managing director of EAD.

**March 26, 2006**

**Environmental Project Launched**

In a project with second-year communication technology students at Abu Dhabi Women's College (ADWC), the Emirates Wildlife Society, in association with WWF (EWS-WWF), has introduced topical environmental issues to introduce students to environmental campaign strategies.

**March 23, 2006**

**UAE Approves Study on Crisis Management**

According to Majid Al Mansouri, Secretary General of the Environment Agency – Abu Dhabi (EAD), Abu Dhabi Crown Prince General Shaikh Mohammad Bin Zayed Al

Nahyan has approved a study on developing a strategic plan for crisis management.

**March 23, 2006**

**Environment Agency Celebrates Water and Culture at the Cultural Foundation**

The Environment Agency – Abu Dhabi (EAD) celebrated World Water Day 2006 with a full-day event on March 22 at the Cultural Foundation in Abu Dhabi with the theme Water and Culture.

**March 19, 2006**

**Coral Reefs and Shorelines to be Better Protected**

To further protect the UAE's shorelines and reefs, the minister of environment and water signed his first memorandum of understanding (MoU) with a local non-profit voluntary organization yesterday.

**March 7, 2006**

**New Law on Drilling of Water Wells in Abu Dhabi**

Shaikh Khalifa bin Zayed Al Nahyan, the president and ruler of Abu Dhabi, has issued Law Number 6 for 2006 on the regulation of the drilling of water wells.

**February 20, 2006**

**Doha to Host 'First of its Kind' Agriteq Expo from February 25**

At a press conference in Doha, Abdullah al-Kuwari, director of the Green Qatar Centre, announced that 'Agriteq,' Qatar's first agriculture, landscaping, and water exhibition, is to be held under the patronage of the prime minister.

**February 7, 2006**

**Mohammad Tells Nations to Hold Civilized Dialogue**

In a meeting with United Nations Secretary-General Kofi Annan, Shaikh Mohammad Bin Rashid Al Maktoum, UAE vice president and ruler of Dubai, called for civilized dialogue among all countries to preserve peace and global stability. In this meeting, Annan received the \$1 million Zayed Prize for Global Leadership for the Environment for 2005.

Shaikh Mohammad presenting the Zayed Prize for Global Leadership for the Environment 2005 to Annan in Dubai.





The UN chief was honored for his lifelong dedication to fighting poverty, to sustainable development, and to the environment.

**Jan 31, 2006**

## Dubai First Arab City to Hold Major Environment Forum

The local organizing committee of the United Nations Environment Programme's (UNEP) 9th Special Session of the Governing Council/Global Ministerial Environment Forum 2006, met in Dubai to address energy and environment, tourism and environment, chemicals and environment, and environment governance including issues of relevance to the outcome of the 2005 World Summit of the United Nations.

The event being organised under the Patronage of His Highness Sheikh Mohammad Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and the Ruler of Dubai was one of the most important events in the region where issues such as chemicals management, energy and tourism formed part of a broad spectrum of environmental issues discussed.



## Other Research Bulletins by the GRC







# The Dubai Declaration on International Chemicals Management

We, the ministers, heads of delegation and representatives of civil society and the private sector, assembled at the International Conference on Chemicals Management in Dubai from 4 to 6 February, 2006, declare the following:

1. The sound management of chemicals is essential if we are to achieve sustainable development, including the eradication of poverty and disease, the improvement of human health and the environment and the elevation and maintenance of the standard of living in countries at all levels of development;

2. Significant, but insufficient, progress has been made in international chemicals management through the implementation of chapter 19 of Agenda 211 and International Labour Organization Conventions No. 170 on Safety in the Use of Chemicals at Work and No. 174 on the Prevention of Major Industrial Accidents and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, as well as in addressing particularly hazardous chemicals through the recent entry into force of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants and the adoption of the Globally Harmonized System for the Classification and Labelling of Chemicals;

3. The private sector has made considerable efforts to promote chemical safety through voluntary programmes and initiatives such as product stewardship and the chemicals industry's Responsible Care programme;

4. Non-governmental public health and environmental organizations, trade unions and other civil society organizations have made important contributions to the promotion of chemical safety;

5. Progress in chemicals management has not,

however, been sufficient globally and the environment worldwide continues to suffer from air, water and land contamination, impairing the health and welfare of millions;

6. The need to take concerted action is accentuated by a wide range of chemical safety concerns at the international level, including a lack of capacity for managing chemicals in developing countries and countries with economies in transition, dependency on pesticides in agriculture, exposure of workers to harmful chemicals and concern about the long-term effects of chemicals on both human health and the environment;

7. The global production, trade and use of chemicals are increasing, with growth patterns placing an increasing chemicals management burden on developing countries and countries with economies in transition, in particular the least developed among them and Small Island developing States, and presenting them with special difficulties in meeting this challenge. As a result, fundamental changes are needed in the way that societies manage chemicals;

8. We are determined to implement the applicable chemicals management agreements to which we are Party, strengthen the coherence and synergies that exist between them and work to address, as appropriate, existing gaps in the framework of international chemicals policy;

9. We commit ourselves in a spirit of solidarity and partnership to achieving chemical safety and thereby assisting in fighting poverty, protecting vulnerable groups and advancing public health and human security;

10. We commit ourselves to respecting human rights and fundamental freedoms, understanding and respecting ecosystem integrity and addressing the gap between the current reality and our ambition to elevate global efforts to achieve the sound management of chemicals;



11. We are unwavering in our commitment to promoting the sound management of chemicals and hazardous wastes throughout their life cycle, in accordance with Agenda 21<sup>1</sup> and the Johannesburg Plan of Implementation,<sup>2</sup> in particular paragraph 23. We are convinced that the Strategic Approach to International Chemicals Management constitutes a significant contribution towards the internationally agreed development goals set out in the Millennium Declaration. It builds upon previous international initiatives on chemical safety and promotes the development of a multi- and cross-sectoral and participatory strategic approach;

12. We therefore adopt the Overarching Policy Strategy, which, together with the present declaration, constitutes our firm commitment to the Strategic Approach and its implementation;

13. We recommend the use and further development of the Global Plan of Action, to address current and ever-changing societal needs, as a working tool and guidance document for meeting the commitments to chemicals management expressed in the Rio Declaration on Environment and Development,<sup>3</sup> Agenda 21, the Bahia Declaration on Chemical Safety,<sup>4</sup> the Johannesburg Plan of Implementation, the 2005 World Summit Outcome<sup>5</sup> and this Strategic Approach;

14. We are determined to realize the benefits of chemistry, including green chemistry, for improved standards of living, public health and protection of the environment, and are resolved to continue working together to promote the safe production and use of chemicals;

15. We are committed to strengthening the capacities of all concerned to achieve the sound management of chemicals and hazardous wastes at all levels;

16. We will continue to mobilize national and international financing from public and private sources for the life cycle management of chemicals;

17. We will work towards closing the gaps and addressing the discrepancies in the capacity to achieve sustainable chemicals management between developed countries on the one hand and developing countries and countries with economies in transition on the other by addressing the special needs of the latter and strengthening their capacities for the sound management of chemicals and the development of safer alternative products and processes, including non-chemical alternatives, through partnerships, technical support and financial assistance;

18. We will work towards effective and efficient governance of chemicals management by means of transparency, public participation and accountability involving all sectors of society, in particular striving for the equal participation of women in chemicals management;

19. We will engage actively in partnerships between Governments, the private sector and civil society, including strengthening participation in the implementation of the Strategic Approach by small and medium-sized enterprises and the informal sector;

20. We stress the responsibility of industry to make available to stakeholders such data and information on health and environmental effects of chemicals as are needed safely to use chemicals and the products made from them;

21. We will facilitate public access to appropriate information and knowledge on chemicals throughout their life cycle, including the risks that they pose to human health and the environment;

22. We will ensure that, when information is made available, confidential commercial and industrial information and knowledge are protected in accordance with national laws or regulations or, in the absence of such laws and regulations, are protected in accordance with international provisions. In making information





available, information on chemicals relating to the health and safety of humans and the environment should not be regarded as confidential;

23. We recognize the need to make special efforts to protect those groups in society that are particularly vulnerable to risks from hazardous chemicals or are highly exposed to them;

24. We are determined to protect children and the unborn child from chemical exposures that impair their future lives;

25. We will endeavour to prevent illegal traffic in toxic, hazardous, banned and severely restricted chemicals and chemical products and wastes;

26. We will promote the sound management of chemicals and hazardous waste as a priority in national, regional and international policy frameworks, including strategies for sustainable development, development assistance and poverty reduction;

27. We will strive to integrate the Strategic Approach into the work programmes of all relevant United Nations organizations, specialized agencies, funds and programmes consistent with their mandates as accorded by their respective governing bodies;

28. We acknowledge that as a new voluntary initiative in the field of international management of chemicals, the Strategic Approach is not a legally binding instrument;

29. We collectively share the view that implementation and taking stock of progress are critical to ensuring success and that, in this regard, a stable and long-term fully participatory and multi-sectoral structure for guidance, review and operational support is essential;

30. We are determined to cooperate fully in an open, inclusive, participatory and transparent manner in the implementation of the Strategic Approach.

1. Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, resolution 1, annex II.
2. Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August - 4 September 2002, chap. I, resolution 2, annex.
3. Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, resolution 1, annex I.
4. Intergovernmental Forum on Chemical Safety, third session, Forum III final report (IFCS/Forum III/23w), annex 6.
5. General Assembly resolution 60/1 of 6 September 2005.

## GRC Environmental Publications



### Green Gulf Report

The Gulf region has witnessed rapid socio-economic transformation in the last few decades. These changes have resulted in unprecedented pressures on the natural resources and rich terrestrial and marine biodiversity of the region, compounding the stress caused by naturally arid conditions. However, the governments of the Gulf countries have become increasingly conscious of the damage to the natural resources and the remedial measures required to arrest and reverse any adverse trends.

This report aims to document the state of the environment and natural resources in the Gulf Cooperation Council countries, namely, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates. It covers issues related to land resources and terrestrial biodiversity, coastal environment and marine biodiversity, water resources, air quality and solid waste management and seeks to answer the following questions:

- What are the trends in the state of the environment and natural resources?
- What are the major natural, social and economic drivers of these trends?
- What major initiatives have been taken to address these issues and how can these be strengthened further?



## **Gulf Research Center**

**K n o w l e d g e   f o r   A l l**

Based in Dubai, UAE, the GRC began its activity in 2000 as a privately-funded, non-partisan think tank, education provider and consultancy specializing in the Gulf region. The GRC produces recognized research from a Gulf perspective, redressing the current imbalance in Gulf area studies, where regional opinions and interests are underrepresented. The GRC believes that the Gulf Cooperation Council has transcended the initial reasons for its establishment, to become a fundamental right of its citizens in the development of the region. The GRC seeks to further this belief by being an institution of distinction and innovative research that advances different aspects of development to ultimately benefit the people of the region.

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