

Integrating Environment in Development Planning

MOSTAFA KAMAL TOLBA



I. INTRODUCTION

Integrating environment in development planning is what we now call sustainable development with its three dimensions: economic growth, social development and environmental protection.

The concept of sustainable development did not come up overnight. It is based on tenets expressed more than three decades ago. At the beginning of the 1970s, the Club of Rome released its famous report "Limits to Growth," warning that the planet's ability to sustain us, our industries, and our agriculture was being jeopardized, and that what, for a relatively small human population, had seemed infinite was actually alarmingly finite.

In Stockholm at the 1972 UN Conference on the Human Environment, the governments of the world agreed on the urgent need to respond to the problem of environmental deterioration. The Stockholm Conference clarified the link between development and the environment and suggested an approach that would recognize the socioeconomic factors behind many environmental problems and cure the effects by treating the causes.

The conference defined environment as the dynamic stock of physical and social resources available at any given time for the satisfaction of human needs, and development as a process by which these resources are used for increasing and maintaining human well-being. It became evident that environmental and development objectives are complementary.

With this understanding a search began for a new, more rounded concept of development related to the limits of the natural-resource base in which environmental considerations play a central role while still allowing opportunities for human activities. Current patterns of production and consumption, based on waste, extravagance, and planned obsolescence, would have to be replaced by those based on the conservation and reuse of resources.

In 1974 the Cocoyoc Declaration adopted by the United Nations stressed that:

- 1- Economic and social factors were often the root cause of environmental degradation.



- 2- Different nations placed widely differing demands on the biosphere, with the rich preempting and wasting many cheap natural resources, whereas the poor were often left with no option except to destroy them (this is now reflected in the concept of ecological footprint).
- 3- The principal means of achieving both environmental and developmental goals is to find alternative patterns of lifestyle and development.
- 4- This generation must not jeopardize the well-being of future generations by squandering the planet's resources.

Note that principles 1, 3, and 4 above have since become integral parts of the concept of sustainable development.

Concerns voiced at Stockholm, Cocoyoc and several subsequent international conferences have led to the evolution of the theory and practice now known as sustainable development. In 1987, the UN World Commission on Environment and Development elaborated the concept of sustainable development in its report "Our Common Future." In 1992, at the Rio United Nations Conference on Environment and Development (The Earth Summit), the leaders of the world agreed that the protection of the environment and social and economic development are prerequisites for sustainable development.

Since Rio, the world's nations have met in several major international conferences, which defined

a comprehensive vision for the future of humanity. The 20th century culminated with the UN Summit in 2000 which adopted the eight Millennium Development Goals; goal 7 was “Ensure environmental sustainability.”

At the Johannesburg Summit on Sustainable Development in 2002, leaders of the World at Heads of State and Government Level declared:

1- We, the representatives of the peoples of the world, reaffirm our commitment to sustainable development.

And 2- We commit ourselves to building a humane, equitable and caring global society, cognizant of the need for human dignity for all.

Most, if not all, the Arab states participated in the adoption of all these declarations. Therefore they have a moral obligation to achieve the Millennium Development Goals.

Our concern in this chapter is goal number 7 – ensuring environmental sustainability – through integrating environment into development plans at every level.

Of course there are serious challenges that face anyone trying to achieve such integration. These challenges include: poverty eradication, changing consumption and production patterns, protecting and managing the natural resources base and encouraging popular participation and effective support to education, scientific research and public information. Achieving all of this, however, is easier said than done because of the ills that governments themselves recognized at Johannesburg six years ago: particularly foreign occupation, armed conflicts, corruption, and modest efforts by the rich countries to help the poor ones. Globalization, has added a new dimension to these challenges.

The Arab states are fully aware of the challenges they face. In fact, they addressed most of them in the Abu Dhabi Declaration on the Future of Environmental Action in the Arab World, which was issued on the 3rd of February 2001, more than seven years ago.

In this declaration, the Arab ministers responsible for environmental affairs declared – inter alia – :

- 1- We note that despite the fact that we have today the benefit of a considerable amount of experience and expertise in dealing with the various environmental problems that face us, the reality is that those involved in environmental action in the Arab world are still far fewer in number and far less experienced than the situation requires and that institutions for environmental protection in the Arab world are of recent creation, have limited expertise and face difficult and complex challenges.
- 2- The priority environmental problems facing the Arab world at the beginning of the twenty-first century are:
 - The acute shortage and deteriorating quality of sources of water;
 - The paucity and deteriorating quality of exploitable land;
 - The imprudent consumption of natural resources;
 - Urban sprawl and its associated problems;
 - The degradation of marine and coastal areas.
- 3- We will apply new environmental accounting methods; adopt “cleaner production” strategy in its widest sense; adopt measures to ensure effective Arab participation in achievements in the field of advanced technology for the improvement of the Arab environment.
- 4- We will:
 - Pay greater attention to human development and capacity building at all levels of action and in all environmental specializations;
 - Develop curricula at all educational levels so that the environment becomes a basic component thereof;
 - Provide incentives to the Arab information media to take more focused and clearer interest in informing Arab citizens of environmental problems.
 - Encourage civil society to participate actively in decision – making on matters of environmental protection;
 - Achieve a qualitative leap in the efforts of scientific research and technological development institutions;
 - Emphasize the local absorption of water desalination techniques.

TABLE 1 ESI INDICATORS IN THE ARAB REGION

Indicator	Average Arab League Member Score	Average Rest of the World Score
Air Quality	-0.28	0.04
Water Quality	-0.54	0.07
Water Quantity	-0.58	0.07
Biodiversity	-0.12	0.01
Terrestrial Systems	0.54	-0.07
Reducing Air pollution	-0.14	0.02
Reducing Water Stress	-0.76	0.12
Reducing ecosystem Stress	-0.54	-0.07
Reducing Water & consumption pressures	-0.14	0.14
Reducing population growth	-0.63	0.08
Basic human sustenance	0.22	-0.03
Environmental Health	-0.06	0.01
Science and technology	-0.23	-0.19
Capacity for debate	-0.43	0.05
Environmental governance	-0.61	-0.02
Private Sector Responsiveness	-0.28	-0.12
Eco- efficiency	-0.52	0.07
Participation in international cooperative efforts	-0.33	0.02
Reducing Greenhouse Gas Emissions	-0.44	0.06
Reducing Transboundary Environmental Pressures	0.03	0.04

Source: Environmental Sustainability Index (ESI) 2005

- 5- We affirm the need for permanent resources to be secured for the funding of programs to address current and future environmental problems in the region by devising an inter-Arab mechanism to finance environmental investments at the national and regional levels.

II. THE ABU DHABI DECLARATION: SEVEN YEARS LATER

Let us now examine where we stand in 2008 with the implementation of the Abu Dhabi Declaration and responding to the rest of the challenges mentioned above.

It is important to keep in mind here that the purpose of this report in quantifying environmental sustainability in the Arab world is to facilitate more effective decision-making. Assigning blame or praise is not the goal.

Alarming figures on the environmental status of Arab countries appeared in the Environmental Sustainability Index (ESI) which was prepared for the World Economic Forum by researchers at

Yale and Columbia universities, in 2002 and 2005. These ESIs rank the average Arab country more than 10 points below other countries.

Because Arab states lie predominantly in extremely arid regions, and because water is such a fundamental aspect to environmental sustainability, it is logical to suspect that the low sustainability scores found in Arab states are primarily a function of location. However, when this measure of aridness is included as a control in the ESI analysis, scores of Arab states remain significantly below other states.

Geography, therefore, appears to matter, but not enough to account for the systematic under-performance observed among Arab states.

What does this data show

The Environmental Sustainability Indexes (ESIs) of 2002 and 2005 covered 142 and 146 countries, respectively, including 16 of the 22 Arab League member countries. They were based on official publications by UNESCO, FAO, WHO, World Bank, Federal Environment Agency of Germany, World

Economic Forum and National Reports prepared by the World Economic Forum and Yale and Columbia universities.

It should be noted that Bahrain, Comoros, Djibouti, Qatar, Palestine, and Somalia were omitted for various technical reasons.

To start with, we have to admit that there is a paucity of environmental data, and huge gaps exist in the data that is available. All this data, with few exceptions, dates back to late nineties of the past century to 2003 and only few from 2004.

Arab countries score above average when it comes to preserving land from human influence and in reducing human vulnerability to environmental harms. The above average performance in reducing human vulnerability is especially notable. Arab countries, however, score below average on seventeen of the ESI's twenty indicators, as summarized in Table 1:

The Arab states score, in general, far below average in, for example, air and water quality and in measures of social and institutional capacity and global stewardship.

Population growth and urbanization

The Arab rate of population growth is still among the highest in the world in spite of all the efforts exerted by the governments of the region to implement family planning policies. The population of the Arab world was around 72 million people in 1950, increasing to nearly 300 million in 2000, and is expected to reach 466 by 2025.

Table 2 shows the population indicators of all members of the Arab League as they were calculated in 2002/2003.

This very high rate of population growth puts a heavy burden on natural resources and social services and heightens the need for employment opportunities growth as youths seek to enter the work force. High rates of population growth significantly dampen prospects for lasting economic development.

Rapid urbanization is also endemic throughout the region. The United Nations Population

TABLE 2		POPULATION INDICATOR OF THE ARAB COUNTRIES	
Country	Total Fertility Rate	Projected Change in Population by 2050 (%)	
Algeria	3.1	66.2	
Bahrain	2.8	300.4	
Comoros	6.8	207.9	
Djibouti	6.1	67.1	
Egypt	3.5	64.3	
Iraq	5.3	127.1	
Jordan	3.6	128.5	
Kuwait	4.2	180.7	
Lebanon	2.5	35.4	
Libya	3.9	106.4	
Mauritania	6.0	207.9	
Morocco	3.4	66.0	
Oman	6.1	218.0	
Qatar	3.9	45.3	
Saudi Arabia	5.7	185.4	
Somalia	7.3	240.5	
Sudan	4.9	99.9	
Syrian AR	4.1	105.9	
Tunisia	2.3	46.5	
U.A.E.	3.5	53.6	
West Bank and Gaza	5.9	239.4	
Yemen	7.2	295.0	
Arab country average	4.6	140.3	
World average	3.4	66.2	

Source: Environmental Sustainability Index (ESI), 2002

Division reports that on average, urban areas in the Arab world are growing a percentage point faster than in the rest of the world. Some of the poorest countries, such as Comoros, Mauritania, and Somalia, have rates of urbanization in excess of 4 percent per year, which puts tremendous strains on urban water supplies and sanitation infrastructure. Cairo, the largest Arab city with a population of 10.6 million, has significant air quality and sanitation problems. Casablanca, a city of 3.3 million, properly disposes of only 10 percent of household waste through sanitary landfills and incineration. Sana'a (Yemen), with 1.2 million people, effectively has no sanitary waste disposal facilities. The proportion of household waste that is processed ranges from only 3 percent in Damascus to 83 percent in Tunisia.

Table 3 shows the waste recycling rates recorded in the ESI tables. With very few exceptions, the 16 Arab countries reported score very low on waste recycling indices.

TABLE 3 PERCENTAGE OF WASTE RECYCLING

Max	91				
Min	0				
Albania	0.00	Ghana	0.00	Norway	85.00
Algeria	..	Greece	35.00	Oman	..
Angola	..	Guatemala	5.00	P. N. Guinea	..
Argentina	0.30	Guinea	5.00	Pakistan	12.00
Armenia	0.00	Guinea-Bissau	..	Panama	0.00
Australia	47.00	Guyana	..	Paraguay	4.00
Austria	84.00	Haiti	..	Peru	7.00
Azerbaijan	..	Honduras	..	Philippines	0.00
Bangladesh	35.00	Hungary	38.00	Poland	17.20
Belarus	0.00	Iceland	..	Portugal	40.00
Belgium	87.00	India	14.50	Romania	..
Benin	25.00	Indonesia	30.00	Russia	13.90
Bhutan	..	Iran	..	Rwanda	0.00
Bolivia	2.00	Iraq	..	Saudi Arabia	..
Bosnia and Herz.	..	Ireland	35.00	Senegal	0.00
Botswana	1.00	Israel	..	Serbia and Mont.	0.70
Brazil	22.00	Italy	40.00	Sierra Leone	..
Bulgaria	22.80	Jamaica	..	Slovakia	40.00
Burkina Faso	12.00	Japan	78.00	Slovenia	8.00
Burundi	0.00	Jordan	0.00	South Africa	0.00
Cambodia	15.00	Kazakhstan	..	South Korea	67.00
Cameroon	8.00	Kenya	1.00	Spain	54.00
Canada	54.00	Kuwait	0.00	Sri Lanka	0.00
Central Afr. Rep.	0.00	Kyrgyzstan	0.00	Sudan	..
Chad	0.00	Laos	..	Sweden	86.00
Chile	8.00	Latvia	0.00	Switzerland	91.00
China	..	Lebanon	6.00	Syria	21.00
Colombia	11.50	Liberia	0.00	Taiwan	14.60
Congo	26.20	Libya	20.00	Tajikistan	..
Costa Rica	..	Lithuania	..	Tanzania	..
Côte d'Ivoire	3.00	Macedonia	..	Thailand	0.00
Croatia	13.00	Madagascar	..	Togo	0.00
Cuba	0.00	Malawi	..	Trin. and Tob.	..
Czech Rep.	42.00	Malaysia	10.00	Tunisia	5.00
Dem. Rep. Congo	4.90	Mali	0.00	Turkey	40.00
Denmark	65.00	Mauritania	1.00	Turkmenistan	..
Dominican Rep.	..	Mexico	13.00	Uganda	2.50
Ecuador	20.00	Moldova	..	Ukraine	..
Egypt	0.00	Mongolia	0.00	United Arab. Em.	..
El Salvador	0.00	Morocco	0.00	United Kingdom	41.00
Estonia	0.00	Mozambique	0.00	United States	42.00
Ethiopia	0.00	Myanmar	14.00	Uruguay	0.00
Finland	89.00	Namibia	4.50	Uzbekistan	..
France	55.00	Nepal	15.90	Venezuela	..
Gabon	0.00	Netherlands	78.00	Viet Nam	15.00
Gambia	0.00	New Zealand	65.00	Yemen	5.00
Georgia	..	Nicaragua	..	Zambia	..
Germany	83.00	Niger	..	Zimbabwe	16.00
		Nigeria	..		
		North Korea	..		

Source: Environmental Sustainability Index (ESI), 2005
 Note: “..” means the data point is missing.

TABLE 4

PERCENTAGE OF POPULATION WITH ACCESS TO IMPROVED DRINKING WATER SOURCE

Max	100	Ghana	79.00	Norway	100.00
Min	13	Greece	[102.16]	Oman	79.00
Albania	97.00	Guatemala	95.00	P. N. Guinea	39.00
Algeria	87.00	Guinea	51.00	Pakistan	90.00
Angola	50.00	Guinea-Bissau	59.00	Panama	91.00
Argentina	[88.93]	Guyana	83.00	Paraguay	83.00
Armenia	92.00	Haiti	71.00	Peru	81.00
Australia	100.00	Honduras	90.00	Philippines	85.00
Austria	100.00	Hungary	99.00	Poland	[102.2]
Azerbaijan	77.00	Iceland	100.00	Portugal	[98.51]
Bangladesh	75.00	India	86.00	Romania	57.00
Belarus	100.00	Indonesia	78.00	Russia	96.00
Belgium	96.45	Iran	93.00	Rwanda	73.00
Benin	68.00	Iraq	81.00	Saudi Arabia	[87.55]
Bhutan	62.00	Ireland	100.00	Senegal	72.00
Bolivia	85.00	Israel	100.00	Serbia and Mont.	93.00
Bosnia and Herz.	98.00	Italy	94.10	Sierra Leone	57.00
Botswana	95.00	Jamaica	93.00	Slovakia	100.00
Brazil	89.00	Japan	100.00	Slovenia	[103.1]
Bulgaria	100.00	Jordan	91.00	South Africa	87.00
Burkina Faso	51.00	Kazakhstan	86.00	South Korea	92.00
Burundi	79.00	Kenya	62.00	Spain	[99.85]
Cambodia	34.00	Kuwait	[98.75]	Sri Lanka	78.00
Cameroon	63.00	Kyrgyzstan	76.00	Sudan	69.00
Canada	100.00	Laos	43.00	Sweden	100.00
Central Afr. Rep.	75.00	Latvia	[98.73]	Switzerland	100.00
Chad	34.00	Lebanon	100.00	Syria	79.00
Chile	95.00	Liberia	62.00	Taiwan	100.00
China	77.00	Libya	72.00	Tajikistan	58.00
Colombia	92.00	Lithuania	[98.01]	Tanzania	73.00
Congo	46.00	Macedonia	[86.05]	Thailand	85.00
Costa Rica	97.00	Madagascar	45.00	Togo	51.00
Côte d'Ivoire	84.00	Malawi	67.00	Trin. and Tob.	91.00
Croatia	[95.48]	Malaysia	95.00	Tunisia	82.00
Cuba	91.00	Mali	48.00	Turkey	93.00
Czech Rep.	[96.86]	Mauritania	56.00	Turkmenistan	71.00
Dem. Rep. Congo	46.00	Mexico	91.00	Uganda	56.00
Denmark	100.00	Moldova	92.00	Ukraine	98.00
Dominican Rep.	93.00	Mongolia	62.00	United Arab. Em.	98.00
Ecuador	86.00	Morocco	80.00	United Kingdom	[100.1]
Egypt	98.00	Mozambique	42.00	United States	100.00
El Salvador	82.00	Myanmar	80.00	Uruguay	98.00
Estonia	[101.83]	Namibia	80.00	Uzbekistan	89.00
Ethiopia	22.00	Nepal	84.00	Venezuela	83.00
Finland	100.00	Netherlands	100.00	Viet Nam	73.00
France	[101.75]	New Zealand	[97.7]	Yemen	69.00
Gabon	87.00	Nicaragua	81.00	Zambia	55.00
Gambia	82.00	Niger	46.00	Zimbabwe	83.00
Georgia	76.00	Nigeria	60.00		
Germany	100.00	North Korea	100.00		

Source: Environmental Sustainability Index (ESI), 2005
 Note: Data in "[]" indicates imputed values; "... " means the data point is missing.

TABLE 5 ESI WATER INDICATORS IN ARAB STATES

Country	Water Quantity	Water Quality	Reducing Water Stress
Algeria	-1.04	-0.18	-0.18
Egypt	-0.27	-0.55	-0.82
Iraq	-0.08	-0.66	-0.47
Jordan	-0.70	-0.53	-0.45
Kuwait	-1.09	-1.10	-2.79
Lebanon	-1.07	-0.79	-1.48
Libya	-0.66	-0.75	-0.61
Mauritania	0.14	-0.53	0.59
Morocco	-1.07	-0.69	-0.27
Oman	-1.06	-0.05	-1.54
Saudi	-1.08	-0.56	-0.59
Somalia	-0.08	-0.25	0.26
Sudan	-0.01	-0.75	0.45
Syrian AR	-0.18	-0.40	-0.76
Tunisia	-0.64	0.05	-0.62
U.A.E.	-0.36	-0.92	-2.87
Arab average	-0.58	-0.54	-0.76
World average	0.00	0.00	0.11

Source: Environmental Sustainability Index (ESI). 2002

Note that the following variables are taken into account for the relevant indicators presented in table 5:

- Water Quantity: (i) freshwater available per capita and (ii) internal groundwater availability per capita.
- Water Quality: (i) dissolved oxygen concentration; (ii) electrical conductivity; (iii) phosphorus concentration; and (iv) suspended solids.
- Reducing Water Stress: (i) Industrial organic water pollutant (BOD) emissions per available freshwater; (ii) fertilizer consumption per hectare of available land; (iii) pesticide consumption per hectare of available land; and (iv) percentage of country under severe water stress.

On the other hand, the Arab states fare relatively well when it comes to percentages of population with access to improved drinking water source (Table 4).

The fact that 70% of the region is arid certainly has a major influence in shaping environmental and sustainability issues in the Arab region (see Chapter 7).

Freshwater resources

Freshwater resources in the Arab world represent only 1.2% of global water reserves although the

region accounts for about 3% of the world's population and 10% of world land. Average per capita renewable water resources in the Arab region are far below 1,000 cubic meters per year, considered the world's water poverty line. Note that the world average is 7,000 cubic meters.

Under these circumstances, non-conventional resources provide an invaluable escape. These include: (i) rain water; (ii) desalination; (iii) cloud seeding; (iv) towing icebergs; and (v) reusing and treating wastewater.

Most of these forms are used or have been tried to various degrees and with various levels of success in a number of Arab countries.

Among the listed options, desalination is considered to be the best alternative. In the Arab region, desalination is heavily used especially in the Arab Peninsula. While desalinated water represents less than 1% of total fresh water in the Arab region as a whole, it represents 12% of that in the Arab Peninsula. The "production" of desalinated water in the Arab region constitutes about 60% of total world production. In the Gulf, one desalination plant produces 7.6% of the world's production (1 million cubic meters/day). Ten years ago, Saudi Arabia alone produced 27% (14mcm/day) of the

TABLE 6

INTERNAL GROUNDWATER AVAILABILITY PER CAPITA (MEASURED PER THOUSAND CUBIC METERS)

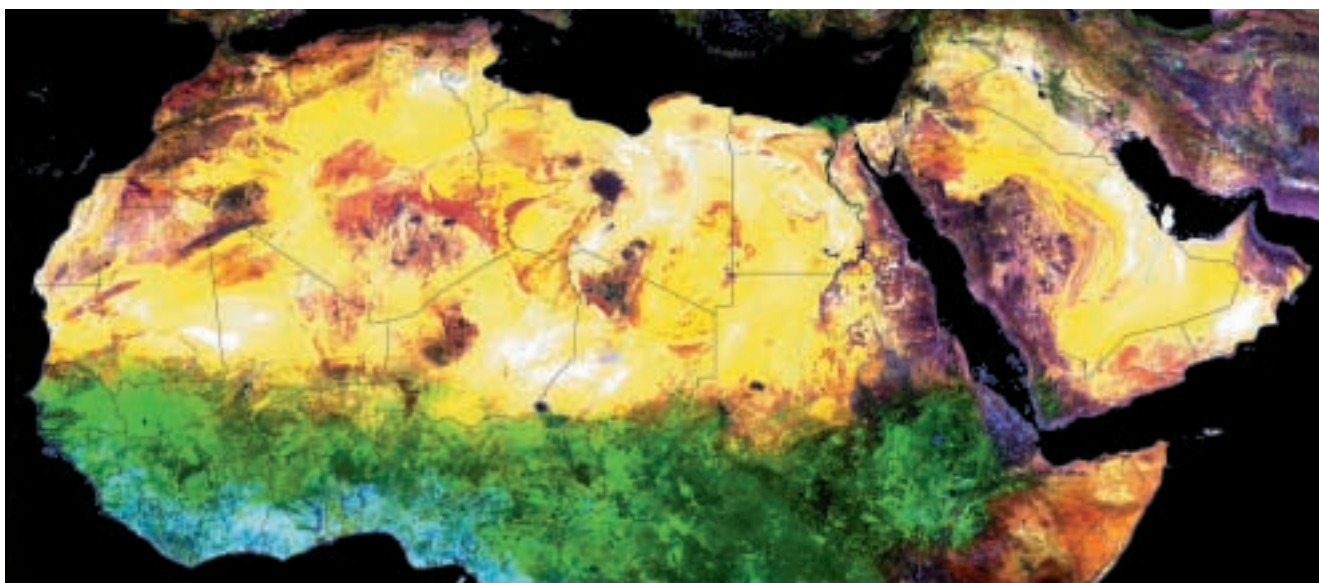
Max	110.27				
Min	0.00				
Albania	1.92	Ghana	2.14	Norway	20.92
Algeria	0.05	Greece	0.94	Oman	0.36
Angola	5.42	Guatemala	2.66	P. N. Guinea	..
Argentina	3.38	Guinea	4.11	Pakistan	0.35
Armenia	1.31	Guinea-Bissau	9.10	Panama	6.62
Australia	3.58	Guyana	..	Paraguay	6.81
Austria	0.74	Haiti	0.27	Peru	11.00
Azerbaijan	0.78	Honduras	5.55	Philippines	2.15
Bangladesh	0.15	Hungary	0.60	Poland	0.33
Belarus	1.84	Iceland	82.19	Portugal	0.38
Belgium	0.09	India	0.39	Romania	0.38
Benin	0.25	Indonesia	2.08	Russia	5.47
Bhutan	..	Iran	0.73	Rwanda	0.43
Bolivia	14.83	Iraq	0.05	Saudi Arabia	0.09
Bosnia and Herz.	..	Ireland	2.66	Senegal	0.70
Botswana	1.01	Israel	0.07	Serbia and Mont.	..
Brazil	10.46	Italy	0.74	Sierra Leone	9.67
Bulgaria	0.82	Jamaica	1.47	Slovakia	0.32
Burkina Faso	..	Japan	0.21	Slovenia	6.76
Burundi	0.34	Jordan	0.09	South Africa	0.10
Cambodia	1.34	Kazakhstan	0.41	South Korea	..
Cameroon	6.23	Kenya	0.09	Spain	0.70
Canada	11.60	Kuwait	0.00	Sri Lanka	0.40
Central Afr. Rep.	14.97	Kyrgyzstan	2.69	Sudan	0.18
Chad	1.21	Laos	6.55	Sweden	2.22
Chile	8.76	Latvia	0.95	Switzerland	0.34
China	0.64	Lebanon	0.71	Syria	0.23
Colombia	11.25	Liberia	17.21	Taiwan	..
Congo	110.27	Libya	0.09	Tajikistan	0.91
Costa Rica	8.84	Lithuania	0.35	Tanzania	0.83
Côte d'Ivoire	2.23	Macedonia	..	Thailand	0.66
Croatia	2.48	Madagascar	3.14	Togo	1.03
Cuba	0.58	Malawi	0.12	Trin. and Tob.	..
Czech Rep.	0.14	Malaysia	2.50	Tunisia	0.14
Dem. Rep. Congo	0.23	Mali	1.49	Turkey	0.97
Denmark	0.80	Mauritania	0.10	Turkmenistan	0.06
Dominican Rep.	1.33	Mexico	1.31	Uganda	1.11
Ecuador	10.00	Moldova	0.10	Ukraine	0.42
Egypt	0.02	Mongolia	2.42	United Arab. Em.	0.03
El Salvador	0.92	Morocco	0.33	United Kingdom	0.16
Estonia	2.97	Mozambique	0.89	United States	4.43
Ethiopia	0.55	Myanmar	3.11	Uruguay	6.77
Finland	0.42	Namibia	1.10	Uzbekistan	0.33
France	1.67	Nepal	0.81	Venezuela	8.67
Gabon	45.89	Netherlands	0.28	Viet Nam	0.59
Gambia	0.32	New Zealand	..	Yemen	0.07
Georgia	0.01	Nicaragua	10.49	Zambia	4.30
Germany	0.21	Niger	0.20	Zimbabwe	0.39
		Nigeria	0.63		
		North Korea	0.57		

Source: Environmental Sustainability Index (ESI), 2005
 Note: “..” indicates that the data point is missing.

TABLE 7 NUMBER OF ISO 14001 CERTIFIED PER BILLION DOLLARS GDP (PPP)

Max	41.51	Ghana	0.02	Norway	2.11
Min	0.00	Greece	0.45	Oman	0.18
Albania	0.00	Guatemala	0.04	P. N. Guinea	0.00
Algeria	0.02	Guinea	0.00	Pakistan	0.09
Angola	0.00	Guinea-Bissau	0.00	Panama	0.06
Argentina	41.51	Guyana	0.92	Paraguay	0.00
Armenia	0.00	Haiti	0.00	Peru	0.23
Australia	1.50	Honduras	0.11	Philippines	0.50
Austria	2.13	Hungary	4.68	Poland	1.06
Azerbaijan	0.19	Iceland	0.36	Portugal	1.33
Bangladesh	0.02	India	0.22	Romania	0.66
Belarus	0.04	Indonesia	0.36	Russia	0.04
Belgium	1.06	Iran	0.22	Rwanda	0.00
Benin	0.00	Iraq	0.00	Saudi Arabia	0.03
Bhutan	0.00	Ireland	0.75	Senegal	0.13
Bolivia	0.23	Israel	0.87	Serbia and Mont.	..
Bosnia and Herz.	..	Italy	2.05	Sierra Leone	0.00
Botswana	0.14	Jamaica	0.10	Slovakia	1.06
Brazil	0.74	Japan	4.03	Slovenia	5.63
Bulgaria	0.30	Jordan	0.73	South Africa	0.58
Burkina Faso	0.00	Kazakhstan	0.05	South Korea	1.85
Burundi	0.00	Kenya	0.03	Spain	5.54
Cambodia	0.04	Kuwait	0.08	Sri Lanka	0.19
Cameroon	0.06	Kyrgyzstan	0.00	Sudan	0.02
Canada	1.34	Laos	0.00	Sweden	9.94
Central Afr. Rep.	0.00	Latvia	0.93	Switzerland	5.28
Chad	0.00	Lebanon	0.26	Syria	0.55
Chile	0.52	Liberia	0.00	Taiwan	..
China	0.86	Libya	0.00	Tajikistan	0.00
Colombia	0.32	Lithuania	2.01	Tanzania	0.05
Congo	0.00	Macedonia	0.08	Thailand	1.70
Costa Rica	1.15	Madagascar	0.00	Togo	0.00
Côte d'Ivoire	0.00	Malawi	0.48	Trin. and Tob.	0.57
Croatia	1.14	Malaysia	1.66	Tunisia	0.27
Cuba	0.00	Mali	0.00	Turkey	0.30
Czech Rep.	3.76	Mauritania	0.00	Turkmenistan	..
Dem. Rep. Congo	0.00	Mexico	0.45	Uganda	0.09
Denmark	4.28	Moldova	0.00	Ukraine	0.02
Dominican Rep.	0.02	Mongolia	0.00	United Arab. Em.	1.71
Ecuador	0.04	Morocco	0.10	United Kingdom	1.88
Egypt	0.77	Mozambique	0.05	United States	0.34
El Salvador	0.00	Myanmar	0.03	Uruguay	1.22
Estonia	4.45	Namibia	0.32	Uzbekistan	0.00
Ethiopia	0.00	Nepal	0.03	Venezuela	0.13
Finland	7.78	Netherlands	2.47	Viet Nam	0.30
France	1.46	New Zealand	1.17	Yemen	0.00
Gabon	0.00	Nicaragua	0.00	Zambia	0.23
Gambia	0.00	Niger	0.11	Zimbabwe	..
Georgia	0.00	Nigeria	0.09		
Germany	1.86	North Korea	0.00		

Source: Environmental Sustainability Index (ESI), 2005



world's capacity. Still, what happens in the Arab region in the area of desalination is buying turn key technologies. We are far from successfully implementing the commitment of the Arab Ministers of Environment in 2001 to ensure the local absorption of these technologies. There are separate efforts in some Arab countries such as Egypt, Jordan, Oman and Saudi Arabia, but what is certainly needed is meaningful regional co-operation in this very important area.

The measure of water stress used in the ESI was the percentage of territory in which water consumption exceeded availability by 40 percent or more. The average Arab state had in this index a value of 71 percent as compared to 20 percent for other states. African members of the Arab League countries fare better on water issues than do the West Asian countries.

For a number of Arab countries water inflows and groundwater resources are far below levels needed to support basic human needs and economic growth. More troubling is the acknowledged failure to integrate planning for meeting water needs with other aspects of social and resource planning. The 2002 United Nations Development Programme (UNDP) Arab Development Report draws attention to the weak conservation and reuse programs; the failure to come to grips with tradeoffs among agricultural, industrial, and human water needs; and the lack of attention paid to the challenges of managing transboundary freshwater resources. Regional

assessments increasingly raise concerns about the ability of the region to meet its freshwater needs over the coming decades in the absence of effective integrated planning. Among Arab League members, Iraq, Libya, and the Syrian Arab Republic have especially worrisome prospects.

“Surface water is an important part of the picture of a country's water resources. The more groundwater is available per capita, the higher the probability that a country can sustainably manage its groundwater resources, e.g. for agricultural production” (ESI 2005, Methodology Appendix). Table 6 gives the values of Internal Groundwater availability per capita as reported in the ESI 2005.

The UAE has unveiled a three-year environmental plan focused on the rational use of the country's natural resources, aimed in particular at reducing the use of groundwater and other natural reserves over the next three years in a bid to shift focus to alternative sources such as desalination. In July 2007 Abu Dhabi invited offers from at least 20 international firms to build a water desalination and power plant in the country. The move also involves creating awareness among UAE nationals about rational water use.

Tables 7 and 8 show that Arab countries reported on in the ESI publications score very low with respect to the number of nationally active ISO 14001 ISO (environmentally sound) companies and most of them likewise fare badly in measures of the number of researchers.

TABLE 8 NUMBER OF RESEARCHERS PER MILLION INHABITANTS

Max 7110.45			
Min 1.82			
Albania	[451.31]	Ghana	[557.12]
Algeria	[-4.23]	Greece	1400.06
Angola	[-354.55]	Guatemala	[-183.78]
Argentina	684.38	Guinea	[-975.42]
Armenia	1534.00	Guinea-Bissau	[-194.44]
Australia	3438.51	Guyana	[607.39]
Austria	2313.29	Haiti	[-1027.86]
Azerbaijan	2798.58	Honduras	[-631.7]
Bangladesh	[-163.45]	Hungary	1439.68
Belarus	[1004.23]	Iceland	6639.29
Belgium	2953.26	India	[285.91]
Benin	[-405.16]	Indonesia	[218.59]
Bhutan	[147.9]	Iran	[-14.32]
Bolivia	123.31	Iraq	[257.49]
Bosnia and Herz.	[1136.14]	Ireland	2190.03
Botswana	[1051.19]	Israel	1563.29
Brazil	323.36	Italy	1127.85
Bulgaria	1166.65	Jamaica	[762.49]
Burkina Faso	16.00	Japan	5320.77
Burundi	[-713.55]	Jordan	1948.37
Cambodia	[166.95]	Kazakhstan	715.80
Cameroon	[-111.32]	Kenya	[-47.48]
Canada	2978.16	Kuwait	212.08
Central Afr. Rep.	[184.72]	Kyrgyzstan	581.27
Chad	[29.32]	Laos	[116.56]
Chile	418.58	Latvia	1078.24
China	583.93	Lebanon	[2005.59]
Colombia	100.70	Liberia	[-977.07]
Congo	[197.44]	Libya	[1644.9]
Costa Rica	[1014.64]	Lithuania	2303.2
Côte d'Ivoire	[-631.24]	Macedonia	[641.0]
Croatia	1186.95	Madagascar	15.03
Cuba	489.40	Malawi	[-971.19]
Czech Rep.	1465.87	Malaysia	159.93
Dem. Rep. Congo	[-962.82]	Mali	[-252.28]
Denmark	3475.75	Mauritania	[671.54]
Dominican Rep.	[-339.29]	Mexico	224.73
Ecuador	83.29	Moldova	329.49
Egypt	[1321.94]	Mongolia	[1365.79]
El Salvador	46.67	Morocco	[257.41]
Estonia	1946.70	Mozambique	[37.06]
Ethiopia	[-544.65]	Myanmar	[280.15]
Finland	7110.45	Namibia	[1086.91]
France	2717.85	Nepal	[56.42]
Gabon	[433.96]	Netherlands	2572.2
Gambia	[545.27]	New Zealand	2197.1
Georgia	2420.78	Nicaragua	72.67
Germany	3153.01	Niger	[143.07]
		Nigeria	[-851.62]
		Norway	4376.6
		North Korea	[1516.76]
		Oman	[761.3]
		P. N. Guinea	[100.9]
		Pakistan	[86.7]
		Panama	95.27
		Paraguay	166.03
		Peru	228.83
		Philippines	[-391.16]
		Poland	1473.0
		Portugal	1754.1
		Romania	879.25
		Russia	3494.1
		Rwanda	[-238.34]
		Saudi Arabia	[969.33]
		Senegal	1.82
		Serbia and Mont.	[915.0]
		Sierra Leone	[-623.94]
		Slovakia	1773.6
		Slovenia	2258.0
		South Africa	[826.3]
		South Korea	2879.7
		Spain	1947.6
		Sri Lanka	190.54
		Sudan	[-991.66]
		Sweden	5186.0
		Switzerland	3591.8
		Syria	29.44
		Taiwan	1258.4
		Tajikistan	[965.55]
		Tanzania	[174.8]
		Thailand	73.81
		Togo	[-670.92]
		Trin. and Tob.	455.82
		Tunisia	336.41
		Turkey	305.52
		Turkmenistan	[116.29]
		Uganda	23.56
		Ukraine	2117.6
		United Arab. Em.	[2327.82]
		United Kingdom	2666.4
		United States	4099.3
		Uruguay	276.29
		Uzbekistan	[1261.55]
		Venezuela	193.08
		Viet Nam	[525.62]
		Yemen	[1.13]
		Zambia	[283.39]
		Zimbabwe	[295.33]

Source: Environmental Sustainability Index (ESI), 2005
 Note: data in "[]" indicates imputed values.

The Arab region contains 53% of the world's known oil reserves and 26% of natural gas reserves. But energy needs and costs are fast escalating. Investments of \$100 billion are reportedly needed in the next 10 years across the Gulf Cooperation Council (GCC) to double power generation as populations grow and industrialize.

Biodiversity

Most of the Arab states established and are continuing to establish and maintain protected areas on land and in the sea. But the Arab region has one painfully negative record. For the first time in its history, the UNESCO World Heritage Programme had to take the hard decision of removing one site from its glamorous list of global natural wonders, the site in question being an Arabian Oryx sanctuary in Oman. The Omani government itself had requested removal of the site from the list and both UNESCO and the International Union for Conservation of

Nature (IUCN) reluctantly complied. IUCN had identified serious threats to the natural values of the site for a number of years. These were discussed several times by the World Heritage Committee, which called for urgent action to address the threats. The population of Arabian Oryx has significantly declined from 450 in 1996 to the current situation where there remains only one breeding herd of four females and four males. The capacity of the Arabian Oryx Sanctuary to maintain a viable free-ranging population of this endangered species has been extremely reduced. This unprecedented episode constituted a particularly big loss since, among the Arab countries, Oman has a very impressive record of environmental awareness and effective policies.

The great importance assigned to wildlife conservation by Arab leaders could be seen, however, as out of sync with the region's priorities as identified by environmental ministers.

SHINING EXAMPLES OF ENVIRONMENTALLY SOUND BUSINESS IN THE FIELD OF ENERGY MANAGEMENT IN VARIOUS ARAB COUNTRIES

Abu Dhabi has launched an innovative clean energy initiative, Masdar, promising to invest \$15 billion into it. This includes building a city powered entirely by renewable energy. Masdar announced that it will invest in clean technology companies, a sustainability research centre and major green power projects.

A Jordanian company established in 1991 received the Special Recognition Award at the 16th World Energy Congress in the U.S. Today, it is considered to be the leading energy service company in the Middle East, providing its services to over 500 large corporations and government institutions in the region.

More developers and companies in the Middle East are working towards achieving LEED (Leadership in Energy and Environmental Design) certification, an official recognition that was developed by the U.S. Green Building Council. The Gulf states are taking the lead in this area.

Energy City Qatar (ECQ), a \$2.6 billion project, is the

Middle East's first hydrocarbon industry business centre. Experts are predicting that ECQ will become one of the region's most viable environmentally sound business centres.

The Commercial Bank of Dubai's head office reported a 15% reduction in its annual energy expenditure over a period of 10 months and one of the buildings in Dubai witnessed a 50% saving.

The Arab Forum for Environment and Development (AFED) convened a Business Summit on Corporate Environmental Responsibility in the Arab World in Abu Dhabi in November 2007. In their declaration, the Chief Executive Officers (CEOs) present committed themselves to cut down the use of water and energy in their products and services by 20% by the year 2012 from the base year 2002 levels.

Work on the Arab region's first "bio-refinery," which will produce ethanol mainly from date palms for use in motor vehicles as a substitute for petrol and diesel, is due to start in Oman's Batinah region town of Sohar soon. The 11 million riyal (\$28.5 million) plant, to be imported from Brazil, is expected to create 4,000 jobs for nationals, in addition to turning in a profit of \$225 million in its very first year of operation.

Wildlife and habitat protection receive almost as much attention in the press of a number of Arab countries as freshwater issues, and almost ten times as much as either air pollution or climate change, this may reflect an imbalance in priorities.

Arab countries – with the exception of Jordan and Palestine – do not publish specific reports on environment statistics. A number of them publish State of the Environment Reports.

Particularly significant data gaps exist in the Arab region in a number of key areas:

- *Land*: land use (agricultural and cultivatable land) and land degradation; there is no usage of the Land Degradation Assessment Drylands (LADA) method for classification.
- *Biodiversity*: threatened species, protected areas, and forest cover.
- *Coastal ecosystems*: marine pollution, urban development in coastal areas, and destruction of marine habitats.

Application and enforcement

It is not clear from the available information how far countries in the Arab region apply the tools of environmental economics and environmental accounting in development planning.

Arab countries are tackling environment enforcement issues and preparing environment action plans. Chapter 13 of this report deals specifically with environmental legislation in the Arab region. It identifies that its weak enforcement is a major obstacle to improving the state of the environment in the region. The first Arab Regional Conference on the Inspection and Enforcement of Environmental Regulations was held in Jordan in May 2007 with the aim of increasing cooperation on these key issues. The conference was organized by the International Network for Environmental Compliance and Enforcement (INECE) with the participation of experts from Algeria, Jordan, Morocco, Oman, Qatar, Saudi Arabia and Yemen.

Environmental Awareness in the Arab World

This subject is covered in detail in Chapter 14 by Najib Saab which shows that media on environment in Arab countries, with few exceptions, are

restricted to fragmented national and international news items spread over any pages in Arabic newspapers. Both radio and TV programs are largely devoid of environmental coverage except in few cases.

III. WHAT NEEDS TO BE DONE

Progress has been made in countries of the region in addressing the challenges of environmental sustainability.

A number of political forums have been established at the regional level to improve governance, define goals and priority action areas, and adopt an integrated approach to sustainable development. Examples are the Arab Initiative of Sustainable Development in 2002, and the Abu Dhabi Declaration on Environment and Energy in 2003.

There have been noticeable improvements in water policies and water-related governance issues, which have been reflected in better coordination and integration of efforts among various institutions and stakeholders, including partnerships between public and private sector organizations.

However, achieving environmental sustainability requires more concrete efforts to protect and conserve natural resources, particularly energy, water and soil resources, to improve efficiency in the use of non-renewable energy and water resources and to correct market failures and distortions by taking into consideration the environment in national accounts. Some of the concrete actions needed are:

Data collection and dissemination

First and foremost there is an urgent need to deal seriously with the issue of reliable environmental data which is not readily available in the region. This is due to:

- A lack of suitable infrastructure for environmental statistics.
- Several departments collect data on environment and the different departments do not follow the same methodology and appropriate cooperation networks are virtually absent.
- Inadequate monitoring of the state of the environment.

TABLE 9

ESI INDICATORS FOR HABITAT AND BIODIVERSITY CONSERVATION IN ARAB COUNTRIES

Country	Percentage of mammals endangered	Percentage of birds endangered	Percentage of territory with very low human influence	Percentage of territory with very high human influence	Percentage of cities* reporting requirements met	Percentage of territory protected
Algeria	14.1	3.1	80.4	0.5	60.0	2.4
Egypt	12.2	4.6	70.1	2.4	19.0	0.1
Iraq	12.3	6.4	3.7	1.2	0.0	0.0
Jordan	11.3	5.7	2.1	1.0	35.0	3.1
Kuwait	4.8	35.0	0.1	7.0	0.0	1.0
Lebanon	10.5	4.5	0.0	14.5	0.0	0.5
Libya	11.8	1.1	80.4	0.1	0.0	0.1
Mauritania	16.4	0.7	79.5	0.0	0.0	0.5
Morocco	15.2	4.3	17.5	1.5	60.9	0.7
Oman	16.1	9.3	54.0	0.8	0.0	12.5
Saudi Arabia	9.1	9.7	44.3	0.4	0.0	34.2
Somalia	11.1	2.4	17.7	0.1	7.7	0.3
Sudan	9.0	0.9	41.4	0.2	56.3	4.9
Syrian AR	6.3	3.9	0.1	2.0	0.0	0.0
Tunisia	14.1	2.9	26.2	4.3	100.0	0.3
U.A.E.	12.0	11.9	0.2	2.6	66.7	0.0
Arab average	11.7	6.2	32.3	2.4	25.4	3.5
World average	13.0	4.2	18.6	7.1	57.0	8.4

*Convention on International Trade in Endangered Species. Source: Environmental Sustainability Index (ESI) 2002

Only about 50% of states in the Arab world carry out regular environmental data collection. While waste and water are mostly covered, internationally agreed-upon statistical methodologies for the collection of environmental statistics are not followed, and countries do not apply the same concepts and definitions.

To address these problems of reliability of environmental data the Arab states need, among other things, to:

- Invest in environmental data collection (financial, technical, human resources).
- Set up environmental monitoring systems to compile comprehensive data based on systematic measurements.
- Ensure quality assurance and quality control practices (QA / QC) according to international guidelines.
- Increase temporal and spatial coverage to generate time-series data to be used for monitoring environmental trends across the country.
- Disseminate quality environmental data regularly.
- Enhance regional cooperation in the field of environmental monitoring and data collection.

Integration, globalization and standardization

The Arab world needs to respond effectively to globalization challenges and benefit from the opportunities it offers. This will require action to:

- Strongly – in co-operation with other developing countries – defend the need for open, equitable, rule-based, predictable and non-discriminatory multilateral trading and financial systems.
- Enhance our capacities to develop local technologies that can compete in the fast-growing environmental technologies market.
- Ensure corporate environmental responsibility and accountability.

Achieving environmental sustainability

No Arab state can achieve environmental sustainability (integrating environment in development planning) without:

- Evaluating the resources available to it - natural, human and financial - and then evaluating the realistic options available to the country.



- Decision makers moving from *react-and-cure* to anticipatory and preventive policies through applying the whole series of strategic and cumulative environmental assessments and project impact statements. This needs reliable time-series data and information.
- Applying the new environmental economic tools: cost / benefit analysis, risk analysis, environmental accounting, natural resources accounting, ecological accounting, life cycle analysis and finally the latest tool, the ecological footprint. Wackernagel and Rees (1996) define the *ecological footprint* as “The area of productive land and water ecosystems required to produce the resources that the population consumes and assimilate the wastes that the population produces, wherever, on Earth that land /water is located.”
- Ensuring public participation in the decision-making process and in the implementation of development strategies.
- Achieving a number of critical transitions: an energy transition to an era in which energy is produced and used at high efficiency without aggravating the environment; a demographic transition to a stable population; and a resource transition to reliance on nature’s income and not depletion of its “capital.”

The role of the media in the Arab world

Upgrading the professionalism and effectiveness of environmental media in Arab countries requires a complete shift of media mentality towards a better understanding and appreciation of the importance of environmental issues. Special training initiatives must be conducted to raise the professionalism of environmental jour-

nalists and provide some career incentives. The most important awareness targets should be editors in chief, who must take into consideration the importance of providing a continuous, high level environmental media service for their readers. It is not a luxury nor over-optimism to ask that a fixed environmental page or section be established in every newspaper and magazine, and a weekly radio and TV programs be produced in the mainstream channels, as well as dedicated internet sites.

The role of NGOs

At the top of all this there must be genuine effort of governments in the Arab countries to empower NGOs to take major responsibility for upgrading the environmental media sector in Arab countries and environmental public awareness in general.

Closing thoughts

Is all this possible? I believe it is. But it requires strengthening the institutional framework at both local and regional levels.

At the regional level we need the provision of adequate financing for the implementation of regionally agreed upon good environmental resource management programmes and projects. Fortunately this is in the process of being established in the form of an Arab Environment Facility along the lines of the Global Environment Facility (GEF) but not as a replacement to it. At the national level, each country must accept the fact that it has primary responsibility for integrating environment in its development plans. It must arrange its government offices and responsibilities accordingly.

ABU DHABI DECLARATION ON CORPORATE ENVIRONMENTAL RESPONSIBILITY AND CLEANER PRODUCTION

Business leaders, meeting at the Arab Corporate Responsibility Summit in Abu Dhabi on 29 November 2007, at the invitation of the Arab Forum for Environment and Development (AFED), hosted by Environment Agency under the patronage of HH Sheikh Mohammad Bin Zayed, Crown Prince of Abu Dhabi;

Being aware of the magnitude of environmental challenges facing the Arab region and the world;

Realizing that low-carbon technology will be the driver of economic change; Recognizing that taking the environment fully into account is key to achieving sustainable development and regarding it as a fundamental prerequisite for sound business management;

Further recognizing that achieving sustainable development is a collective responsibility of government, business and the civil society;

Believing that environmental responsibility should be a corporate commitment and an integral part of our pursuit of good corporate citizenship;

Declare:

- 1- Eco-efficiency, Cleaner Production and Green Production methods will be our preferred options, as they are fundamental to our competitiveness locally, regionally and internationally.
- 2- We commit ourselves to integrating environmental considerations in our internal and external operations and adopt preventive environmental strategies at all levels of business.
- 3- We are committed to adopting innovative solutions that shift the priority from end-of-pipe to preventive strategies and supporting the provision of products and services that meet environmental and health standards.
- 4- We commit our selves to setting a target of 20% reduction in the use of energy and water in the production of our products per unit by the year 2012 from base year 2002, and strive to compete actively in the growing global environmental industries.
- 5- We are also committed to complying with national and international environmental regulations applicable to our operations and business. Beyond compliance, we shall strive to develop and adopt voluntary targets and encourage our clients, partners and suppliers to do likewise.
- 6- We will conduct internal environmental reviews, and periodically report on the results.
- 7- We recommend that all corporations in the Arab World develop and publish statements of their environmental policies and the steps they have taken to promote the integration of environmental considerations into their operations.
- 8- We request the United Nations Environment Programme (UNEP), the World Business Council for Sustainable Development (WBCSD) and the Arab Forum for Environment and Development (AFED) to assist corporations operating in the Arab region to further the principles and goals of this declaration, through providing technical assistance, training and relevant information relating to best practices in achieving corporate environmental responsibility.

REFERENCES

- "Abu Dhabi Declaration on the Future of the Arab Environment Programme." *Global News Wire*. 5 February 2001.
- Birdsall, Nancy, Allen C. Kelley, and Steven W. Sinding. *Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World*. Oxford: Oxford University Press, 2001.
- Deumling, Diana, Chad Monfreda, and Mathis Wackernagel. "Establishing National Natural Capital Accounts Based on Ecological Footprint and Biological Capacity Assessments." *Land Use Policy* 21 (2004) : 231-246.
- Esty, Daniel C., and Michael Porter. "Ranking National Environmental Performance: A Leading Indicator of Future Competitiveness?" In *World Economic Forum, The Global Competitiveness Report 2001*. New York: Oxford University Press, 2001: 78-101.
- Esty, Daniel C., and Peter Cornelius (eds.). *Environmental Performance Measurement: The Global Report 2001-2002 (World Economic Forum)*. New York: Oxford University Press, 2002.
- Levy, Marc A. "Measuring Nations' Environmental Sustainability." In *Environmental Performance Measurement: The Global Report 2001-2002 (World Economic Forum)*, edited by Daniel C. Esty and Peter Cornelius. Oxford: Oxford University Press, 2002: 12-23.
- "Living Planet Report 2004." World Wide Fund for Nature (WWF). Gland, Switzerland: WWF, October 2004. <http://assets.panda.org/downloads/lpr2004.pdf> (accessed 25 May 2008)
- Porter, Michael, and Claas van der Linde "Toward a New Conception of the Environment-Competitiveness Relationship." *The Journal of Economic Perspectives* 9, 4 (Fall 1995).
- Prescott-Allen, Robert. *The Wellbeing of Nations*. Washington D.C: Island Press, 2001.
- "Saudi Arabia: Water Privatization." Quarterly Report, *Middle East Economic Digest*. 3 September 2001.
- Tolba, M. K.; O.A. El-Khouly; and K.A. Thabet. *The Future of Environmental Action in the Arab World* (in Arabic). UNEP/Environment Agency Abu Dhabi, 2001.
- United Nations Environment Program. "Global Environmental Outlook 2000." UNDP, 2000. <http://www.unep.org/geo2000/english/0105.htm> (accessed 27 January 2008).
- United Nations Economic and Social Council. "The Arab Declaration to the World Summit on Sustainable Development (WSSD)." E/CN.17/2002/PC.2/. 1 December 2001.
- <<http://www.johannesburgsummit.org/html/documents/westasiaministerial.pdf>> (accessed 4 February 2008).
- United Nations Development Program. *Arab Human Development Report*. New York: UNDP, 2002.
- Wackernagel, William, and Mathis Rees. *Our Ecological Footprint: Reducing Human Impact on the Earth*. Gabriola Island, BC: New Society Publishers, 1996.
- World Economic Forum, Yale University, and Columbia University. *2002 Environmental Sustainability Index*. 2002. <http://www.ciesin.columbia.edu/indicators/ESI/> (accessed 15 January 2008)
- World Economic Forum, Yale University, and Columbia University. *2005 Environmental Sustainability Index*. <http://sedac.ciesin.columbia.edu/es/esi/> (accessed 15 January 2008)
- UN-ESCWA. "Compendium of Environment Statistics in the ESCWA Region." New York: United Nations, 2007.