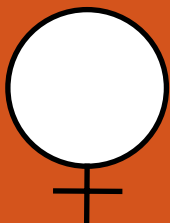
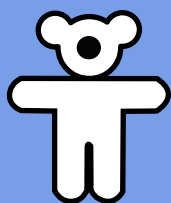


Goal 7

Ensuring environmental sustainability



Target 1: Integrate the principles of the sustainable development into country policies

Indicators:

- 1- Proportion of lands covered with forests used energy)1 kg of fuel/dollar of GDP) (cancelled)
- 2- Emission of Carbon Dioxide and the consumption of Chlorofluorocarbons
- 3- Proportion of population using solid fuel (cancelled)
- 4- Proportion of fish presiding in protected biological scopes
- 5- Proportion of used water to available water

Target 2: Reducing the biodiversity loss by half, through remarkably reducing the rate loss by 2010.

Indicators:

- 6- Proportion of protected land and marine areas
- 7- Proportion of kinds threatened with extinction

Target 3: Reducing by half the proportion of citizens without sustainable access to safe drinking water and basic sanitation by 2015



Indicators:

- 8- Proportion of population with sustainable access an improved water source
- 9- Proportion of population with access to improved sanitation

Target 4: Achieving a significant improvement in the lives of at least 100 million of slum dwellers (overcrowded and poor areas) by 2020.

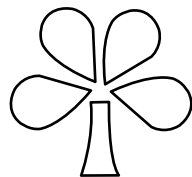
Indicators:

- 10- Proportion of urban citizens who live in deprived areas: (a- water inaccessible, b- sanitation inaccessible, c- overcrowded (more than 3 in one room), or in buildings of temporary nature).

The seventh goal of the third millennium development goals covers three dimensions. The first is environmental aspect, represented by the first and second targets; the second pertains to public establishments from water, sanitation with its both environmental and living dimension, while the third corresponds to inadequate living conditions, including living in random places.

The seventh goal did not identify magnitude achievements for all indicators. It comprised realizing flexible qualitative targets, such as integrating environmental concerns into national policies. The other targets along with their indicators were also general and flexible, in what allows an adequate national formula when necessary.

Securing environmental sustainability in the Kingdom of Bahrain is one of the important things, which posed serious challenges due to limited land and marine areas and its fragile natural resources on the one hand, and its populous demographic growth and the accelerated development ratios on the other hand. These natural, social, and economic circumstances emanated many pressures on the environment and natural resources, and increased the environmental challenges of the kingdom.



Progressing in the targets and indicators of the seventh developmental millennium goal

Indicator: proportion of lands covered with forests of the overall land proportion

Bahrain comprises a limited area of forests represented by a collection of Avicennia that exist in Tubli reserve – Ra'es Sanad. The area covered with Avicennia is about 60 hectares, 43 hectares are government-owned. During the past few decades, this natural area has witnessed a major shift in its area and turned to residential regions and various infrastructures. Construction activities destroyed around 80% of the Avicennia environment.

Avicennia trees are the most coastal plants that distinguish the tideland in Bahrain, and constitute an environmental system rich in its active diversity and enjoy high productivity thanks to nutrients which the sea organisms benefit from. The trees provide necessary factors for vital diversity and include a group of bacteria, seaweeds, fungus, animal, plant, and floating organisms, in addition to invertebrates, vertebrates, insects, crustaceans, fish, birds, and mammals. They also seek to inhabit sea places since they are easy to hide in and find food. This renders the environment of Avicennia rich in fish in the Kingdom of Bahrain. The roots of Avicennia allow the settlement of sand and the constancy and balance of the soil. Avicennia plants also have their medical usage. Regrettably, there isn't any kind of monitoring, protection, or management of these trees today, and there is a high need to implement management plans that protect these rare trees and halt the ongoing extinction of this significant resource.

Indicator: Percentage of protected lands to preserve the biodiversity (to the overall lands' areas)

Bahrain comprises 5 reserves with an overall area of 68.25 Km². they are: Tubli Gulf and Ras Sanad Reserve (10 Km²), Hiwar Islands Reserve (51.5 Km²), Al-Arin Park (6.6 Km²), Arad Doha Reserve (500 Km²), Meshtan Island (16247 Km²). The area of the reserves in Bahrain represents around 9.4% of the overall landmass, while they only represent 0.83% of the overall area of the kingdom (the overall area of the islands is 747 Km²), which is a very low ratio in comparison with the recommendations of the International Union for preserve For Conserving Nature (IUCN), which stipulated that the reserves in every country should cover around 10% of its overall area. If we consider that this standard was met based on the overall land area of the kingdom, the other standard – which says that all reserves should cover all environmental systems – is yet to be fulfilled.

In comparison with the previous report of the Millennium Development Goals (2003), which was based upon the land area of the Kingdom of Bahrain (10%), we will find that a reduction [in the area] is the existing trend for two reasons. The first reason is the increase of the overall land area of Bahrain as coastal and marine regions were reclaimed, while the second reason is the reduction of natural reserves, as the area of Tobli Gulf / Ras Sanad Reserve decreased from 24 Km² in 1956 to 12 Km² in 2000, and to 10 Km² currently due to debris and the non implementation of environmental legislations. Recently, about one third of Al-Areen Park and reserve was deducted so as to establish a touristic project. The borders pertaining to Mashtan Island Reserve are yet to be identified, which might expose it to deduction in the future.

In general, the reserves in Bahrain encounter many threats stemming from mankind activities, due to the ongoing deduction of its area in favor of touristic and construction projects alongside landfilling activities. The reserves are also facing an environmental deterioration resulting from the shortage of implementing the environmental legislations and dismissing the solid and liquid remnants from treatment stations and sand filters, in addition to fishing and other activities. There is an urgent need to boost the safety and maintenance of these reserves, in addition to increasing their areas so as to cover other environmental systems, namely the coral reefs.

Indicator: Annual Energy Consumption (one kilogram of oil is equivalent) to 1000 dollars of Growth Domestic Product (PPP)

The energy sector, which is dominated by oil and gas establishments and heat energy generating stations, represent the most significant sectors on which economic and industrial sectors rely in Bahrain. It is also the chief engine of economic and social development and the main cause for environmental deterioration due to its negative impact on the air, water, sea, and land resources.

The consumption of water reached its peak in 1987 at 1.1 ton of oil for every 1000\$ (for the basic year 2000) from the Growth National Product. Later on, this number started to drop down in general. During 1987-2005, the use of energy dropped down by 11% reaching 0.8 ton for every 1000\$ (for the basic year 2000) from the GDP as it appears in figure 1.

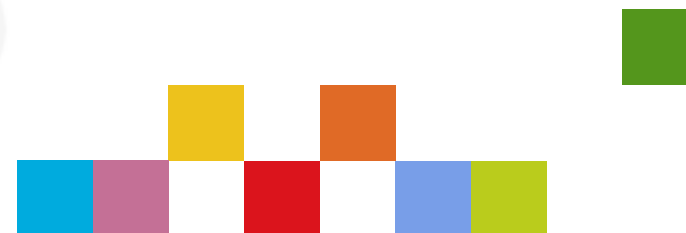
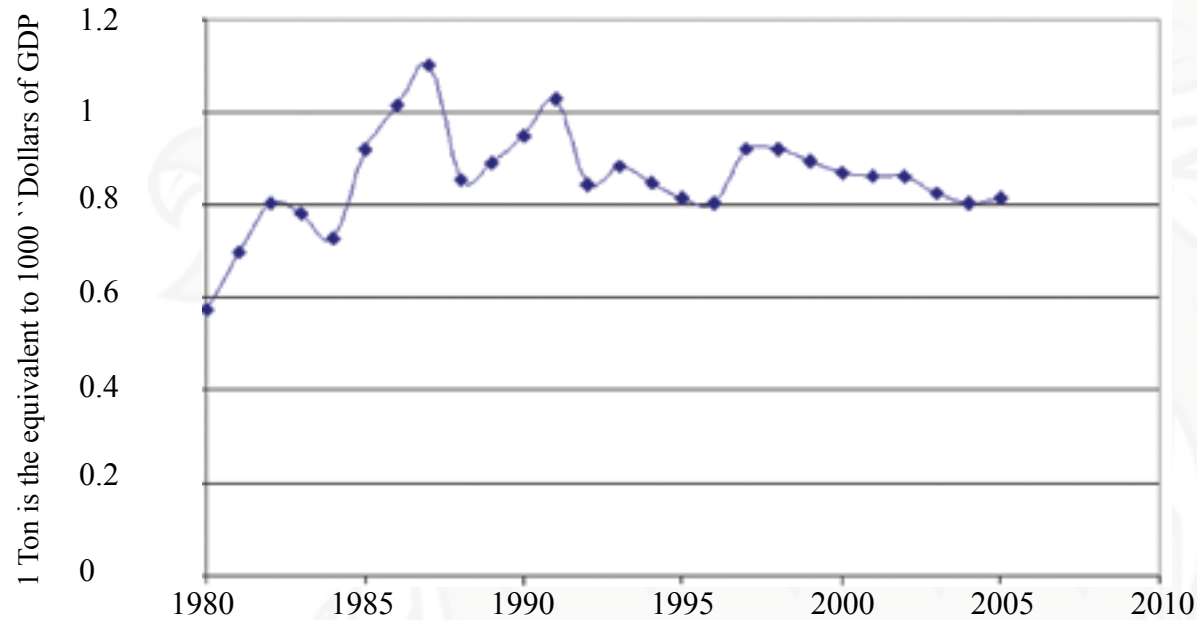


Figure 1: Energy consumption in the Kingdom of Bahrain during 1980-2005

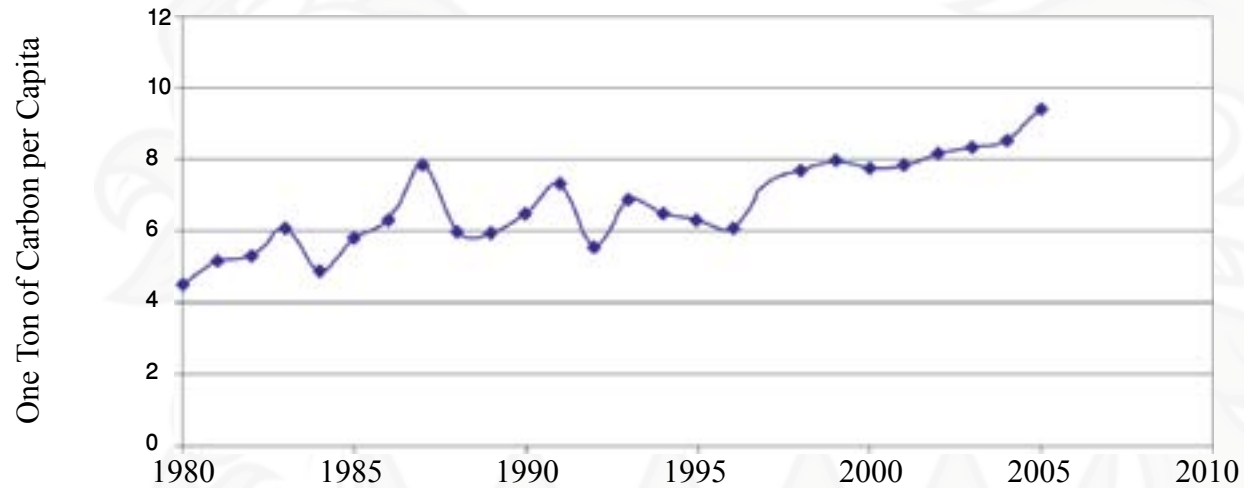


Source: 2007: Energy Information Administration

Indicator: “Emission of Carbon Dioxide per capita (greenhouse gases) and the consumption of ozone-depleting products (ODP ton)

The last survey on the emission of greenhouse gases in the Kingdom of Bahrain (first national report on climate change, 2005) noted that the main sources of these emissions is the energy sector (70.7%), solid and liquid remnants (12.9%), industrial activities (9.6%), and the transportation sector (6.6%). Records of Carbon Dioxide emissions per capita during 1980-2005 show a gradual increase from 6.11 tons of carbon in 1980 equivalent to 9.8 tons of carbon in 2005, an increase of 35% during this period.

Figure 2: Carbon Dioxide emissions per capita in Bahrain during 1980-2005



Source: Energy Information Administration, 2007

Though gas emissions leading to climate change in Bahrain are relatively low – as they represent less than 0.1% of the overall global gas emissions – the kingdom is expected to be highly influenced by this phenomenon (look at the part pertaining to climate change challenges). Bahrain joined the United Nations Framework Convention on Climate Change in 1994, to Kyoto Protocol in 2006. Besides, Bahrain is currently preparing the second national report on the Framework Convention on Climate Change. The report is scheduled to be completed in 2008.

In addition to the recommendation of the first report and, the increase of the accuracy of clearing greenhouse emissions, and the reinforcement of the structure of the environmental system, this report recommended a number of initiatives which call for raising the competence of electricity generating stations and integrate the renewable energy systems to supply electricity, not to forget implementing measures to reduce the demand. The report suggested some measures that contribute to reducing greenhouse emissions, such as supervising the transportation sector and partaking in Electricity Grid System with GCC, and manipulating the gases produced by landfilling garbage. Implementing these measures would reduce the emission of Carbon Dioxide by around 15% by 2015.

A joint national committee for climate change was formed in 2007 (Cabinet Resolution 5 in 2005), from all concerned ministries. The tasks of this committee was to formulate regulations and take necessary measures to activate the climate change agreement and Kyoto Protocol in what complies with the adopted legislations in the Kingdom, in addition to preparing a national strategy pertaining to climate change and clean development mechanism.

On another note, Bahrain ratified the Vienna Convention for the Protection of the Ozone Layer in 1990 and Montréal Protocol in the same year and its amendments (London, Copenhagen, and Montréal) about the substances that threaten the ozone layer. Bahrain is one of the countries committed to the Vienna Convention and Montreal Protocol and its amendments, as it reduced its ODS consumption and importation, and it is now planning to have the CFC substances reach zero before the target year (2010). In addition, Bahrain had completely ceased importing halons in 1994, and Carbon Tetrachloride and Chloroform in 2005. It is worth to mention that the Ozone National Unit in the General Directorate of Environment received awards from United Nations Environmental Project (UNEP) in 2000 and 2007 in attribution to its efforts in this regard.

Indicator: Proportion of citizens using solid fuel

There proportion of people using solid fuel in Bahrain is not statistically identified.

Indicators: Proportion of people with sustainable access to an improved water source

In Bahrain, 100% of people have access to safe drinking water, which largely contributes to improving the level of living and health conditions which are relatively high in the kingdom. This water comes from distilled water, underground water with a mixing ratio of 1:2. With the increasing municipal water demand and the rise in the consumption ratio per capita (500 liters/day/per capita), the sustainability of this service is threatened in the future. Currently, the proportion of supplied salty water fluctuates according to time and place, sometimes surpassing the maximum level recommended by the World Health Organization which was adopted by Bahrain and is equal to 1500 milligrams/liter.

During 1992-1996, proportion of water supplied to houses and that meet safety drinking water conditions vary between 92.5-95%. With the increase in the proportion of distilled water (Al-Had Station), the saltiness of water was remarkably reduced because dependency on underground water is also reduced. Energy and Water Ministries' reports reveal that the average of water saltiness vary between 900-1500 milligram/liter, and the fluctuation of water quality is attributed to the limited capacity of distillation stations, and resorting to underground water – which is almost salty – to face the increasing demand in house water.

On the other hand, providing municipal water through increasing the establishment of distillation stations leads to environmental damages that surround stations, and which include air and marine environment, not to forget the high cost of distillation stations (0.65 \$ for every meter cube). Besides, boosting the municipal water sector is a heavy financial burden on the state's budget, which might deprive other active sectors of the required support, such as education and health sectors. Hence, there is a pressing need to formulate a program to rationalize the use of water and preserve it in the municipal sector in order to secure the sustainability of municipal water supplying in the Kingdom of Bahrain.

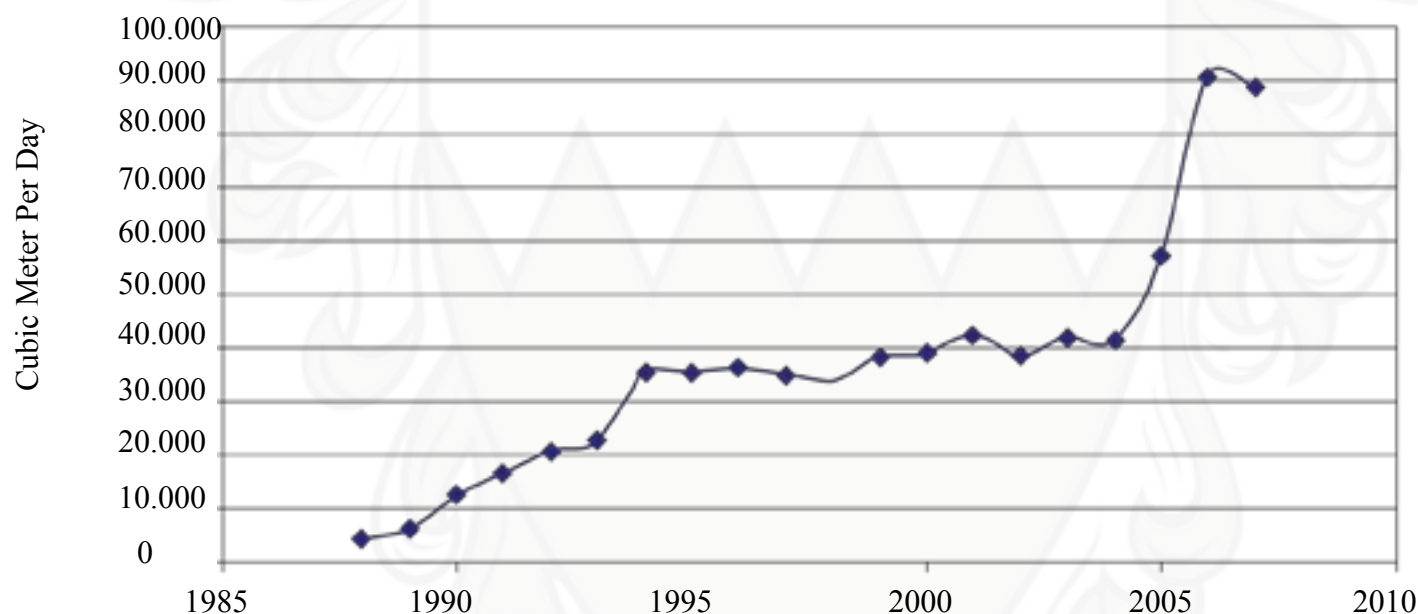
Indicator: Proportion of people who have access to sanitation systems

Bahrain realized a significant progress in providing basic sanitation services, an effort that is worth praise, if accompanied with the accelerated demographic and constructional progress witnessed in the kingdom in the time being. Access to basic sanitation services increased from 75% in 1993 to 97% in 2003. The same ratio is speculated to persist in 2007 if not increase.

Despite these efforts, the proportion of collected or treated water is 23% of the overall proportion (check challenges of water resources management and urban environment management). There exists a pressing need to raise the level collection and recycling levels so it corresponds to the international level which is 60-70%.

Aiming towards reusing recycled waste-water, Bahrain developed ambitious plans to use around 200 thousands meters cube everyday of treated water by 2011. The sought after outcome is that this water will irrigate an area of 2973 hectares of productive farms, in addition to irrigating green areas and forestation activities. Despite the relative progress in implementing this project (figure 3), the plan of implementing the project encountered some hindrances that delayed it for about 5 years, thus; reducing the efficiency of realizing the project goals, especially those pertaining to preserving underground water.

Figure 3: Progress of producing and reusing treated waste-water in a three-phase system



N.B: Data from 2007 until October 2007 (Source: Ministry of Public Work and Housing)

Indicator: Proportion of households with access to a secure tenure: 100% of households

The Constitution of Bahrain stipulates that all citizens should have access to tenure. Practically speaking, there are not any random residential gatherings or slums that lack basic services. But there is a fraction of people who live in old and poor houses, and there is a government-controlled project to renovate and reconstruct these houses. In any case, this issue comes in the framework of the first goal more than being an environmental problem in the direct sense.