

WATER MANAGEMENT AND SUSTAINABLE DEVELOPMENT

Safer Karima, Researcher

University Abou Bakr Belkaid, Tlemcen, Algeria

E-mail: karimila@hotmail.fr, Phone: +213-0697-08-48-51

ABSTRACT

«Of course I wish I was in school. I want to learn, I want to read and write... But how mom need me to fetch water» - Benny Bazan, Bolivia; «...the factories consume a lot of water, while we can hardly find enough basic our needs, not to mention what we need to irrigate crops» - Gopal Jojor, India. Voices are united by the same thing: the denial of access to water. It's what began the United Nations report of human development for the year 2006. The observed increase of the population and increasing water pressure to use some form of this article despite the enormous availability and large, underground or surface quantities, but the supply and demand equation is no longer as in the past in spite of the new techniques introduced Kthalih seawater. And has worked to highlight the importance of this element as the most important determinants of sustainable development, which aims to rationality and adulthood and dealing with efforts to achieve growth and meet the needs of the population of housing and economic activities and food and education, without prejudice to the negative form of ecological, and sustainable development is the way only to ensure a good quality of life for residents of the present and the future.

KEY WORDS

Water; Arab world; Sustainable development.

Water represents the essence of the human link in any country, it is a shared resource that serves agriculture, industry and the living and environmental purposes. Where the ancient Egyptians considered the god of the Nile River, as well as for the River Ganges in India. In Islam, there is no excuse to accept the justification for depriving a person from the water. And used the Arabic language Several vocabulary to describe the advantages and water and water used in Christian baptism as many poets and writers sang in different languages and cultures. The water full of spirituality, cultural and symbols, and has said the philosopher Gaston Bashlar. «Freshwater always would survive in the imagination of humans as a favorite water» [1].

Water plays a big role in the lives of individuals and groups as the first human populations had been held on the banks of the river, but that all great civilizations which in the ancient times the water and the presence of rivers, a major cause of its civilization of Mesopotamia on the banks of the Tigris and Euphrates and the civilization of the Nile Valley on banks of the Nile River.

Agriculture will have to bear fruit, even for the industry, which can not conduct its affairs, and not for people to enjoy health and good living, and even life itself, and not the natural environment to continue to be able to continue on its characteristic usual since the that the earth was, if not available community resources ample potable water [2].

The water in the face of an abundant resource and the fact that it grinds and inexhaustible and is distributed unfairly among humans and subject to the vagaries of weather. And added to the geographical impact of the work of human considerations, so that the human being is always trying to control the water in spite of the consequences of spatial and temporal long-term. And unexpected Caused by these actions and warn of water whenever needed become more urgent and which increases the shortfall quantity and quality and poor distribution of excesses such as increased demand and pollution and waste, and monopoly so that we can predict severe water crisis in the coming centuries.

Water resource is difficult to control it other than soil or other elements of nature means it is not bounded by time and cares for obstacles and political boundaries and ethnic and cultural. The Nile flows through nine countries from Uganda to Alexandria from conflicts arise here and already knew that the great wars and the case of Palestine and Israel. But

water may pose a convergence factor as is the case of the Rhine River in Europe or in Asia Mekong [3].

Vary the distribution of water resources between the country and another, and between the individual and another and climate vary and conditions Alvezao-Geography: While acquires 6 countries to 60% of global water resources enjoyed arid areas and semi-arid areas, where fifth of the world's population, with only 2% of the resources . The consumption of these resources rate ranges from 100 m³ per capita to 100 000 m³ per year.

Water management in the world. In today's world, and because of the great development which has become the world and entering the water as a human development in various agricultural and industrial fields that the world is seeking to achieve and sustain the conflict over water became a reality with the development of the role of water as one of the strategic importance of international policy issues so considered water and control the sources of the most exciting elements of the conflict in the world, but that many of the researchers called the present century a century of water to the water will play pivotal roles in human life in the future.

Assume water for all people to participate in the resources and the Earth and Authority. Interest not a matter of «giving» water for all but secure the material and the basic conditions so everyone can get on the water.

The joint water management can be a force for peace or conflict, but the politics are determined by the path that will be followed by that force.

And dealing with the national department of water to cause a balance between these competing water users groups. Moreover, the water is also the most basic resources transcended borders. And countries have legislation for transboundary waters may enact an extension bonding Alheirologi across national borders. And the link between water users in different countries through a common system [4].

Represents the shared water increasingly important part of human geography and political scene, and it was due to the role of international rivers, lakes, groundwater and wetlands in connecting peoples separated by international borders each other repositories.

There are two challenges Milhan know transboundary water management strategies at the beginning of the twentieth century atheist .eetmthel first to skip the stage of national strategies directed to the interior and unilateral actions to stage joint strategies in order to achieve multilateral cooperation. And perhaps this is what is happening at the present time [5].

Water in the Arab World. Arab countries generally known and the Middle East in particular, a large water scarcity and lack of resources and vital headwaters due to climate and along the Arabian desert harshness and severity of heat and frequent evaporation and increased Development in: demographic and economic. Water has become a vital substance outweigh the value of the oil in the material because of its importance in life. But those seen on the water in the Arab world they are a very dangerous future because of conflicts that may be caused because 60% of the Arab water resources come from external sources, not to mention their planned Israel from the machinations to ignite a war on water and seek him because of ambitions to control and take over the Arab Water [6].

Arab average per capita share of fresh water available in a steady decline, which are as follows: year 1950 amounted to a per capita share of fresh water resources, about 4,500 cubic meters per year; year 2000 decreased to about 1,200 cubic meters per year; 2010: increased drop to about 850 cubic meters per year; expectations of per capita share of fresh water resources, for the year 2015/600 cubic meters per year; expectations of per capita share of fresh water resources, for the year 2025/300 cubic meters per year.

Where the per capita Aluahdd of less than 1,000 cubic meters rate, an indication, that the country is under water poverty line, and less than 500 cubic meters, an indication that the water level of poverty is very severe, inferred from this that the Arab world has already entered within the level of countries severe water poverty [7].

The arid and semi-arid 85% of the total Middle East and North Africa area. And where about 60% of the population live. Water resources and impose a condition on the harsh economic and social progress for the people of those territories [8].

Could be limited water resources in the Arab world in the two main sources: traditional sources, which is the surface water (rain, rivers and floods), and ground water (water stored in the earth's rocks, which expresses itself in the wells and springs-renewable water) and non-traditional sources (synthetic), which is reflected in the water desalination and sewage and drainage and industrial discharges.

Traditional sources. Rain is the first supplier in the Arab world, but these are the lack of rain and poor rainfall distribution, climate change and punishing drought years. It states that depend on the rainfall in the construction of agricultural and industrial economy, we find Morocco, Algeria, Tunisia, Syria, Lebanon, Iraq, Somalia, Sudan, Jordan, and contained an estimated annual rainfall Bnho 2100-2300 billion cubic meters. The annual rates ranging rainfall between 250-400 mm, may exceed 1000 mm in some areas as Mountainsin Lebanon and Syrian coast and highlands of Yemen and South Sudan. The distribution of rainfall in the Arab world in different proportions: 60% of summer rain tropical system, most of which falls in the basin of Sudan and the Horn of Africa and Yemen; 40% of winter rain Mediterranean system, falls in the Maghreb and North African adjacent, and the Levant in the north of the latitude of the orbit [9].

In terms of the rivers, there are large and small rivers and up to about 34 permanent rivers, in addition to the hundreds of thousands of seasonal valleys. The rivers permanent runoff, which constitute the lifeblood of the Arab countries, especially in the Middle East, which raises a lot of political problems represented in the River Euphrates and the Tigris River and the Nile River and a small river, but is sensitive in a Alerdn.omen River then, Turkey, Ethiopia, Iran, Kenya, Uganda and Zaire control about 60% of the water sources in the Arab world.

Nile River. Nile is considered one of the longest rivers in the world, runs the length of 6695 km, and flows from Lake Victoria shared by ten countries: Ethiopia, Zaire, Kenya, Eritrea, Tanzania, Rwanda, Burundi, Uganda, Sudan and Egypt. If Sudan is a course of the Nile, Egypt represents its course and its mouth while the other countries are its source and its basin. Egypt is the most vulnerable countries to the Nile River to its desert [10].

Tigris and Euphrates basin. All stems from the Euphrates and Tigris basin of Anatolia, Turkey, and crosses rivers Turkey, Syria and Iraq, and when he meets the Euphrates River Tigris in Qurna, north of Basra, which together form the Shatt al-Arab. If these two rivers to two international river specifications But Turkey refuses to be included within the international river, but considers them Nhrien Turks. Venhr Euphrates runs the length of 2780 km from its source the mountains of Armenia from Turkey until its confluence with the Tigris, of which 761 km in Turkey and Syria in 650 and 1200 km in Alarac.otatmd Syria on the Euphrates River by 90%, while Iraq rely on it entirely.

The Tigris River Vtoulh is 1950 km, including 342 km in Turkey and 37 km as border between Syria and Turkey and 13 km as border between Syria and Iraq, and 1408 km in Iraq. This stems from the river Taurus Mountains in Turkey. It dams held in Iraq, we find blather Walcott and architecture.

Jordan River. The River Jordan smaller rivers in the Middle East, and is located in the southern Levant and forms the border between Palestine and Jordan, and runs along the 360 km stems from the Hasbani in Lebanon, and Alldan and Baniyas in Syria. Penetrates the Hula Valley to hurt in the Sea of Galilee, and then pass the valley and acceding to the tributaries of the Yarmouk and blue Jalud and empties into the Dead Sea. It is located on the river a lot of pressure from the participating countries, such as Jordan, Syria, Palestine, Lebanon and Israel that steal water forcibly as Lebanon and Palestine steal water by controlling the dual war and peace.

Groundwater. The Arab world is available on many of the groundwater stored in the ground floor and turn to wells and springs. It is estimated stockpile of about 7734 billion cubic meters, which is renewed annually and 42 billion available for use 35 billion cubic meters, and 48% with the knowledge that 80% of the total Arab world is a barren desert dry.

Non-conventional sources of water (synthetic). The artificial water sources in water desalination and sewage, agricultural and industrial. Given the demographic growth and the increasing pace of industrial and agricultural growth and strong demand and scarce rainfall

drinking water, some countries were forced to search for new sources of the problem of water, especially water desalination as we find in Libya, which has established a great industrial project, which is called the great river, the Gulf states, which desalinate sea water accidentally especially Kuwait, which rely on sea water 95% drinking water. Arabian Gulf and is the most important region in the world in the use of some advanced technologies in water desalination. It is estimated that about 80% of the multistage glinting factories (M.SF) FLASH MOLTISTAGE exist in this region and most factories rely on traditional sources of energy (oil and gas Tabbiei). The desalinated sea water for more than 75% of the water used in the Arab Gulf states. And helping to spread the desalination water technology in the Arab world abundance of capital and the opening up of the region on many coasts and bays, making some other countries are unable to because of their poverty as states Levant, and especially to desalinate one cubic meter of water costs one dollar or a dollar and a half.

Due to the need for severe water in the Arab world, some countries resorted to re-Adamic, industrial and agricultural water use, or the so-called water exchange in the framework of a closed cycle after purification through a very sophisticated technique. These resources amounting to 7.6 billion cubic meters.

SUSTAINABLE DEVELOPMENT

Sustainable development of modern concept began to be used frequently in the contemporary development of literature and demonstrates that the developmental pattern, which aims to rationality and adulthood and dealing with the economic activities aimed to achieve growth and meet the needs of the population of housing and food and education, without prejudice to the negative form of ecological, and sustainable development is the only way to ensure a good quality of life for present and future residents.

Scientific concept of sustainable development. Known report of the World Commission on Environment and Development in 1987 as: «those development that meets the needs of the present and compromising the ability of future generations to meet their needs».

Sustainable development goals. Sustainable development seeks through its mechanism and its contents to achieve the objectives of the group and which can be summarized as follows:

- achieve a better quality of life for residents: aim of sustainable development through the planning and implementation of development policies to improve the quality of life for residents in the community economically and psychologically and spiritually by focusing on the qualitative and quantitative aspects of growth and not in a fair and acceptable.
- natural environmental respect the focus of sustainable development on the relationship between population activities, the environment and dealing with the systems of nature and content as the basis of human life, it is simply the development of Cui sensitive relationship between the natural environment and the environment, and working to develop this relationship to become integration relationship and harmony.
- achieve rational exploitation of resources to deal with the sustainable development of natural resources as an editor for the resources to prevent depletion or destruction and are working on their use, and employ them in a rational manner.
- linking modern Altknoggio the goals of sustainable development of society is trying to employ modern technology in order to serve the objectives of the society through awareness of the importance of the various technologies in the field of development, and how to use available and new ones to improve the quality of the acquisition community and achieve its objectives without the consequent risks raised Environment negative.
- events and continuous change in the proper needs and priorities of the community and a way that matched its potential and allow to achieve a balance whereby can activate the development and control of the environmental problems and developing appropriate solutions.

Dimensions of sustainable development. Sustainable development, development does not focus on the environmental side only, but also include the economic aspects and social, it is the development of the dimensions of three interrelated and integrated in an interactive framework, is exactly, and the rational reorganization of resources, and not enough to describe these dimensions as interconnected together, as shown development triangle sustainable in the following figure, but to be clear and explicit signal that these dimensions are interdependent and interrelated and complementary, and can deal with these dimensions as subsystems of these elements that can be identified: economic system, social system, ecosystem [12].

Sustainable Development Indicators:

- control in the increasing number of people witnessed the Western world after World War II, an explosion large demographically very call Demographers (Baby Boon) resulted in the increase of births to cover the war losses and lower mortality indicators as a result of the development in the field of health for the population of this led to a very large natural increase moved from during which the population size of 3.3 to 6.2 billion people from 1960 to 2000, an average annual growth estimated at 1.6 percent.

Table 1 – A table showing the evolution of the population growth in the world from 1960 to 2000 and prospects for 2030

| Population growth rate | Population. Millions | Year |
|------------------------|----------------------|------|
| 1.8% | 3326 | 1965 |
| 1.6% | 5284 | 1990 |
| 1.6% | 6185 | 2000 |
| 12% | 8869 | 2030 |

- achieve food security is intended to provide various types of food and suitable quantities that meet the minimum requirement for the population in all normal and emergency times now and in the future with the availability of financial ability to achieve the safe limit.
- strengthen the role of women in sustainable development for women is a very important role in protecting the environment, is the first environmental educator of the child and is considered responsible for the behavior change undisciplined environmentally [13].
- minimal depletion of natural resources due to the exposure a lot of natural resources to become a drain maintenance and maintain a strategic imperative in order to achieve the most important pillars of sustainable development.

Water and its relationship to the development of sustainable in the environmental field.

Pollution. Survival of the planet itself is at risk as well as the importance of safe drinking water, which decreases and international study confirmed that 80 per cent of the world's population, or about five billion people living near rivers polluted and in poor condition. She said Maude Barlow, former water expert at the United Nations, in front of large crowd at the University of California in Santa Monica, the World Bank said in its latest study him, the demand for water will exceed inventory, within 20 years by more than 40% .makdh the presence of human suffering behind it can not Tejelha.oofaqa observatory for food and water, a defensive nonprofit group headed by Barlow, there are nearly a billion people currently do not have access to drinking water.

A team of international researchers developed a map showing the extent of the damage suffered by the river in the world due to agricultural drainage water pollution and exotic species of plants and animals from other environments. This is the first study linking mutually influential elements on the human exploitation of rivers and biodiversity. The researchers also seal their search for places where pumping investments to repair the rivers and the extent of the success achieved by these investments in the face of the damage. The river is an important reservoir of drinking water and water rights for irrigation uses, and other purposes. The rivers home to many animal and plant species. As well as quality and a lot of this pollution comes from agriculture and heavy use of chemical fertilizers, which encourages

multinational Petrochemical companies, and has led over the past five years the soil saturation of these pollutants, as well as many of the wells that are no longer waters unfit for use, and some did not longer valid only for the industry. And the World Health Organization has set the maximum allowable water by 50 mg per liter and reduce the EU to 25 milligrams, but the actual figure up in some places, even in French Eroya to full grams of nitrate per liter and in groundwater in areas which use nitrates intensively, and the World Organization of Health estimates that 80% of the disease and one-third of deaths in countries south, directly or indirectly produce due to contaminated water and that the main risk resulting from industrial pollution, although that everyone knows the destructive means both to humanity and nature, and most of the industries continue to take a chemical directly waste in the rivers, and in addition to the disposal of large quantities of sewage large cities in rivers or lakes or seas and some lakes are dead does not allow any animal life, resulting in some cases to changes in the genetic nature of some types of fish, as happened in 2001 at the mouth of China River, where some types of nature different nationalities gained any they combine masculinity and femininity have become because of the effect of some chemical substances while in 2004 the volume of silt deposited amounted in total dams 900 million cubic meters and not shift and alone, which threatens dams Besides his part, there is the phenomenon of evaporation, not dealt with any study, despite the loss of an average 250 million cubic meters and is the amount that is enough to fill a large dam.

Climate. In the first in October 2001 publication of the International Panel on Climate report on the lessons of climate change from the information collected has changed since 1995, and the report reaches the conclusion that even where possible reduction of carbon dioxide emissions over the coming decades, the planet's temperature will continue to rise for a long time to come and that the level of push backs continue to rise for a thousand years, according to this view, the climate changes have is new effects on the economy and public health and systems environment in many of the planet's regions, and will rise in temperature to reduce the fresh water reserves in Central Asia, South Africa and countries average, the number of individuals who will be affected by rising ocean levels until 2080, even if this increase did not exceed 40 centimeters, either by the impact of climate change on agriculture appears on agricultural productivity, which will rise in tropical and tropical regions, and the report of the International Committee of talking about this topic, saying: «The poorest communities in the world are the most dependent on water, agriculture and thus will return the greatest risk due to climate change, and disappear a lot of plants and animals, as well as some types of patterns of human life forever».

According to the report, global warming will lead to an increase in the spread of infectious diseases Mulla RIA, cholera and even dengue, and exposed to environmental regulations for deep changes, putting many species of plants and animals in danger of debris and will sea level rise to temperatures to sink three quarters low land in the world in the world and in particular support Ryan areas, Bangladesh, India, as well as endanger coral reefs and is a place for many types of marine life as it will disappear number of islands Indian Oceans and the Pacific during the coming years, and deforestation and intensive farming leads to change the nature of land cover, and it increases the reflected rays on the surface of the earth and it raises the temperature, and is working to reduce the withdrawal amounts and thus rainfall and the largest source of this rainfall over land is the natural evaporation of the leaves of trees, and cut off this source less water nourish the rainy clouds and vegetation when at least part of it evaporates again, and exacerbated the phenomenon of the disappearance of plants slopes.

Water and its relationship to the development of sustainable in the social sphere. According to reports by the United Nations suffers half the population of the globe from various problems of space on the water, and these areas are the most densely populated, home to three-quarters of the world's population [14].

According to the World Health Organization The time it takes for women and children in those areas to fetch water from distant places and polluted in many Alehian more than ten million in each year, and in Africa, a third of the population does not get safe drinking water, and the poor suffer most from difficulties rich in access to water for household needs and

health and pay more up to 12 times the amount paid by the rich Altsalon networks in cities and this is confirmed by the World Council established by the World Bank, and the function of this in Lima, capital of Peru, where to buy the poor cases per cubic meter of water from the middle vendors related to public networks and in 1980 the General Assembly of the United Nations declared a «water supply and health protection» and the stated goal is to continue to the more than \$134 million purpose, and was supposed to benefit from the program more than billion people, and the World Health Organization has described the evolution that has occurred during the nineties as limited as well that this organization estimates that the allocation of 4% of the global arms to handle all the water resources that can cause a jump in the way of those problems expenses and examples show that the problem of water fall in framework of social relations created by economic inequality.

The privatization of water. During the past decade has been to estimate the water world public opinion as a strategic resource for the twenty-first century, and had frequent conferences and forums and official statements to meet the decision makers near a crisis in water; Where the defect is unprecedented among the ever-increasing demand and the supply of water in the world, and water as an economic good has happened and this view seems to process it wrapped around the real problems (social and political environment), and make water the most vital natural resource commodity like the rest of the goods, and imposes North Alnjulbralah policy on the south and the typical solution to the privatization of basic public services, including providing the population Ba water and this recent invention of the market system as a global trade in bottled water, which has grown in size at a rate of 7% per year during the the past few years, and reached bottled water intake during 2001 more than 90 thousand billion liters of water, which increases the price for ten thousand weakness of clean water supplied networks normal water distribution costs, and to promote the use of bottled water in the south, claiming they are necessary to ensure the health because of pollution sources drinking water while in the north has reached the use of this product figures fictional thanks to publicity attributed to specific benefits such as weight loss and rid the body of harmful waste and privileges in the beauty and sexual relations field, and as usual, we find this trade does not respect the natural cycle of water and contribute to the polluting the environment, and thus turns the water slowly into a commodity within the components of the economy and the financial head globalized, and this is no longer a priority to satisfy the vital need, but rather to make a profit, and in the interior south communities like money commodification of water becomes one of the factors affecting the social relations that left behind by economic inequality, and thus can not isolate a physical problem, such as the problem of water for communities systems and not for the international relations [15].

Water and its relationship to the development of sustainable in the economic field. Today more water is directed to agricultural production and food for the issuance Is this amount sufficient to satisfy this wealth? The individual needs about 1,000 cubic meters of water to satisfy their needs, while in the industrial field, we need to cubic meters of water at the consumption of 1,000 cubic meters of water into the serious uses of, we Venbaky need to water always, as he can for all countries to organize life in sufficient quantity in order to satisfy the legitimate needs of the water, as we find that about one-fifth of food products exported to the producing countries that benefit more from the water, whereas consuming countries suffer from a lack of water, then the question here Is water used for food production? We find about 100 cubic meters of water is used for the production of one ton of wheat, because the 1 ton of wheat sold in the water-rich countries such as the United States and France, while in Algeria, we find that: tons of steel required for the extraction of 150 m³ of water; 1 tons of fabric requires the preparation of 130 m³ of water; 1 tons of paper requires the preparation of 500 m³ of water.

WASTEWATER TREATMENT

In recent years, faced a lot of the world's great attention to the re-use of wastewater because of: water scarcity and reduce the pollution of the environment to preserve water resources and for these reasons and others became the wastewater treatment of water

sources from Femia exchange, whether health or agriculture can be processed techniques modern and re-use of agricultural land and in the industry, rather than being discharged directly and without being treated in the flats. Water causing serious environmental problems lead to wasting an important part of the water sources of wealth [16].

CONCLUSION

Each year, three million people in the world die from diseases that go back to the water, either directly because of the water or food contamination, or indirectly or because of diarrhea which causes two million deaths, and malaria-causing disease, such as mosquitoes that breed in water and objects of these diseases kill a million people, and it is possible to avoid these deaths if allocated less than a dollar of health services per person per year, or about 7.8 billion per year, and in turn spent in that period on the arms 864 billion ie 144 billion per capita, and so we get to the economic and political order prevailing in the world today leads to pollution 15 and the destruction of water and the atmosphere was the purpose behind this paper is to highlight water as a scarce and considered the most important specific development factors, Its importance, such as the importance of other strategic economic resources such as oil and even exceed it so special and to maintain and ensure the rational exploitation constitutes a development that takes into account the coming future generations.

REFERENCES

1. Marie-France Kayes .mari Jose del de. tr: Rana Nossuy. Water and life-stakes and prospects and visions between cultures-house Alvaraba.t 1.2000 to Banan.s 92.
2. Neamat allah issa. Human and Environment.dar Manhal Albannana.t1.beirut.2002.s 151.
3. Op Cit, p. 93.
4. Op Cit, p. 203:
5. Op Cit, p. 204-205.
6. 04-20-2008 djamil Hamdaoui water management in the home water Arab.cilh
7. <http://www.almyah.net/mag/articles.php7-> water in the Arab region / Facts and Figures
8. Baroudi alyassar. Abed Abdul alhilw. Demand for water management. Joint publication of research with the Center for International Development and Canada House Science Publishing i. 1 .. 2006 S.7.
9. Khalid Mustafa Qasim, environmental management and sustainable development in contemporary globalization better, Dar University, Alexandria.2007.
10. Fouad saddles, the future of water (the West Bank, the Gaza Strip, Israel) i 1 of the Commission on Sustainable Water Resources for the Middle East, Jordan 0.2003, p: 20.
11. Figure No.1- Formation continue ENSH Décembre2009.
12. Osman Mohamed Ghoneim and Magda Abu nat, sustainable development (philosophy and planning), i0.1 methods, Serenity House Publishing and Distribution Oman 0.2007 to 1427 e p: 39.
13. Ibid., P. 65.
14. E.F.E Washington, July 1999, p: 10.
15. Fouad sarouj, water for the future (the West Bank, the Gaza Strip, Israel, i: 1 Water Resources Committee of the Middle East, Jordan.2003.