

Perceptions of Water in the Middle East: the Role of Religion, Politics and Technology in Concealing the Growing Water Scarcity

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ABSTRACT

While water scarcity is a growing problem in most Middle Eastern countries today, the general public remains largely unaware of this reality and what it can entail for the future. It seems that unless there is tangible scarcity – as in Jordan where users receive only 24 hours of water a week – people will assume plenty; one only starts valuing the resource when it can no longer be taken for granted. Even when people are aware that current levels of water consumption are not sustainable, they seldom feel any personal responsibility for the situation or any compulsion to change their behaviour patterns; in their eyes this responsibility lies with God or the government.

In this paper I will identify the reasons behind the lack of public awareness and the indifference that surround issues of water scarcity. To do this, I will draw on material gathered during four years of independent field research in 11 countries in the Middle East, using information and observations from more than 100 interviews with politicians, academics, journalists, water experts, members of local communities and farmers.

I will argue that the reality of scarcity is concealed by religious, political and technological myths. These make it possible for the user to ignore the alarming reality and continue to consume water as though it were an inexhaustible resource. The absence of pricing policies in several Muslim countries, the continued political support for agriculture and water-thirsty crops like wheat, rice and cotton, combined with the false sense of security created by large-scale engineering projects all form part of this mythology of plenty.

The inevitable conclusion is that in addressing the problem of water scarcity in the Middle East, public perception of the problem and

attitudes towards water should be considered just as important as solid scientific data regarding water use and abuse. Besides discussing the reasons behind the general undervaluing of water, I will also examine possible solutions, assessing the value of projects that aim to increase public awareness and give users a greater sense of responsibility for the water they consume.

INTRODUCTION

Around the world water is becoming an increasingly scarce and valuable resource: 40 per cent of the world's population in 80 countries suffers from serious water shortages, and more than a billion people worldwide do not have access to safe drinking water.¹ The countries of the Middle East and North Africa (MENA) are among the poorest in the world in terms of water resources. 10 per cent of the world population lives in the region, yet it only has access to 2 per cent of the world's total freshwater resources.² Pressure from population growth, the introduction of more modern techniques of water collection and distribution, higher standards of living, and a decrease in the already low rainfall levels all mean that this situation is only deteriorating.³ The UN Global Environment Outlook 2002 foresees that 95 per cent of the Middle East will be suffering from severe water shortages by the year 2032.⁴

Given the gravity of this situation, it is surprising that the general public in the MENA region remains largely unaware of the impending water crisis and the far-reaching effects it could have at all levels of society. In this paper I will argue that this lack of public awareness is due to the tenacious presence of religious, political and technological myths which create the illusion of plenty. Constructed upon age-old traditions and beliefs, but also on the convincing rhetoric and imagery of modern-day politicians and engineers, these myths conceal the reality of growing water scarcity. Like the current

¹ Global Environment Outlook 3, Past, Present and Future Perspectives, UNEP, Earthscan, London, 2002, p.69-71

² From Scarcity to Security: Averting a Water Crisis in the Middle East and North Africa, World Bank Report, December 1995, p 1

³ Development of Freshwater Resources in the Rural Areas of the ESCWA Region using Non-Conventional Techniques, ESCWA for United Nations, New York, 2001, p.3

⁴ Global Environment Outlook, *ibid.*, pp. 385-390

levels of water consumption in the region, the perpetration of these myths is highly unsustainable; in fact, the longer they are upheld, the sooner the region will be confronted with serious shortages.

It is however difficult to call attention to a problem which has until now remained invisible to most. In many countries water scarcity is not yet tangible on a daily basis. And, sadly, it appears that people will only change their attitudes towards water use once it is “too late” – when reserves have reached critical levels and water is rationed. Programmes to raise awareness of water scarcity therefore seem to be most successful in areas where the crisis is most acute.

The material presented in this paper is based on four years of research in the MENA region. During this period I visited Morocco, Tunisia, Libya, Egypt, Sudan, Jordan, Israel, the Palestinian Territories, Syria, Lebanon and Turkey. In each of these countries I carried out interviews and field and literature research with the aim of gaining an understanding of local attitudes towards water and perceptions of the growing problem of water scarcity.

Before embarking on this project, I had expected the beliefs, attitudes and traditions surrounding water in the Middle East to be very different from those in the wet northern climates I had grown up in. I imagined people used the resource more sparingly and valued its presence more highly than we do in The Netherlands where water is only a problem through its abundance.

Yet in most places I found people had exactly the same perception of water as I do: they never really think about it. It is an unquestioned resource that is taken for granted like the air one breathes, and few seem to cherish it to its true value. Only those who experience acute scarcity at a physical level – the Sudanese farmers who send their daughters to fetch water three hours walk away; the Amman housewife who has to run her household on a ration of 24 hours of water a week – seem to fully acknowledge the value of water’s presence.

And even those who acknowledge that there is a problem feel little incentive to alter their behaviour towards the resource. Instead, water management is left in the hands of God or the government. Due to the

heavily centralized system of water distribution in countries like Egypt, Turkey and Israel, the individual user has little control over the resource and therefore feels no responsibility for the water he uses. But also in countries with less centralized systems – Syria, Jordan and Morocco for instance – users feel little compulsion to become actively involved in water management.

Thus in the Jordan Valley, farmers are reluctant to join the newly established water user associations: they simply don't see the point. As water represents only 2 to 5 per cent of the cost of running a farm, it is very low on the farmer's list of priorities; many other things are more important. Rémy Courcier, a French agricultural expert working in the Jordan Valley, explained this: "In the farmer's eyes it is like this: if there is no water, you go and do something else, and if there is water, then why should you have to take responsibility over it, and pay for it and go to boring water user association meetings? Water only becomes important when it stops flowing, when it is polluted and when it is salty. That's when it becomes an issue. And in their eyes, God provides. So you see it is difficult to change attitudes."⁵

RELIGION AND IDEOLOGY: WATER AS A GOD-GIVEN RIGHT

While perhaps not the primary cause of water's undervaluing in the MENA, religion and ideology are certainly the most deep-rooted and tenacious reasons for the lack of awareness surrounding the issue of water scarcity. Because of the strength of religious and ideological beliefs, water is perceived as a gift from God that one should have an inalienable right to.

This means that in many predominantly Islamic countries of the region water remains heavily underpriced, which in turns leads to widespread wastage of the resource on both domestic and agricultural levels.

In Syria, the domestic user only pays a nominal price for water: in 2001 an inhabitant of Damascus paid just 5 US¢ per 1000 litres of

⁵ Interview with Rémy Courcier, regional agricultural expert, Mission Régionale Eau et Agriculture (MREA), Middle East Water Management Project by the French Government, Amman, Jordan, November 2003

water he consumed.⁶ In agriculture Syrian farmers have recently started paying a fee for water diverted from government irrigation networks. However, out of the total irrigated area, 59 per cent of the land is irrigated with water from private – and often illegal – wells. The absence of any control over the water that is pumped from these wells has led to a severe decrease in groundwater levels throughout the country.⁷

In Egypt neither municipal users nor farmers pay for the water they use and monthly water bills in Cairo can be as low as US\$1.⁸ Pricing in agriculture remains a taboo, as I realised during several interviews at the ministry of water resources in Cairo, where I received shocked responses when I enquired about the price of water for agricultural use.⁹

In both cases the gross underpricing of water is justified on religious grounds. In his time, the Prophet Mohammed discouraged the selling of water and according to Muslim teaching, water is a gift from God that should be freely available to all. But the Koran also incites believers to use water sparingly and constantly reminds them that it is a gift from Allah that He can withhold if he so pleases.

Yet in practice most users appear to see the resource as a god-given right, instead of a precious gift that should be treasured. In conversations with a wide range of people in the MENA – from government officials to local farmers – I observed a certain resignation and an acceptance of the situation. Thus in the dying Ghuta Oasis near Damascus a disillusioned farmer explained the degradation of the environment and the pollution of the local Barada

⁶ Water Pricing in the Municipal Sector, World Bank, March 2001, on: <http://Inweb18.worldbank.org/mna/mena.nsf?OpenDatabase>

⁷ Bazza, M. and Ahmad, M., A Comparative Assessment of Links Between Irrigation Water Pricing and Irrigation Performance in the Near East, p.13, on: <http://www.fao.org/world/regional/rne/morelinks/Irrig/Watpric.pdf>

⁸ Water Pricing in the Municipal Sector, Ibid.

⁹ In interviews with Engineer Gamil Mahmoud, manager of the Water Policy Advisory Unit, Ministry of Water Resources and Irrigation (MWRI), Cairo, April 2001; Dr Dia Al Din Al Qosy, Senior Advisor to the Minister, MWRI, Cairo, May 2002

River as God's punishment for the sins of the believers.¹⁰ At the site of the Hassan Addakhil Dam in Southern Morocco the director of the dam smiled happily as he looked down into the nearly-empty reservoir and commented: "We trust God will send us rain soon." He seemed completely carefree: it was out of his hands.¹¹ In both cases higher forces are held responsible for situations that are entirely manmade. In a sense this is a way of shirking responsibility: as though the blame can be laid on God's shoulders and his omnipotence can be used as an excuse for the human neglect and destruction of the environment.

In Israel, Zionist ideology has strongly coloured public perceptions of water and its availability. Even before the establishment of the State of Israel, the Zionist movement made the quest for water in the Land of Israel its priority. For without sufficient water supplies, the dream of returning to the Jewish homeland could never be fulfilled.¹²

The quest for the development and acquisition of water resources continued to play an important role in the definition of national policy after Israel's independence in 1948. Former prime minister Levi Eshkol described water as "the blood flowing through the arteries of the nation"¹³, and it came to be seen not just as a natural resource but as the instrument of Israel's transformation and prosperity. Water was more than an economic commodity; it was part of an ideology. And as technological capacities increased, water resource development became a symbol of the unlimited power of technology in transforming the land. The Israelis believed that with hard work and the development of sophisticated hydrological projects, there was no limit to the development of the land and its water. Thus ideology and geopolitics took precedence over economic and environmental realities.¹⁴

¹⁰ Interview with Abu Fares, local farmer in the Ghuta Oasis near Damascus, Syria, June 2001

¹¹ Interview with Mr El Fakihi, Regional Director of the Ministry of Equipment, Er Rachidia, Morocco, February 2001

¹² Rouyer, Alwyn R., *Turning water into Politics, The Water Issue in the Palestinian-Israeli Conflict*, Macmillan Press, 2000, pp. 80

¹³ *Ibid.*

¹⁴ *Ibid.* pp. 80; Tal, Alon, *Pollution in a Promised Land, An Environmental History of Israel*, University of California Press, Berkeley, 2002, pp. 200

Water was only valuable if it could be harnessed for agricultural expansion; climatic considerations such as low and unpredictable rainfall were ignored by politicians of the day, while unsustainable use of the resource was seen as a necessary ill.

The environmental scientist Alon Tal describes the passion for water that dominated during the early years of the Israeli State as almost a “Shakespearean tragic flaw”: on the one hand it led to the development of innovative water development projects on a scale hitherto unknown in the Middle East. On the other hand, it created an unrealistic appetite and blinded decision makers to the long-term implications of stress on a fragile resource. “The argument could be made that they almost loved Israel’s water resources to death.”¹⁵

While the Zionist movement thought of itself as liberating the Holy Land and restoring it to its former glory, the underlying attitude towards the environment would, over the years, place a growing and unsustainable demand on the country’s water resources. Today this attitude has become an inextricable part of Israeli policy: because agriculture and the water it uses play such a key role in Israel’s founding myth, it is difficult to question the policymaking in either domain.

WATER AS A POLITICAL AND SOCIAL ISSUE

The reluctance to price water at its true value is however not only based on pious principles and religious conviction; more often than not the main motivation behind low water fees is the support of the agricultural sector that guzzles between 60 and 90 per cent of water resources throughout the region.

The continued support and expansion of the agricultural sector partly stems from a concern over food security. For while MENA countries can never be fully self-sufficient, they seek to attain relative food security, ensuring basic food needs are met.

In the Arab countries of the region, there is also another social reason for supporting agriculture, as it effectively limits further urbanisation, and supports small-scale subsistence farming in the region. Theib Oweis, a water specialist at the International Centre for Agricultural

¹⁵ Tal, *Ibid.*, p. 200

Research in Dry Areas (ICARDA) near the Syrian town of Aleppo, explains that in these rural societies, the problem of water and its distribution has far-reaching social, political and economic implications. Water can therefore not be considered as an isolated resource. “There is a strong social dimension. Most people here live in the countryside and have a rural lifestyle. Water has a very special status in their life. This is why many countries in the region aim to maintain an agricultural society: to ensure stable societies. That is also why there are subsidies. It is not just economics that affects the use of water in these countries; you also need to evaluate the other aspects that come into the equation such as environment, society and politics.”¹⁶

The continued support for agriculture as it exists now is unsustainable; at the same time any kind of reform is fraught with difficulties as this traditional agriculture also represents a way of life that has existed for thousands of years in the Middle East. It is thus easier for governments to maintain the status quo, subsidise agriculture and turn a blind eye to the lowering groundwater levels, the depleting aquifers and the huge wastage that takes place everywhere.

In Israel the continued support for agriculture is not so much a social necessity as a political choice. Current agricultural and water management policies are still strongly tinted by Zionist ideology and the desire to transform the desert landscape into green pastures. Around 60 per cent of Israel’s water supply goes to agriculture.¹⁷ When compared to the other countries in the region, this is still relatively low. However, unlike in other MENA countries, in Israel agriculture represents only a small portion of the national income. In 1991 it made up only 3 per cent of the country’s GDP, while only 4 per cent of the total workforce was employed in the agricultural sector.¹⁸ Yet it continues to enjoy strong support from the government, most conspicuously through the water pricing system

¹⁶ In an interview with Dr Theib Oweis, water specialist, International Centre for Agricultural Research in Dry Areas (ICARDA), Aleppo, Syria, June 2001

¹⁷ Rouyer, *Ibid.* p.26.

¹⁸ Lipchin, Clive, *Water, Agriculture and Zionism: Exploring the Interface between Policy and Ideology*, Paper Presented at the Third IWHA Conference, Alexandria, December 2003

which blatantly favours agriculture over household and industry. Therefore farmers pay much less than users in other sectors and the water they use is heavily subsidized.¹⁹

Critics of Israel's water pricing and agricultural policies are numerous. They point out that the high subsidies for water used in agriculture create a net loss for the national economy and that water-thirsty crops such as bananas and citrus should be imported. According to the environmental scientist Clive Lipchin any change in this status quo will require the revision of Zionist ideology to match the reality of Israel's arid environment and scarce water resources.

Lipchin believes that to break through the entrenched views of Zionism, the system needs to be decentralised, allowing for privatisation and local level decision-making. In his view this could help reduce the buffer zone that exists between water management and the public perception of water availability. "Because the public is encapsulated in a centralised system over which they have no control, changing ideological values that actually represent the situation on the ground will prove daunting," he says, adding that it is at the same time a necessity if the country is to confront the regional water crisis.
20

While Israel's current water policy is perhaps irrational and, in the long term certainly unsustainable, it will be difficult to change. This is partly due to the power of the agricultural lobby within Israeli politics, but, on a deeper level, Zionist ideology also plays an important role. While it is perhaps less influential than 25 years ago, its values and the image of Israel it represents are still deeply engrained in the national psyche.

GREENING THE DESERT: THE PROMISE OF TECHNOLOGY

Technology and the impact it has on daily life and the functioning of society at large is an important cause for water's undervaluing.

¹⁹ Rouyer, *ibid.*, p.168: In the 1990s farmers paid around 44 per cent of the real cost of the water they used. Household users were charged much higher rates: while farmers paid an average of US\$0,13 per cubic metre in 1994, household users paid between US\$1,30-1,40.

²⁰ Lipchin, *Ibid.*

Indeed, modern technology deeply affects the way people think about water and use it. As soon as water starts flowing from a tap, it is taken for granted; people forget that a fluctuating river or an erratic weather system lies at its origins. By making its source invisible, water's existence is divorced from the elements and the seasons, and it becomes paradoxically omnipresent. The user can comfortably assume that it flows from an endless supply.

It is indisputable that the technological advances of the 20th century have enabled the development of MENA economies and improved standards of living. However, on a psychological level – and because many of these projects were hailed by their creators as the answer to all problems – there is now a complacency about water. The Egyptian President Gamal Abdel Nasser spoke of the High Aswan Dam as a “source of everlasting prosperity”. Indeed, the High Aswan Dam has transformed the country: not only has it allowed Egypt to intensify its agriculture, it also saved the country from the drought and famine that devastated Ethiopia and Sudan in the 1980s. But on a more abstract level the Aswan High Dam has given the Egyptians a false sense of security over water.

Mohamed Sid Ahmed, a political journalist and commentator in Cairo comments: “[Since the construction of Aswan High Dam] people are less aware of the value of the water they use. They take it for granted in a way and don't see it as a precious resource. They think they can just press a button and that the water will come.”²¹

Two issues are at stake here: in the first place there is the issue of scale. 20th century technology brought large-scale engineering schemes with it. Projects like the High Aswan Dam in Egypt, the Great Manmade River in Libya and the GAP project in Turkey²² all have one thing in common: their dehumanising scale. The sheer size of the dam reservoirs and the huge amount of water that is transported through these pipelines simply surpasses the individual imagination.

²¹ Mohammed Sid Ahmed, political journalist and commentator, *Al Ahram* newspaper, Cairo, April 2001

²² GAP is the Turkish abbreviation for the South-East Anatolian Project, an ambitious and controversial scheme to build 22 dams and 19 hydro-electric power plants on the Tigris and Euphrates Rivers in Turkey

This in turn leads the general public to believe that water supplies are endless.

The second issue is distance. Through the development of modern water distribution systems, the link that used to exist between the individual user and his water is severed. Water now flows from the source through an intricate network to arrive at a user many tens or even hundreds of miles away.

This is the case in Israel where the nationalisation of water resources in 1959 and the construction of the National Water Carrier in 1964 has created an extremely efficient and sophisticated system of water distribution. According to Tal, there should have been a transition at this point: after a first stage in which water resources were developed and made accessible across the country, there should have come a second stage during which the limits of the resource were acknowledged and the emphasis would have been placed on conservation and an improvement in efficiency. “The fundamentally ideological approach to water, however, prevented a successful transition to the more mature, sustainable stage.”²³

The seamless ease with which water is now delivered throughout the country is without a doubt remarkable, but Lipchin believes it is a double-edged knife. For the system’s efficiency has also blunted people’s sense of awareness of water scarcity. In the eyes of the general public there is endless potential in technological development and neither decision-makers, nor the general public, have acknowledged that there are limits to the country’s water resources.²⁴

Today the solution to scarcity is being sought not in conservation or a change in agricultural policies but in new technology: desalination, a method that promises unlimited supplies. While the schemes – once implemented – can indeed provide a large volume of water, the technology does not address the underlying political and institutional problems. In fact, desalination makes it possible to avoid these issues and maintain a system in which household users pay for the water that is used – and because of the low prices, also wasted – in agriculture.

²³ Tal, *ibid.*, pp. 200, 201.

²⁴ Clive Lipchin in interview, Arava Institute for Environmental Studies, Kibbutz Kettura, Israel, March 2004

Thus the promise of large-scale desalination in Israel has the same effect as the High Aswan Dam has had in Egypt: it has created an over-reliance on technology. In the case of Israel has slowed the discussion on water allocations: not only between the agricultural, industrial and domestic sectors, but also between Israel and the Palestinian Authority. Indeed, in the eyes of some, the fact that Israel can rely on desalination implies that it will in the future no longer have to look at the issue of water supply in a regional context.

Arnon Soffer, a professor of geography at Haifa University, is a protagonist of a “total divorce” between Israel and the Palestinian Authority. He says that because Israel can rely on desalinated water, it no longer needs the water of the Mountain Aquifer. “I am very clear on the steps that should taken. There should a be a total separation of all aspects. Also of water. They [the PA] are a third world country and they will pollute the Mountain Aquifer and all the resources they have. So let them have it.”²⁵

Because Israel can rely on technology to resolve its water problem, it holds the strong position in any water negotiations with the Palestinian Authority. The Palestinians water cannot afford modern technologies as desalination. The current political situation and the ongoing conflict between Israel and the Palestinian Authority means that it is very difficult to form an image of the public perception of water among Palestinians.

Where religion, politics and technology conceal the reality of scarcity in many MENA countries, in the Palestinian Territories, water scarcity is a daily reality for many. However, the scarcity here is construed: it is not so much about availability as about access. At the same time, while water scarcity is a serious problem, it is just one of a dozen problems Palestinians have to worry about on a daily basis. The acuity of the political situation – both internal and with Israel – also makes it difficult to carry out research on the popular perceptions of water in the Palestinian Territories.

²⁵ In interview with Arnon Soffer, Department Of Geography, Haifa University, December 2003, Haifa

This review of dangerous modern myths is not a condemnation of modern technology or a nostalgic eulogy of traditional water wheels and hand-dug wells. The point is that modern engineering projects through their impressive scale and grand allure, conceal the reality of water scarcity. This reality needs to be urgently acknowledged. For while a new dam can alleviate the immediate effects of water scarcity, it does not change the geographical conditions of the region. It does not transform desert climates to temperate ones or guarantee abundant rainfall levels. It is just one component among many that can help in confronting the problem of water scarcity.

RAISING AWARENESS AND CHANGING ATTITUDES TOWARDS WATER

Around the MENA region there is an increasing number of initiatives – by governments and NGOs; on national and local level – to raise awareness of the problem of water scarcity. In Morocco, Egypt, Jordan, Israel and Turkey a variety of programmes is being implemented with the aim of educating and involving the user, and ultimately, changing his behaviour towards water.

The most obvious way to make people aware of the value of water is by introducing water prices that reflect the true cost of the resource. As mentioned above, there are many political and ideological obstacles preventing this. Still, many Islamic countries, including Iran, Morocco, Jordan and Tunisia, have started implementing pricing policies in both urban and (local) rural contexts.

But pricing alone is not enough; this policy should be complemented by education programmes that involve users in local water management. Instead of shielding the user from reality through the perpetration of deceptive policies, these programmes can give them an insight into the gravity of the situation and restore water to its true value. On an agricultural level, such projects are being widely implemented through the creation of water user associations in which small groups of farmers are given the direct communal responsibility over the water they use.

In Egypt the Irrigation Improvement Project (IIP) aims to rationalise and simplify water use along the Nile's side channels. By replacing the numerous individual hand pumps by a single pump at the head of

each channel, water is divided more equally and farmers become more involved in the process of water management. The IIP has been in place since 1997, creating more than 6,000 water user associations throughout the country. The programme is seen as a success, also because many farmers who are not yet involved are signing up to it. However, there has been no net gain in terms of water use and critics question the project's effectiveness.²⁶

Professor Mohammed Nasr Allam of Cairo University believes that while user participation and privatisation of water management are important, IIP is perhaps not the best way to do it. "We need to encourage the cooperation of users. The government has a shortage of financing and technical capacities [and] it is important for the government to transfer water management to other sectors. But the IIP program is very slow and its results are not very conclusive in terms of water conservation. It achieves lower cost for the farmer and better production, but no water is really saved."²⁷ Thus while Egyptian farmers may today be more involved in the process of water management, their involvement has not yet led to water savings.

On a domestic level, awareness campaigns focus on measures that can help save water in the household. In Jordan, the American donor organisation US Aid introduced a new programme in 2000. Water Efficiency and Public Information for Action (WEPIA) has set itself the ambitious goal of not only raising awareness, but also changing behaviours. The programme focuses on the dissemination of Water Saving Devices (WSDs), small attachments that can be screwed on to taps, showerheads or installed in toilets to reduce the water flow. The project, which has a mandate until 2004, has been very successful, amending several laws, launching two major media campaigns and designing education programmes for everyone from toddlers to university students, women, and even imams. WSDs have also been introduced to 60 per cent of the large users including hotels, hospitals

²⁶ All information on the IIP from visits to the project and interviews with Jan Bron, Team Leader, Water Boards Project, Egypt; Royal Haskoning, The Netherlands, Cairo, Egypt, May 2002; Robert Roostee, Head of the Fayoum Water Management Project headed by Dutch Government, Fayoum Oasis, Egypt, May 2002; Eng. Abdallah Doma, Irrigation Improvement Project (IIP), National Water Research Centre, Cairo/Damanhour, Egypt, May 2002

²⁷ Professor Mohammed Nasr Allam, Professor of Irrigation Engineering, Cairo University; General Manager, Nile Consultants, Cairo, Egypt, May 2002

and universities. After 2004, WEPIA's mandate will be taken over by a new water demand management unit within the Ministry of Water Resources. Its challenge will be to ensure the durability of WEPIA's work, not only perpetrating its education and media projects, but also making sure that the general public doesn't forget WEPIA's core message: "The Solution is at Your End".²⁸

This is the difficulty with many of these programmes: as their mandate and financing are limited, their message is all too often forgotten, leaving little tangible results. Durability and sustainability are therefore of key concern.

CONCLUSION

"There are too many priorities. You look at the situation and you see only priorities. It is a big challenge: we have to maximise our benefit from the water we have – use it more efficiently. Then we have to prevent pollution and also work with our neighbours. In parallel we have to look to modernise the irrigation system, encourage drainage water reuse and limit the birth rate... It is a great challenge and it is hard to know where to begin."²⁹ The Egyptian minister of water resources, Dr Mahmoud Abu Zeid, summed it up; he was talking about Egypt, but, by and large, the same is valid for the whole region.

Water is an increasingly scarce resource throughout the Middle East. Many foresee that the severe shortages that will afflict the region in the future will have far-reaching implications for the lives and livelihoods of the population there. Yet this population remains largely unaware of the impending crisis.³⁰

²⁸ In interview with Dr Hala Dahlan, Senior Technical Specialist, Water Efficiency and Public Information For Action (WEPIA), Amman, Jordan, November 2003; Rania Abdel Khaleq, Director of Water Demand Management Unit, Ministry of Water Resources and Irrigation, Amman, Jordan, November 2003

²⁹ Dr Mahmoud Abu Zeid, Egyptian Minister of Water Resources and Irrigation; President of the World Water Council, Cairo, Egypt, May 2002

³⁰ In interviews with Professor Mohammed Nasr Allam, Professor of Irrigation Engineering, Cairo University; General Manager, Nile Consultants, Cairo, Egypt, May 2002; Professor Nadhir Al Ansari, Strategic Environment and Water Resources Research Unit, Al Al-Bayt University, Mafraq, Jordan, November 2003; Professor Boutros Boutros Ghali, Former Egyptian Minister of Foreign Affairs (1977-1991); Former Secretary-General of the United Nations (1992-1996), Paris, France, March 2003

The harsh reality of the coming water scarcity is shrouded in religious, political and technological myths, which make it possible to ignore reality and continue using water as it has been for centuries. However, the problem is taking on such proportions that it can no longer be resolved on the sidelines of the society.

Water is first of all a natural resource, but it is also part of an intricate web of economic, social and political issues from which it cannot be dissociated. It is impossible to consider water in the MENA without considering its users, and their beliefs and attitudes. Because water is not an isolated issue and because its availability influences the life of everyone in the MENA region, the problem of water scarcity should be addressed by society as a whole, not just by policymakers and engineers. For a part, it is a technical issue that can be resolved through engineering works, better distribution and less wastage. But it is also a social issue that is aggravated by unrestrained population growth, pollution and lack of education.

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