ROUTLEDGE STUDIES IN THE GROWTH ECONOMICS OF ASIA

Water as a Human Right for the Middle East and North Africa

Edited by Asit K Biswas, Eglal Rached and Cecilia Tortajada

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Access to safe drinking water and proper sanitation is essential for human survival and for maintenance of a decent quality of life. Currently, more than a billion people do not have access to safe drinking water and more than 2 billion people lack proper sanitation. In 1992, the United Nations proclaimed that water should be considered to be a human right. This position, however, has not been accepted by many developed and developing countries. This book systematically and comprehensively analyses the legal development of the concept of water as a human right;

- Implications for national governments, and international and national organisations.
- Progress made on this front in different Middle East and North African countries.
- Obstacles to universal access to water-related services and how they can be overcome.

This book was previously published as a special issue of *Water Resources Development*.

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Foreword

Throughout history, it has been recognized that water is an essential requirement for the human and ecosystems survival. Without water, life as we know it will simply not be possible. Thus, not surprisingly, the ancient Greek philosopher, Pindar, declared in the 5th century BC that best of all things is water. Nearly two millennia later, Leonardo da Vinci considered water to be 'the driver of nature'. These may be considered by some to be overstatements, but the fact that such eminent personalities of their times made such major pronouncements indicate that water always has been considered to play an important role in human survival and development.

During the second half of the 20th century, human population increased steadily, as did our economic and social activities. These two developments, together with sub-optimal water management practices and processes, meant that many parts of the world started to face physical water scarcities. In addition, it is now being increasingly accepted that the environment is a legitimate user of water. Thus, in those areas where much of the available water has already been allocated, or is about to be allocated, the addition of environmental needs to other existing water needs has further complicated an already complex and difficult situation that will undoubtedly have significant social, political and economic ramifications in the coming years.

The importance of water for satisfying a variety of human and ecosystem needs has been regularly recognized in numerous intergovernmental meetings at very high decision-making levels, starting with the United Nations Conference on the Human Environment, held in Stockholm in 1972.

All these global intergovernmental conferences and their resulting declarations and action plans pointed out the need for water for drinking (humans and livestock), food production, electricity generation, environmental conservation and industrial developments. The importance of access to clean water and sanitation was further emphasized in the Millennium Development Goals and in the Johannesburg Declaration of 2002.

The importance of having access to clean water for domestic uses and sanitation was very specifically highlighted during the UN Water Conference, held in Mar del Plata, Argentina, in March 1977. This Conference noted that the access to water is a basic human need, and proposed that the period 1981–90 should be declared to be the International Water Supply and Sanitation Decade so that the people everywhere could have access to safe water within a reasonable timeframe. Even though the Decade missed its goal of achieving universal access to safe water, it is now considered to be a remarkable success.

The Decade mobilized political will and resources in such a way that an estimated 600 to 800 million people received access to clean water, who otherwise may not have had access to it.

An in-depth analysis of the resolutions and action plans of the various intergovernmental conferences indicate that while they have consistently given high priority to achieving universal access to clean water, they have vacillated regularly between the concepts of water as a basic need and water as a human right. In fact, it appears that these two concepts have often been used interchangeably, without a clear understanding of their differences and possible policy and financial implications.

The situation changed somewhat when the UN Committee on Economic, Social and Cultural Rights issued General Comment No. 15 in January 2003. This Comment reinterpreted Articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR). It stated that:

> Water is a limited natural resource and a public good fundamental for life and health. The human right to water is indispensable for leading a life in human dignity.

It then went on to say that:

> The right to water contains both freedoms and entitlements. The freedoms include the right to maintain access to existing water supplies necessary for the right to water, and the right to be free from interference, such as right to be free from arbitrary disconnections or contamination of water supplies. By contrast, the entitlements include the right to a system of water supply and management that provides equality of opportunity for people to enjoy 'the right to water'.

The responses to the non-legally binding reinterpretation of ICESR stating that water can indeed be considered to be a human right under the existing international treaties and covenants have been somewhat varied. The goal of the General Comment No. 15 that every human should have access to clean water is now generally accepted. The new interpretation was widely acclaimed by most, if not all, of the advocacy non-governmental organizations (NGOs) that were interested in providing access to clean water and sanitation in developing countries. However, it should be noted that even within the legal community there is divergence of views as to whether human rights can be extended to areas where no rights have been specifically endorsed by international treaties and conventions. Equally, many governments have declined to accept this 'derived' interpretation that water is a human right.

Because of the importance of the desirability of universal access to clean water, and differences of opinions on the recent developments that water is a human right, the International Development Research Centre (IDRC), through its Cairo Office, decided to explore the main issues associated with this area in depth, including the formulation of a priority research agenda. Accordingly, Dr Eglal Rached, Director of the IDRC Office in Cairo, in collaboration with Professor Asit K. Biswas of the Third World Centre for Water Management in Mexico, formulated a project on water as a human right, very specifically for the Middle East and the North Africa region.

Among the activities carried out under this project was a very focused workshop which explored the different important issues that are associated with this concept, and also to

what extent this concept is appreciated by the national water agencies in terms of its implementation to improve access to clean water. Leading national and international experts on the region, and from the region were carefully selected and invited to prepare papers on specific topics within an overall framework. The authors of the commissioned papers and some selected experts were then invited to review and critique the papers at an invitation-only workshop, in Cairo, Egypt, in 2006.

During the Cairo discussion, the participants identified the following seven specific areas where further research is needed:

- Is water a basic need or a human right? What are the implications if water is considered as a basic need or human right? Will declaring water as a human right accelerate universal access to clean water?
- If water is considered to be a human right, what are the duties and responsibilities of the various levels of governments and water users? Will this imply governments are obliged to provide clean water to everyone? If so, is this a feasible long-term alternative?
- If water is to be priced, how should a tariff structure be organized to satisfy the twin objectives of economic efficiency and social equity for specific locations?
- Since it is highly probable that even by 2020 more than 85% of the people will be receiving water from the public sector, how can the efficiency of these companies be improved very significantly?
- What could be the roles of national and regional private sector companies in the Middle East and North Africa (MENA) region so that they can bring in management expertise and private capital to improve the existing situation?
- What should be the legal and regulatory frameworks in the MENA countries that could ensure people have access to clean water, irrespective of whether the services are provided by public or private sector?
- In view of the rapid increase in the number of elderly people in the MENA region in the coming decades, how should their water needs be covered efficiently?

These are difficult questions, which both the MENA countries and the appropriate international institutions need to consider seriously in the coming years.

The present publication is the first definitive work that addresses the various complex aspects of water as a human right in the MENA countries. We are confident that this will stimulate interest on this overall issue, as well as contribute to accelerated research on the priority areas identified by the expert group.

Mahmoud Abu-Zeid
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Ottawa, Canada

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Water as a Human Right in the MENA Region: Challenges and Opportunities

ASIT K. BISWAS

Introduction

Throughout history, water has always been considered to be an essential requirement for human survival. Not surprisingly, the early civilizations developed near major perennial rivers such as the Nile, the Tigris-Euphrates and the Indus. However, during the earlier times, the clusters of the human population were small, the ranges of the human activities were very limited and generally water was plentiful and of reasonably good quality. However, as the human population steadily increased over the centuries, and the range of the human activities expanded, especially after the Industrial Revolution, water resources, both in terms of quantity and quality, started to come under increasing stress in many parts of the world than ever before in history.

The world population and the associated economic activities have continued to increase very significantly since the post-1950 period. This has meant that not only have humans needed an increasingly higher quantum of water for various uses, but they have also produced larger and larger quantities of wastewater which have been discharged to the environment, mostly to water bodies such as rivers, lakes and

oceans, with limited or no treatment. Accordingly, by the late 1960s, because of the continued indiscriminate discharges of the inadequately treated wastewater, the water quality of the rivers, lakes and the coastal areas had declined steadily. On the one hand, the demand for water for various uses had progressively increased, but on the other hand, the quality of many of the water sources had increasingly declined, which meant less and less water was available for human consumption without adequate treatment.

By the early 1970s, most industrialized countries had realized the importance of proper water quality management to ensure the availability of good quality water for human consumption, industrial development and ecosystems conservation. Continuing eutrophication of numerous water bodies from domestic discharges, as well as water contamination due to the regular discharge of untreated or partially treated industrial effluents containing heavy metals and chemicals, became a serious social concern because of human and ecosystem health considerations. Attempts were made to clean up major water bodies such as the river Trent in England, the Great Lakes between Canada and the United States and the Rhine in Europe from decades of continuing neglect of water quality management.

As knowledge and technology advanced, economic conditions improved, and the general public, especially in the developed world, became increasingly aware of the importance of the environmental issues. Societal and political interests in the industrialized countries steadily increased in issues related to drinking water quality, mainly during the post-1980 period. This interest was manifested in rapidly increasing requirements for water quality monitoring and management in the recent decades. For example, in the City of Ottawa, the number of water quality parameters that had to be monitored to ensure proper water quality management simply skyrocketed towards the latter part of the 20th century (Figure 1). The situation was very similar in most major urban centres of the developed world. These developments have posed significant techno-economic challenges in terms of cost-effective water quality management which have yet to be successfully overcome.

Emerging environmental awareness was reflected in newer legislations and regulations, including their strict enforcement. These developments ensured that the people in the Western countries generally had access to better and better

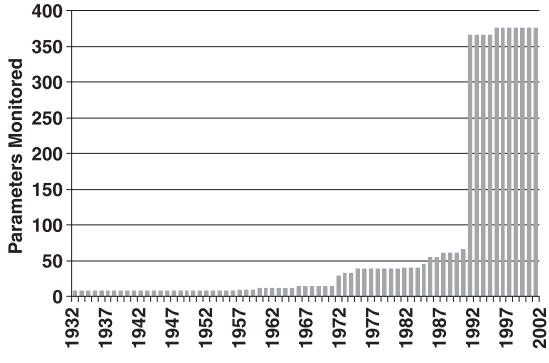

Figure 1. Number of water quality parameters monitored, Ottawa 1932–2004

quality of water for domestic uses than ever before in human history. It also ensured that efficient urban water and wastewater management became an increasingly complex and difficult task.

While the situation in the Western world in terms of availability of good quality water in appropriate quantities for domestic consumption has improved very significantly since the post-1970 period in both urban and rural areas, commensurate progress for the most part did not occur in the vast majority of developing countries. High population growth rates, increasing urbanization, lack of investment funds, corruption at various levels and poor overall governance, including inefficient water management, ensured that increasingly more people did not have access to clean drinking water and adequate sanitation on a regular and consistent basis. As the number and the extent of the urban areas of the developing world increased very significantly during the past three decades, their water and wastewater management problems posed major social, economic and political challenges which have not proved easy to resolve. By the early 1970s, it had become evident that the number of people in the developing world who did not have access to clean drinking water was increasing steadily. The situation became significantly worse in terms of access to sanitation and proper wastewater treatment and disposal.

Water and Sanitation, 1975–2000

Even though access to clean water and sanitation in the developing world had become an important social, economic, environmental and political issue by the early 1970s, these concerns were not adequately reflected in the national and international political agendas until about the mid-1970s. In retrospect, it is somewhat surprising that these were not considered to be important development issues before this period, even though they had major implications in terms of human health, adverse social and environmental impacts, and improvement of the overall quality of life of the poor people all over the developing world.

The issue of the increasingly deteriorating global situation in terms of access to clean water supply and adequate sanitation was raised during the United Nations Conference on Human Settlements, held in Vancouver in June 1976. In the resulting Vancouver declaration, water was considered to be a basic human need. The Conference noted in its Recommendation C. 12 that in developing countries, "nearly two-thirds of the population do not have reasonable access to safe and ample water supply", and thus in most countries urgent action was needed to:

- "adopt programmes with realistic standards for quality and quantity to provide water for urban and rural areas by 1990, if possible";
- "reduce inequities in service and access to water as well as over-consumption and waste of water supply";
- "promote efficient use and reuse of water by recycling, desalination or other means taking into account the environmental impact; and
- "take measures to protect water supply sources from pollution".

The Vancouver Conference also very specifically recommended that:

> Safe water supply and hygienic waste disposal should receive priority with a view to achieving measurable qualitative and quantitative targets serving all the population

> by a certain date; targets should be established by all nations and should be considered by the forthcoming United Nations Conference on Water, ...

The challenge posed by the Vancouver Conference was picked up by the United Nations Water Conference, held at Mar del Plata, Argentina, in March 1977. This Conference proposed that the period 1981–90 should be proclaimed as the International Water Supply and Sanitation Decade so that the interest in water supply and sanitation could be increased very significantly at the national and international levels. This recommendation for a Decade was subsequently approved unanimously by the United Nations General Assembly on 10 November 1980. It should be noted that the primary goal of the Decade, that is, the provision of clean water and sanitation for 100% of the global population by 1990, was most ambitious, and thus, not surprisingly, could not be achieved. The initial optimism resulting from the proclamation of the Decade soon gave ground to sober realities. This reality was reflected by the fact that by 1985, mid-way through the Decade, only a small percentage of developing countries had made plans for full coverage by 1990, let alone ensure their full implementation.

On 28 July 1983, being aware of these shortcomings in terms of progress in implementing the goals of the Decade, the Economic and Social Council of the United Nations urged the governments of developing countries "to adopt national targets for drinking water supply and sanitation services, commensurate with resources availability, absorptive capacity and ability ...". By all accounts, by then the possibility of achieving the Decade goal of universal access to clean water supply and adequate sanitation by 1990 was considered to be mostly unachievable.

This fact was later recognized by the UN General Assembly, which noted somewhat gently on 17 December 1985 that "significant progress towards meeting the objectives of the Decade by 1990 will require a much greater sense of urgency and priority on the part of the Governments and the continued support of the international community".

The Decade did not reach its goals in terms of universal access to clean water by 1990. However, it had major impacts in terms of putting water supply and sanitation firmly in the global development agenda. In addition, hundreds of millions of people all over the developing world received accelerated access to clean water and sanitation which would not have happened without its proclamation. Thus, in terms of its overall achievements, there is no question that the Decade was a remarkable success, even though it did not achieve its originally stated very ambitious goals.

The issue of access to safe water supply and adequate sanitation was subsequently taken up during the formulation of the Millennium Development Goals (MDGs). While access to water supply was made an explicit MDG, an even bigger problem, access to sanitation, could not be made a Goal primarily because certain major developed countries were not in favour of this particular approach. This was indeed surprising, since, historically, a significantly larger number of people have not had access to sanitation compared to water supply. For example, for 2004, the latest year for which data are available at present, 2612 million people did not have access to sanitation, compared to 1069 million people who did not have access to improved drinking water source (WHO & UNICEF, 2006).

Access to sanitation has to be an important component of any quality of life indicator, irrespective of however it is defined. In addition, most regrettably, sanitation generally continues to have a lower profile in development considerations of most developing

countries compared to water supply, even though everyone agrees that it has major impacts on health, social well-being and gender-related issues.

The sanitation goal was finally addressed to by the UN World Summit on Sustainable Development, held in Johannesburg, South Africa, 26 August–4 September 1992. Under paragraph 8, the Conference Report (1992) noted:

> The provision of clean drinking water and adequate sanitation is necessary to protect human health and the environment. In this respect, we agree to halve, by 2015, the proportion of people who are unable to reach or to afford safe drinking water (as outlined in the Millennium Declaration) and the proportion of people who do not have access to basic sanitation, ...

At present, it is generally accepted that the development goals are to reduce by half the number of people who do not have access to water supply and sanitation by 2015, compared to the situation that existed in 1990. However, almost halfway through the 2000–15 period, it now appears that goals will not be met in several parts of the world, unless accelerated attention is given to the achievements of these targets during the second half of the period, compared to what has been witnessed in the first half. Realistically, there are no indications that this accelerated attention is likely to take place.

Water as a Human Right

Within the overall context of these developments, the Committee on Economic, Social and Cultural Rights (CESCR) that was established by the United Nations to oversee the implementation of the Covenant on Economic, Social and Cultural Rights, presented a document (General Comment No. 15) at its 29th Session, in Geneva, during 11–29 November 2002. This Comment re-interpreted Articles 11 and 12 of the Covenant, and concluded that water can be considered to be a human right under this Covenant. Additionally, some other international agreements can be interpreted as promoting this view. Under Article 11, the General Comment noted that:

> The adequacy to water should not be treated narrowly, by mere reference to volumetric quantities and technologies. Water should be treated as a social and cultural good and not primarily as an economic good. The manner of the realization of the right to water must also be sustainable, ensuring that the right can be realized for present and future generations.

The timing of the publication of the General Comment, just before the Third World Water Forum, in Kyoto, in March 2003, was not coincidental. It was expected that the General Comment No. 15 would have direct impact on the direction and the level of the discussions at Kyoto, especially in terms of increased focus on water supply and sanitation, and also on funding availability for this sector. It was expected that the decision that water is a human right might encourage national governments and international organizations to earmark funds to improve access to water supply and sanitation significantly.

Not surprisingly, the World Health Organization noted in one of the publications distributed during the Kyoto Forum that "a right-based approach integrates the norms,

standards and principles of the international human right system into the plans, policies of development".

It should also be noted that the World Panel on Financing Water Infrastructure, which was chaired by Michel Camdessus, former Director of the International Monetary Fund, presented its report at the Kyoto Forum. It was thus not unrealistic to expect that the Camdessus Report and the resulting discussions at Kyoto, and thereafter in other appropriate international fora, may generate additional investment funds for the water supply and the sanitation sectors. The Panel was expected to "address the ways and means of attracting new financial resources". The report was entitled *Financing Water for All* (2003), which at least gave the initial impression that it would seriously address how new sources of investment can be marshalled to promote water infrastructural development, including universal access to clean water.

Unfortunately, however, the General Comment No. 15 had no perceptible impact during the Kyoto Forum in generating new investment funds for the water supply and sanitation sectors, or in terms of shaping the discussions as to what are the implications if water is accepted as a human right. In fact, the entire Camdessus Report mentioned only once the issue of human right to water and this too only in the initial part. This issue was not mentioned in any significant way in more than its 80 recommendations as to how human rights to water could be achieved, or what could be its financial implications in terms of operationalization.

The Report's main philosophy centred on the establishment of an 'enabling environment', within which the poor can pay for their access to water. The focus was on the needs of 'bankable' projects, including their 'commercial and funding' structures. The 'dream' of access to clean water would be realized only when appropriate and necessary financial mechanisms could be established in different parts of the world. It also concluded that the ideal long-term aim had to be "full cost recovery from users", although in the short term "some subsidy is inevitable" for poor isolated and rural communities where "affordability is a distant prospect." It pointed out that: "Tariffs will need to rise in many cases, but the flexible and imaginative use of targeted subsidies to the truly poor will be called for to make this cost recovery acceptable, affordable and so sustainable". It should be noted that this conclusion was very similar to the recommendation of the World Commission on Water, which presented its report in 2000 during the Second World Water Forum in The Hague.

At the risk of over-simplification, it can be said that neither the Camdessus Report nor the General Comment No. 15 had much impact either on the discussions and the meagre results of the Kyoto Forum, or on the subsequent developments in the water supply sector. In fact, by early 2007, Camdessus Report had become mostly history, without having any visible impact on financing of water infrastructure or in generating any new investments for the water sector. As far as the General Comment No. 15 is concerned, it probably had thus far a marginally better fate than the Camdessus Report in terms of its implementation, or its acceptance by the mainstream water profession. To the extent the discussions on water as a human right are kept alive, this is probably because of the professionals working in the human rights area (in contrast to the water professionals) and activist NGOs who are against water pricing and private sector involvement in terms of universal access to water supply and sanitation.

As the former World Bank President Wolfensohn (2005) has noted, to some governments who constitute the Bank's shareholders, "the very mention of the words human rights is inflammatory language". It should be noted that the word "rights" often

has different meanings for different constituencies; knowledge and familiarity of discussions on rights vary widely between the different interest groups; and the discussions on water as a human right between its proponents and opponents have focused almost exclusively on domestic water use; other types of water uses are mostly conspicuous by their absence. Serious discussions of water as a human right in the overall context of water resources management is mostly missing at present.

It is fair to note that at present no sane individual opposes the concept that all humans should have access to clean water. Similarly, not a single country opposes this concept either. The main issue thus hinges around not whether water is a human right, but how to ensure that all humans have access to clean water and proper wastewater management within the social, economic, physical and political conditions and constraints within which they live. The solutions and the implications for the problems to be solved are complex, and these are likely to differ from one place to another. The implementable solutions may even be different in the same location over time, thus making the solution even more difficult to identify, let alone implement.

The Republic of South Africa is probably the only country which has come close to promulgating the concept of water as a human right. However, this is not because of the General Comment No. 15, which was issued in 2003, but due to its 1998 National Water Act which specifically promoted 'equitable access to water' for all its citizens, and stipulated that the water institutions must "have appropriate community, racial and gender representations". However, 11 'factors' should be considered that reflect different economic, social and environmental perspectives, and cover a variety of wide-ranging conditions. Not surprisingly, some of these perspectives and conditions may be conflicting, and thus policy making and successful implementation of the objectives have not been an easy task to accomplish.

The concern of some of the countries that are not in favour of promulgating the concept that water is a human right stem from the fact that they are unsure of the legal implications if they approve the overall philosophy. Some countries are worried that they will be sued for compensation because they will be unable to meet this universal obligation for some considerable time to come. Others are worried that human rights to water may mean free provision of clean water and proper wastewater management for everyone, which they simply cannot afford. Since this simply cannot be achieved within the foreseeable future, these countries prefer not to approve this concept until their responsibilities and accountabilities are clarified, as well as those of the consumers. Until this happens and a critical number of important countries decide to recognize this right, progress in terms of acceptance of the concept of water as a human right is likely to be slow.

The Situation in the MENA Region

The water profession and the vast majority of the governments in the Middle East and North Africa (MENA) region have for the most part not paid much attention to the UN declaration that water is a human right, especially in terms of what it means, and what are the implementation requirements to extend universal water and sanitation coverage. In fact, based on interviews carried out in several MENA countries, policy makers in the majority of the water-related institutions appear to be either unaware, or somewhat superficially aware, of this declaration and how it may affect their work. In practical terms, because the world community accepted universal access to water as a goal some three

decades ago, the 2002 declaration of the United Nations that water is a human right is somewhat unlikely to change the existing and foreseeable activities in any significant fashion, at least over the near and medium terms. This, plus the fact that many major countries are reluctant to expand further the domain of human rights, including that on water, may mean that the declaration based on the General Comment No. 15 may at best have only limited impact in improving access to clean water.

In the MENA countries, with perhaps the exception of Morocco, the governments do not appear to have modified their water supply and sanitation policies, plans or programmes because of the UN General Comment. Morocco appears to be the only country in the MENA region that has now incorporated the concept of rights to water in its national water supply policy. However, it can be argued that even for the case of Morocco, the government would have most probably followed the same policy in terms of promoting universal access to clean water, but perhaps without noting that water is a human right. In other words, the end results for Morocco, in all probability, may have been very similar with or without the UN General Comment No. 15.

The Roles of the Private Sector

In Morocco, where all important urban water supply and sanitation activities have either been handed over, or are in the process of being handed over, to the private sector, and in Jordan, where the private sector is playing an increasingly important role, the vast majority of the private sector managers and professionals are unaware of the General Comment No. 15 of CESCR.

The general view of the private sector is that they have specific contracts with the governments to provide certain services to the people with specific targets to be met within prescribed time periods. Thus, their task is to meet these targets as efficiently, promptly and cost-effectively as possible. The private sector companies are regulated by the governments. They have received concessions for fixed time periods to provide certain specific services to the people, and there are contractual agreements in terms of prices that they can charge their consumers, and the targets they must meet. They do not see why or how the issue of water as a human right should be their consideration, especially as it is not a part of their existing contractual agreements. The private sector is not accountable to the United Nations, nor is it important for them to keep abreast of what goes on at the UN. One senior manager summarized the prevailing view of the private sector succinctly as follows:

> If the UN considers water is a human right, we have no problem. The UN should discuss this directly with the governments. We have received a concession to do a specific task, and we plan to do it, nothing more and nothing less. We have limited interest in philosophical discussions irrespective of its relevance, whatever that may be.

This view appears to be representative of the vast majority of private sector companies active in this area.

The Roles of the NGOs

The human rights groups and many NGOs (especially the activist ones) have taken a somewhat different approach to access to clean water, compared to the water profession in

general. As noted earlier, during the past several decades the human rights community has tried to expand the concept of rights to many new areas, water being one of them. Limited thought has been given as to how once water is declared to be a human right, it can be ensured that everyone will actually have access to clean water and sanitation. The focus of the human rights community appears to be more on expanding the areas of human rights, compared to how the previous or the newly derived rights can be implemented or operationalized.

Most activist NGOs interested in this area have picked up the declaration that water is a human right, and have used it to reinforce their prevalent views in certain areas. Among these areas are the following:

- Since water is a human right, provision of water supply and sanitation should be strictly restricted only to the public sector.
- Profit-making by the private sector should not be allowed in the water sector, since water is a human right and also a basic human need. Thus, the private sector should not be allowed to participate in providing water supply and sanitation services. Activist NGOs in certain MENA countries where the private sector is becoming an increasingly important player, e.g. Jordan and Lebanon, have taken this stand.
- Since water is a human right and need, it should be provided either free, or at highly subsidized prices, to all the people.

A major factor in the MENA region has been that the NGO movement has not developed as fast and extensively as has been the case in South and Southeast Asia or Latin America. The activities of NGOs may sometimes be tolerated officially but not encouraged. Not surprisingly, there are still many red lines that the NGOs simply cannot cross if they plan to continue their activities. However, the situation appears to be changing in several MENA countries, albeit somewhat slowly.

In addition, the academic and research community in the MENA countries do not appear to have taken any special interest in water as a human right approach and its implications. It is not easy to find any serious and sustained research underway, or significant publications, from the research of the academic community in this overall area.

Furthermore, in view of the following facts, the subject of water as a human right is neither reasonably known nor fully appreciated within the water profession of the MENA region:

- water as a human right was not established through an international treaty that was ratified by the requisite number of countries;
- opinions in the legal profession vary as to whether a right can be unequivocally established through derivation and inferences from existing legal conventions; and
- water and development professionals have seldom given any attention to the discussions at the UN Committee on Economic, Social and Cultural Rights (in fact, during the research on this overall area, very few water professionals in the MENA countries were found who are even aware of the existence of this Committee, let alone its General Comment).

If any significant progress is to be made in increasing the awareness on this topic, a major information dissemination campaign needs to be started. However, at this stage, it is not

very clear whose responsibility it is to initiate such an information campaign: the United Nations, other regional and international organizations, and/or the national governments. Unless the water community is made aware of these developments, progress, if any, will continue to be minimal or even non-existent. It should also be noted that even if such an information campaign can be initiated, and the campaign becomes effective, there is no guarantee that it will expedite the universal coverage significantly.

A few activist NGOs seem to be promoting this concept. Paradoxically, because these NGOs are activists, governmental water institutions have not taken their views seriously.

Legal, Institutional, Social and Economic Implications of Implementing Human Rights to Water

Based on the information available at present, it has not been possible to identify a single MENA country where legal, institutional, social and economic implications of implementing human rights to water have been analyzed in any serious way by any governmental organization, university and research institution, private sector or NGO.

It is possible that the prevailing legal frameworks in one or more MENA countries consider water as a human right. However, in a small project such as the present one, having very limited financial resources, it has not been possible to review the various different national constitutions and numerous water legislations to find out if water is already considered to be a human right in different MENA countries. If any country considers that water is a human right, this has happened independently, and not primarily because of the UN General Comment.

Main Issues to be Considered

There are several fundamental issues that need to be considered in this overall area of water as a human right. These are as follows.

Water: A Human Right or a Basic Need?

While the General Comment No. 15 of CESCR has given a considerable momentum to those who believe the human right to water is now clearly established under the existing international laws, analysis of the resolutions and declarations that have been adopted since the United Nations Conference on the Human Environment, held in Stockholm in 1972, indicate that these have regularly vacillated between declaring water as a basic human need and as a human right. It may even be said that the concepts that water is a basic need or a human right have often been used interchangeably during these forums, without clear understanding of either the concepts or their operational implications. Regular references to these two concepts have further ‘muddied’ the water in terms of their legal relevance and overall acceptance. The general approach has been basically inconsistent.

It should also be noted that all the various declarations and resolutions, including the General Comment No. 15, cannot be considered to be legal instruments that have a formal binding effect on the governments. At best they can be considered to be ‘soft laws’, and may have relevance in terms of evolution or emergence of principles of customary international law. However, since they are not legally binding to the nations, their

implementation has been consistently poor, and their practical relevance in terms of impacts has been somewhat weak and often indiscernible.

Human Rights and Sovereign Rights

In the final analysis, even for treaty-based human rights, it is the states that have the necessary sovereign powers to implement all the rights within their territories. Declaration of any issue as a human right, and its acceptance through an international convention is a step, albeit an important one, in the right direction. However, declarations are only a beginning: by themselves they are not enough or sufficient. It is essential that these declarations are implemented by the states. Regrettably, it is in the implementation process where most of the problems now remain.

Within this overall context, it is important to make a distinction between two types of human rights: civil and political rights, and economic, social and cultural rights. The implications, especially in terms of implementation for these two groups of rights are very different. For example, civil and political rights are endowed upon individuals by ensuring that the governments do not interfere with them. These rights generally do not require appreciable budget or major institutional arrangements to be properly enjoyed by the citizens of the various countries. These rights are thus comparatively easy to implement, given the necessary political will.

In contrast, economic, social and cultural rights require active interventions by the appropriate governmental machineries at various levels, including formulation of national policies and programmes, and structuring of functional institutional arrangements to first formulate and then implement such policies and programmes. Appropriate budgets must be provided in a timely manner, over a long timeframe, for the institutions responsible for overseeing the implementation of these rights. In other words, enjoyment of economic, social and cultural rights cannot be realized without significant deployment of resources, whereas civil and political rights may be endowed at relatively low cost. This fundamental difference between these two types of rights is mostly missing in the current debates on various human rights issues, including on water.

It should be recognized that the implementation of water as a human right will not be cost-free: in fact, its implementation will require very substantial financial resources and technical, managerial and administrative capacities, as well as a strong political will at senior policy-making levels. These rights cannot be endowed on all citizens without the direct involvement of the governments at all levels. Based on the current experience, this enabling environment is unlikely to develop in most countries automatically, especially for a water-based right, since it will require major changes in the mindsets of policy makers and senior government officials. For the enabling environment to develop, it is essential that the citizens demand this right vociferously and are willing to pay for the provision of all the necessary services directly and/or indirectly through taxes. Without such demands, the progress at best is likely to be slow in terms of ensuring universal access to clean drinking water.

Issue of Rights in Terms of Drinking Water and Other Water Uses

At present, nearly all the discussions on water as a human right have been almost exclusively targeted to drinking water and sanitation-related issues. While unquestionably,

availability of clean drinking water and access to sanitation are important societal and environmental requirements, water also has other equally important uses in terms of agriculture, energy production, industrial and regional development, environmental conservation, tourism, etc. The implications of the concept of water as a human right, for all water use considerations, except for domestic consumption, have not been considered very much, either by the human rights groups or by the water community. If the concept of water as a human right is to progress further, it will be essential to consider other water uses since water allocations between the various groups of users are always complex and difficult. This is especially important since other well-established rights, such as the right to food or health, have major water-related implications in terms of both quantity and quality. These issues are mostly neglected at present. In addition, the issues related to wastewater management of the various different water uses are neglected. Only sanitation-related issues are considered at present, and this too in a somewhat restricted sense. The debate and discussions need to cover a much wider territory.

A detailed analysis of the General Comment No. 15 indicates that it mainly focuses on the issue of the human right to water in terms of domestic consumption. This is in keeping with the current global interest and discussions on this issue. However, in Article 6, it does briefly note that:

> water is necessary to produce food (right to adequate food) and ensure environmental hygiene (right to health). Water is essential for securing livelihoods (right to gain a living by work) and enjoying certain cultural practices (right to take part in cultural life).

Subsequently, however, the General Comment basically ignores other water uses and the associated rights. It concluded that priorities 'must be' given to personal and domestic uses, and 'should be' given to the use of water to prevent starvation and diseases. In other words, CESCR has implicitly allocated priorities in terms of rights, first to domestic water supply, and then to health. This means that the Committee did not consider other water uses as priority issues under human rights considerations either explicitly or by omission. Many water and development experts are likely to disagree with this interpretation for a variety of reasons, including rapidly evolving global and national views and conditions.

Consideration of Other Water Uses as a Human Right

If water for domestic consumption is to be considered to be a human right, use of water for other already agreed human rights must be considered, as well as other rapidly evolving water uses like water for energy production. Furthermore, all the various water-related rights and uses need to be interlinked, at least conceptually. This is especially relevant for food production because not only nearly two-thirds of the global water use is for agricultural production but also food is considered to be a human right under a treaty-based international agreement, whereas in contrast water can be considered to be a right under inference and soft laws. In other words, consideration of water as a human right for domestic consumption may appear to be a 'simple' issue at first sight, but its implications and operationalization are exceedingly complex. Research on these complex issues is mostly missing at present.

Acceptance of Water as a Human Right

Water professionals and human rights groups are taking two very distinctive but somewhat different approaches to the issue of water as a human right. The end objective of both the groups is similar, that is, all people should have access to clean water and to wastewater management. While water professionals and government officials have long tried to achieve this goal, at present the human rights groups appear to be more interested in expanding the areas of human rights, rather than focusing on how these rights can be met. Surprisingly, in the human rights literature, there is very little discussion of how water as a human right can be achieved and which parties will be responsible for this achievement, where the funds will come from, what policy measures are necessary, and what the rights and the responsibilities of the consumers will be. Equally, there is very little discussion in the human rights literature as to whether water as a human right means that governments are obliged to provide good quality water free to all citizens, or if the citizens are expected to pay for these services. If the people are expected to pay, how should the tariffs be structured for different socio-economic strata? In addition, what are the roles of the private sector within this human rights concept, and how should the public-private partnership be structured to accelerate acceptable levels of service delivery? Objective, in-depth and sustained discussions on these complex issues within the human rights community have yet to begin.

Approach of the Water Profession

Following the United Nations Conference in Human Settlement, held in Vancouver in 1976, the global objective has been consistently to provide clean drinking water and sanitation to every human in the world. This issue was extensively discussed during the UN Water Conference in Mar del Plata in 1977, which recommended the declaration of the International Water Supply and Sanitation Decade for the period 1981–90, with the target that by the end of the Decade, everyone should have access to clean water and sanitation.

As noted earlier, the Decade did not reach its objective. In retrospect, it has to be admitted that its targets were unrealistic, and thus unachievable. However, there is absolutely no question that the Decade very significantly increased both national and international momentum to provide clean water and sanitation to all. Equally, the Decade was instrumental in significantly increasing the number of people who received access to water supply and sanitation, which would not have happened without this event. It also put universal access to water squarely on the global development and political agenda. Thus, the universal acceptance of this international goal is no longer an issue: the issue is how this goal can be implemented cost-effectively within a limited timeframe in a socially acceptable and environmentally-friendly manner.

Some 10 years after the Decade ended, one of the Millennium Development Goals (MDGs) very specifically addressed this issue. This time the goal was much more restrictive than before: between 1999 and 2015 reduce by one-half the proportion of people without access to safe drinking water. Thus, the overall view of the water profession and a vast majority of the governments has been that the recent UN Committee's interpretation that water should be considered to be a human right did not change the situation materially since the international community had unanimously accepted the principle of universal access to clean water for all for over three decades.

It appears that the water profession and the governments currently feel that the declaration of the UN Committee that water is a human right does not make much practical difference since they have been working to achieve this universal goal for decades. In this sense at least, there is no real difference between the human rights and the water professionals because both have the same end objective. The water profession generally believes that declaring water is a human right will not necessarily ensure that more people will automatically have access to water. Declarations are easy to make. The problems invariably lie as to how the declarations can be translated into reality to improve the quality of life of the poor people in developing countries.

Constraints to Universal Coverage for Drinking Water

There are several fundamental problems that need to be resolved before there could be universal coverage to clean drinking water. Among these problems are the following:

- How to manage escalating water demands since in the developing world new sources of water are now not only becoming increasingly more and more expensive to develop but also may contribute to serious social and environmental disruptions. The World Bank has estimated that the cost per cubic metre of water for the next generation of water supply projects is often two to three times higher than the last generation of water projects that were completed with the Bank funding. Increasing water supply to meet continually higher demands, as generally has been the case in the past, is no longer a viable option for the future because of economic, social and environmental constraints, as well as physical availability of water.
- Water pricing has to be a part of the overall solution in balancing demand and supply. However, structuring and implementing equitable water pricing in the developing world has been a very difficult task. In addition, even though the idea of water pricing has been accepted in many developing countries, including several in the MENA region, the prices charged often do not cover even operation and maintenance costs, and most certainly not investment costs. In most developing countries, water for domestic consumption is very heavily subsidized, and social and political acceptance of water pricing is still not high. This has ensured that the people who now have access to water do not use this resource wisely and efficiently. There has been very little practical and usable research on the links between water pricing, water conservation, poverty alleviation and their social, economic and political implications.
- Investments required for construction of new water supply projects, wastewater collection, treatment and disposal systems and the modernization of existing water supply and sanitation works in developing countries are going to be very high. According to the Inter-American Development Bank, only about 11% of the people in Latin America had access to wastewater treatment in 2000. The situation is likely to be somewhat similar for the MENA region, the main focus of this analysis. To improve the existing wastewater management practices in Africa, Asia and Latin America, will require high levels of investment, as well as good technical, managerial and administrative expertise. A main issue that needs to be resolved is how to raise this high level of investment in a timely manner, as

well as how to build of capacities for the construction, operation and maintenance of water supply systems.

- The provision of water supply and wastewater management is primarily in the hands of the public sector in developing countries, and are likely to remain so for at least the next two decades. The overwhelming majority of these public sector institutions are inefficient, riddled with corruption and face continual political interferences. Under these conditions, even if the investments required are somehow made available, the funds are highly unlikely to be used properly and efficiently. Thus, a major constraint to ensure universal access to clean water will be how to make the existing public sector institutions increasingly more and more efficient and then maintain their efficiency. This type of institutional research has thus far been mostly conspicuous by its absence, not only in the MENA region but also in the entire developing world.
- From around 2002, multinational private sector companies have lost their earlier enthusiasm in managing water supply projects in the developing world. Furthermore, the potential roles of the national private sector companies are mostly unresearched and unexplored, even though their roles are likely to be increasingly significant in the future. New types of models of public-private partnerships need to be formulated in the coming years, with national, or even regional, private sector companies, which could accelerate access to clean water in developing countries. Local or regional private sector companies can play an important role in water supply, the desalination of seawater or brackish water and wastewater management. In order to promote private sector involvement, the public sector has to become more aware of the aspects that the private sector can do better than the public sector, and where the private sector may have a competitive advantage. These aspects can be outsourced to the national private sector. This will require transparent and enforceable laws and regulations. Again, very little, if any, research has been conducted in the MENA region as to what types of legal and regulatory frameworks are needed which will encourage private sector participation, and also assure that the consumer receive the expected benefits on a long-term basis.

Research Agenda for the Future

Research on water as a human right is very limited at present, especially in terms of its operational implications. The following research areas should be given priority:

Water as a basic need or human right. Is water a basic need or a human right? As noted before, the world community has vacillated between these two concepts regularly during the past 30 years.

What are the basic implications if water is considered to be a basic need or a human right? Will consideration of water as a basic need or a human right accelerate universal access to clean water? If the answer is yes, why? If the answer is no, why not? Or, are these two issues red herrings in the sense that access to clean water will not be significantly enhanced irrespective of whether water is considered a basic need or a human right?

Rights and responsibilities of various stakeholders if water is considered to be a human right. If water is indeed considered to be a human right, what are the responsibilities of the various levels of the governments for the provision of water supply and sanitation? Would this mean that the governments are obliged to provide free water and sanitation to everyone? If the services are to be free, or highly subsidized, would the governments still have enough financial capacity to operate and maintain existing facilities and construct new ones to satisfy unmet demands? Can water conservation and efficient water management be practised if water is free? What are the responsibilities of the individuals if water is to be free or highly subsidized? Will there be enough water available under these conditions for everyone? Can society provide free services to all indefinitely?

Water pricing. If water is to be priced, how should the tariff structure be structured to satisfy the twin objectives of economic efficiency and social equity? The current tariff structure that is very extensively used has basically failed to achieve their objectives. In general, this has meant that each household is provided with 25 to 30 m^3 of water each month at highly subsidized rates. This has ensured that the majority of households have felt no need for water conservation since their monthly consumption is well within this limit. This pricing structure has seriously restricted the income of the water authorities since these subsidized rates do not even cover their operation and maintenance costs, let alone the investment costs.

In addition, the present structure often puts an additional financial burden on the poor and subsidizes the rich, exactly the reverse of what was anticipated initially. This is because the poor households often have three generations of a family living together. The large numbers of family members in such poor households cannot manage to survive with 25 to 30 m^3 of water each month. Thus they are forced to pay for water at a much higher marginal rate.

In contrast, the rich families mostly have a smaller number of family members, and as a result the subsidized quantity of water is more than enough for them.

Additional research is needed to devise appropriate tariff structures so that the rich and middle-class families pay for their fair share for water and sanitation services, but the poor receive targeted subsidies. The tariff structure should encourage water conservation and improve the financial conditions of the water utilities.

Public sector efficiency. In the MENA region, more than 92% of the people are now receiving water from public sector institutions. Even under the most optimistic projections, this percentage is highly likely to be less than 85% by 2020.

Therefore, research is urgently needed to show how the public sector water companies can be made significantly more efficient since the vast majority of the people will still be receiving services from them by 2020 and beyond.

Private sector involvement. In Morocco and Jordan, private sector companies (primarily multinational companies) are now providing services to major urban centres. For smaller urban centres, as well as for specific outsourced activities (for example, meter installation and repair, leak detections, etc.), what can be done to encourage national private sector companies to be actively involved in the water and the sanitation sectors in the future? National private sector companies can play an important role in the future.

Legal and regulatory frameworks. What type of functional and implementable legal and regulatory frameworks are needed in various MENA countries to ensure people have access to clean water and sanitation, irrespective of who provides the services: public or private sector? Absolutely no research is being done on appropriate legal frameworks for any MENA country.

Water and the elderly. In several MENA countries, attention is given to the water requirements of women and children, as well as water collection efforts by women and children. These are welcome developments. However, studies now indicate that the number of elderly people (more than 60 years old) will start to go up exponentially, from about 2010 for at least the next four decades. Yet not a single MENA country, or an international institution in a MENA country, has given any thought to the water needs and associated requirements for a rapidly rising elderly population. This is an area where further research is needed to define the nature and extent of the problem and the policy measures and concrete steps that should be taken to alleviate the anticipated problems cost-effectively and in a timely manner. Water for the elderly will be a major issue in the post-2020 period, not only in the MENA region but the entire developing world.

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Human Rights to Water in North Africa and the Middle East: What is New and What is Not; What is Important and What is Not

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Water has no conscience and no shame;
Water thrives on water, is self-quenching.
It often tastes of brine and ammonia,
and always knows its way back home.
(Gwendolyn MacEwan, 'Water', *The T. E. Lawrence Poems,* 1982)

Introduction

The main point in this paper is that much of the commentary on human rights to water is trivial; it belabours the obvious, and ignores what is difficult. Although the situation is more or less the same the world over, the lack of attention to broader views of water rights is particularly troubling in the Middle East and North Africa (MENA). Nowhere else in the world is the competition for water so strong as it is in MENA. Average annual supply of water for the region as a whole is now well under 1500 m^3 per capita, and many nations fall below 500 m^3 (UNESCO, 2003). At those levels, chronic water scarcity can be expected unless water is managed carefully and the economy is directed to low-water-consuming

activities. Today, most MENA nations still base their economies on irrigated agriculture, and their population growth is among the fastest in the world. Clearly, problems lie ahead.

Water Scarcity in MENA

Water scarcity has of course always been part of MENA's history but as a chronic rather than a critical problem. Other parts of the world may be drier, but nations north of the Sahara and east of the Mediterranean differ from other dry regions in having a vibrant economy built on the adaptation of both rural and urban life (and international commerce) to that scarcity. For millennia the commons provided whatever water was needed, and traditional concepts of water rights guided the allocation and use of that water. The commons is no longer adequate. A decade ago Raskin *et al.* (1996) reported that Middle Eastern nations were already withdrawing nearly three-fifths of all available fresh water. More recent figures suggest that those data understated the problem. The Millennium Ecosystem Assessment reports that MENA nations are using 115% of total renewable runoff, and that one-third of withdrawals come from non-renewable sources (Millennium Ecosystem Assessment, 2005a). Water rights should be even more important in this situation, but, unfortunately, MENA nations are lagging, not leading, in adapting rights to modern conditions.

This paper will begin by dealing with two preliminary issues to focus the task:

- distinguish between water rights and water ethics;
- dismiss a pair of issues that have often deflected discussion of water rights into unproductive channels.

The paper will then open its two main sections that, first, protest exclusive focus on human rights for drinking water (or at most household uses) and, next, urge that the concept of water rights be extended to local agriculture and to the ecosystem. In the end, however, 'rights' are only as strong as the governments that support them. Therefore, the penultimate section turns to selected issues of governance for water rights. The final section provides a brief summary of key points, and goes on to ask whether establishing a formal human right to water will do much to improve human well-being.

Water Rights and Water Ethics

As used here, 'water rights' mean entitlements—something that one gets (or should get) by legal authority. As such, a right must be limited and reasonable, and also politically acceptable for much if not all the population. A water ethic is much broader:

> An ethic is a set or system of moral principles or values that guide the actions or decisions of an individual or group. It helps us determine what is acceptable conduct in a society and provides a basis for judging how to act rightly or justly. (Matthews *et al.*, 2007, p. 337)

One of the most famous ethical statements in the world is to treat your neighbour as you would treat yourself. This behavioural norm appears, in one form or another, in almost all religions. It is a worthy norm, but no one asserts it as a right. Rights are incorporated within ethics but they have to be much more limited in scope. They can be distinguished

in many ways, two of which must be highlighted:

- First, rights are, in some way, legally guaranteed whereas ethics are morally urged. Rights do not depend on ownership of property, which is quite a different issue. A water source may belong to one party, but another can still have a right to use some of the water.
- Second, trade-offs and qualifications apply to ethics, but not to rights. Or at most they apply only in extraordinary circumstances or for short periods of time. The claim of a human rights violation is a claim for redress, not for negotiations.

This paper considers water rights, not water ethics. Unfortunately, many people say 'rights' when they mean 'ethics'. Therefore, it is worth digressing briefly to note that the topic of water ethics is growing in importance (Selborne, 2000; Priscoli *et al.*, 2004; Matthews *et al.*, 2007). Most of the better-known statements on water use, as with the four Dublin Principles, the World Water Vision for 2025, and UNESCO's nine principles, go well beyond water rights and really present water ethics.

Returning to water rights, the useful overview of international documents on the subject by Nowlan (2004) shows that, until now, there has been no formal definition of a right to water:

> Though it may seem logical that the right to water is an implicit part of other internationally agreed rights, such as the rights to food, health, and life itself, this human right has only recently been elaborated by the United Nations.

That elaboration came in November 2002 with *General Comment on the Right to Water* from the United Nations Committee on Economic, Social and Cultural Rights (a part of the UN Commission on Human Rights; published in January 2003). This document sets out a list of international standards and obligations relating to water. In effect, the Committee asserts that rights to water exist on the basis that:

> The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other rights.

The late arrival of an explicit statement on human rights to water does not mean that earlier implicit references should be ignored (Klawitter & Qazzaz, 2005). Although neither they nor the *General Comment* establish any legal right, and although they typically focus more on how to achieve rights than what the rights are, earlier work did leave a productive legacy. They are in part responsible for the United Nations Millennium Development Goals, and to a series of United Nations General Assembly resolutions relating to water, notably its December 2003 Resolution setting out 2005 to 2015 as the International Decade for Action: Water for Life (Salman, 2005).

'Water rights', as the term is used here, belong to people as individual human beings, as opposed to rights that accrue to them as citizens of a nation. National rights are in effect a definition of property rights, and they are almost always subject to negotiation. Ironically, human rights were first put onto the international agenda by the North as a way to argue for political rights for dissenters, but today they are more commonly put forward by the South as a way to protect itself from predatory northern or corporate practices.[1] In parallel, the discussion has shifted from violations of individual rights to violations of communal

or national rights. Indeed, it may be that it is just because of the attention devoted to defining national rights to water, or 'rightful allocations' as the term has come to be in Israeli–Palestinian affairs, that there has been so little real development in the concept of human rights to water. Or perhaps the international community does not often take note when violations of rights affect just a few people and only exerts itself when the rights of a sizeable collectivity are violated.

Two Unproductive Digressions

Before looking at water rights directly, it is useful to dismiss two issues on which far too much time has been spent.

First, is water a human right or an economic commodity? The slogan 'Water is Life' is used in defence of the position that water is a right, an equity argument; the 4th Dublin Principle is cited in defence of the position that water is a commodity, an efficiency argument. Neither argument is complete, nor does either encompass the full meaning of the slogan or the principle. Water, always and everywhere, has characteristics of a commodity, and in some (relatively limited) situations it also has characteristics of a right. Even if it is accepted that everyone has a right to a set quantity of water free of charge, some organization or agency has to find, treat and transport that water, and presumably those tasks should be accomplished within a least-cost framework, which gives the water most of the characteristics of commodity. As Conca (2005) states in his review article on global water issues, the human rights approach does not by itself "define a proper balance between efficiency and equity" (p. 80).

Rather than treating rights and commodities as irreconcilable alternatives, it is better to view them as a spectrum from drinking water at one end to, say, golf courses at the other; characteristics of rights dominate at one end, and characteristics of commodity exclusively at the other. (Sitting awkwardly in between are traditional uses that give a perceived notion of rights to those who depend on the water.) More correctly, rights should be viewed as a different kind of entitlement from a commodity. The more appropriate comparison is between common pool resources in which everyone shares, as opposed to commodities, which are subject to exclusive use.[2]

Second, what is the relevance of privatization of water supply to the discussion of water as a human right? No relevance at all. More accurately, it has no relevance as long as the water utility operates within a framework of close government control, more like a corporatized public utility (Bakker & Cameron, 2002). Government control is essential because a reticulated water system is a natural monopoly, and human rights can then be established to any degree that the government wants. It is just this sort of governance framework that characterizes the water management contracts in Jordan or water concessions in Morocco and Tunisia. This is not meant as an argument in favour of privatization of water, which is a limited approach that can benefit society only in special circumstances (Gleick *et al.*, 2002; Page & Bakker, 2005). Rather, it simply contradicts the position that all forms of privatization are inherently fatal to the concept of human rights to water.

What is Old and Trivial

This section begins from the position that almost all discussion of the human right to water is trivial. Why? For the reason that it focuses on 'drinking water', by which most people

mean household water for drinking, cooking, washing and sanitation, something that hardly needs discussion. For example, the otherwise commendable UN Committee report limits the right to water as follows:

> The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, reduce the risk of water-related disease and provide for consumption, cooking, personal and domestic hygienic requirements. (Article I.2)

A review of the large number of previous UN resolutions on water shows that the focus has remained primarily on household water or, at best, water and sanitation (Salman, 2005). Similarly, among the plethora of NGO documents urging that a human right to water be formally established, few are any broader than this. (See for example the website www.righttowater.org.uk.) A partial exception is offered by IUCN's exploration of the issue (Scanlon *et al.*, 2004).

Who is Arguing?

The statements above should not be misunderstood. The goal of human rights to household water is far from trivial. There is a well-known link between household water security, human health, and poverty alleviation. Rather, *it is the argument that is trivial* because very few people deny the right. Only the most right-wing, market-obsessed economists argue that access to basic household water should be mediated exclusively through the price mechanism. On the contrary, many people argue that the right to household water is now enforced by what is called 'customary' or 'soft' law (Abu-Eid, 2007, this volume).

Admittedly, many governments fail miserably in supporting that right, particularly for vulnerable groups in society that typically have a problem exercising any of their rights. However, most if not all governments, and even some corporations in the water supply sector, agree that the right exists. This means that the argument should shift from principle to practice, which does not make it any easier but which does change its nature. Few water supply programs, whether managed by governmental or non-governmental organizations, are linked to the UN-defined human rights to water, but they serve similar goals. (EMPOWERS, the organization described by Laban (2007) in this volume, is an exception as it is explicitly linked to human rights.) Putting the point bluntly, except for the very poorest nations in the world and for those constrained by military occupation, any government that does not provide the 25 to 50 litres of water per person-day[3] commonly deemed necessary for a minimal quality of life is incompetent or corrupt. The amounts of water involved in meeting this goal are quite small and, compared with other governmental tasks, the costs are modest.

In most cases, the more difficult issues stem not from providing adequate quantities of water but meeting other components of the right. For example, a right to drinking water implies that the water can be obtained without personal danger, a condition of particular importance to women, and that it is also available to elderly and infirm people, cohorts that are growing in number in the developing world (Biswas *et al.*, 2005). If, as argued below, the human right to water includes water to grow food, timing of supply may be more important than absolute quantity. Water delivered at the end of the growing season is of little value

to a farmer. Finally, the water must be affordable, which does not necessarily mean at zero price. For many reasons it is advisable to charge at least a nominal price for water, and all evidence indicates that people are willing to pay for clean water. Only those people living in extreme poverty need be provided with water free of charge.

The Concept is Old in MENA

There is nothing new about the concept of water as a human right. It goes back at least as far as the Code of Hammurabi in Babylon almost four millennia ago. Clear rules about rights are found in the Hebrew Bible and followed up in Jewish religious law (*Halachah*), just as they are in the Koran and followed up in Islamic religious law (*Sha'aria*) (Hirsch, 1959). The two legal systems exhibit many parallel clauses. Both give rights to water for drinking above all else, first for people and then for domestic animals; and both mandate offering water to outsiders or visitors, even if they are less than friendly. Thereafter, the two codes diverge; the third priority for water in *Halachah* goes to clothes washing (that is, domestic chores), but in *Sha'aria* to irrigation. The Jerusalem Talmud was written in the highlands of what is now Israel and Palestine, where irrigation was not needed; *Sha'aria* was written in the broad lowlands where irrigation was essential. Christian religions do not have 'law' in the same way as Islam and Judaism do, but their principles in support of equity and justice would come to much the same conclusions.

The surprising thing is not that water rights emerged so early in the Middle East and North Africa but that, for many years, those rights were accepted. Even in times of war, the law indicated that cities under siege were to be provided with some water. Of course, no city was entirely sure that the rule would be followed, so they built water systems that were less vulnerable in wartime. One example is the tunnel that took advantage of karstic passages to redirect the flow of the Gihon spring located outside Jerusalem back under the walls and into the city. Another example is the use of animal skins to cover submarine springs located just offshore at Sor (Tyre) in Lebanon, and to direct the water back into the city. However, in general, religious law helped to mitigate the suffering of cities under siege and, as a result, most passages written from such cities refer to starvation, not to thirst.

What is New and Exciting

If a discussion of human rights to household water hardly needs justification in MENA, what are the issues that are not trivial yet typically neglected in discussions of human rights to water? Two issues seem particularly important, and both involve a broadening of the concept. This section will focus on them and suggest some ways—by no means the only ones—to make them effective:

- the right to food, and therefore the water to grow food;
- the right to live in a viable environment, and therefore the water to support the ecosystem.

Human Right to Water to Grow Food

It is well known that the largest use of water by far is water to grow food. If anything, current data understate the proportion of water going to grow food because many shallow wells and small springs are not captured by the statistics. It is also well known that

a minimally balanced diet is essential for life, and a well balanced diet is essential for a healthy life. Given these facts, it is surprising that human rights to water have all but ignored the requirements for food. One of the very few direct applications of the concept to food is an Israeli–Palestinian study (Assaf *et al.*, 1993) that added to household requirements 25 m^3 per person-year—enough for a sizeable home garden. (Even this study was put forward as a way of determining national allocations, not individual rights.)

It is the contention of this paper that everyone has a right, in the sense defined above, to a sufficient quantity of water of modest quality to enable the growing of enough nutritious food for a healthy life. Home gardens are very efficient ways to grow food, even though they may not be well adapted to the supermarket model of food distribution. The water is used more intensively and husbanded more carefully than in any other form of agriculture. However, in contrast to household water requirements, which do not vary much from place to place, caution is required in applying the principle of providing water for gardening. For one thing, the right would logically go to the household, not the individual. In addition, at least two further adjustments are required.

First, quantities of water will vary with climate; more water will be part of the human right in arid areas, less in humid areas. Water needs will also vary with soil type and slope, food preferences, and other factors, but as a first (and perhaps sufficient) approximation, rights can be defined solely in terms of average annual rainfall. In a still far from complete study, the amounts of water and land that would be required to grow enough food for a balanced diet on level or gently sloping land are being calculated in three climatic zones: 100 mm, 500 mm and 1000 mm of rain per year. In each case, one location has been selected to permit definition of a specific mix of crops: the 100 mm site is in Mexico; the 500 mm site in the West Bank (Palestine); and the 1000 mm site in West Africa. Initial results should be available in approximately a year, provided some difficult issues can be overcome, for example, how to take account of re-use of waste water; and what levels of water-use efficiency to assume. If those questions can be resolved, it should be possible to determine quantities that could be adopted as the human right to water for growing food.

Second, the above calculation is directly applicable to farm families, perhaps to all rural and even peri-urban households. But what about people living in urban areas? Even where urban agriculture is widespread, only a small proportion of the urban population grows its own food. Three approaches seem possible. The economic approach would give everyone the same right to water and allow a secondary market to develop so that those people who do not want to grow food can sell water to those who do. The direct allocation approach would give all the additional water rights to farmers with the expectation that they will grow food for many more people than just their own families. Finally, governments could assign this water to themselves and use it as a reserve for dispersal when and where it is needed, perhaps in times of drought, perhaps for agricultural experiment stations, etc.

Clearly, the notion of a human right to water for growing food is more complex than that of a right to household water. Even so, it seems to be an appropriate standard to apply in principle, particularly as, in many developing societies, farmers are at the bottom of the economic ladder. Indeed, the whole objective is to provide a kind of water tenure for small-scale and family farming, not to subsidize commercial agriculture (which, as the name implies, should operate on market principles).

Because the amounts of water for household use are so small, direct conflict between water rights for household use and water rights for home gardens and small farms should

be rare—Gaza may be one exception to this generalization—and even these cases can be mitigated by re-use of grey water for irrigation.

Human Right to Water to Sustain Ecological Services

The range of services provided to humans by our ecosystems is enormous (Millennium Ecosystem Assessment, 2005b; Postel & Thompson, 2005). We are beginning to have estimates of the volume of water that must be left in the ecosystem if it is to remain viable (Postel & Richter, 2003; Smakhtin *et al.*, 2004), but we are a long way from calculating the value of that water. Many ecosystem services have direct human benefits, as with fishing and transportation; others have indirect benefits such as with the support of recreation and waste dilution; and still others, as with the maintenance of habitat and flow stabilization, are all but incalculable (except by the use of surrogates and other economic techniques that identify minimum but not total values). However, even approximate numbers suggest that intact ecosystems commonly provide economic values for society well above the private values achieved after the land is converted to purportedly 'more productive uses' (Millennium Ecosystem Assessment, 2005b; Katz, 2006).

To assert a human right to ecological water almost seems contradictory. How can humans have a right to water that they do not themselves use or, except in the broadest sense, manage? The answer begins from another point made by Conca (2005, p. 74): " ... rivers must be understood as elements of broader and more complex socioecological systems". Once all but totally neglected, it is increasingly recognized by most analysts (although not so many decision makers) that the ecological demand for water is equally as important as the water required for direct consumption. In the new constitution for South Africa, ecological water is given standing second only to that for direct consumption by people. Uniquely in the Middle East, Israel has amended its 1959 water law "to officially recognize nature as a beneficial use of water and to require the National Water Commission to submit yearly reports to parliament listing the amount and quality of water allocated for ecosystem purposes" (Katz, 2006, p. 35). Jordan, Morocco, Tunisia and Turkey have all adjusted at least one water control project to protect nature reserves or increase flows into lakes and wetlands (Katz, 2006; The Nature Conservancy, 2006).

In contrast to all household water and at least some agricultural water, the human right to ecological water cannot be distributed to individuals. The ecosystem is a commons, and everyone shares in the benefits of a healthy ecosystem. (Exceptions, as with exclusive fishing areas, are not serious enough to contradict the generalization.) Therefore, governments need to experiment with the new methods for calculating the amount of water that should remain *in situ*, and adopt some modality—perhaps a quasi-independent agency—that will define maximum rates of withdrawal for each river, lake, wetland, aquifer and estuary, with appropriate adjustments for time of year. Ideally, the same modality would develop models that indicate how releases back into the ecosystem could be made so that they emulate natural flow conditions as closely as possible.

Of course, decisions about the allocation of water to the natural environment will not be easy, particularly in drier nations that are struggling to feed their own populations and to approach full employment. Nevertheless, they must be made, even if they are approximate and partial. The short-term gains from withdrawing too much of the water required by ecosystems (or withdrawing it too frequently) will soon be lost to long-term, and perhaps permanent, damage to the very services that support the population and their livelihoods.

In most cases, those who suffer most will be low-income families, women and marginalized groups. Water for the ecosystem is just as critical to their rights to a livelihood as is their right to direct consumption of water in the household. Perhaps, as Nowlan (2004) suggests, we need parallel development of treaties on human rights and on environment.

Some Other Possible Human Rights to Water

Are there other areas of human activity that might also confer a right to water? It is hard to think in terms of any kind of right for industrial uses of water. Industrial uses should pay full costs for water (ideally full value[4]), and they should have to compete for water in whatever market or political process operates in that jurisdiction. The same is true of commercial, institutional and most municipal uses, as with hotels, stores and office buildings. Some users, perhaps hospitals and schools, perhaps even urban parks, might be deemed so important that they will receive water at a subsidized rate, but that is different from giving them a right to the water.

However, it is possible to think of exceptions to the preceding generalizations. Suppose some group or some community has been using water for generations in a traditional way, perhaps for dying cloth or making beer. Does this create an 'acquired right' (as it is called in some legal codes) to continue using water in that way? It probably does, although perhaps it is a right that could be transferred to other users or to the commons after appropriate compensation. Does that acquired right remain in place if production shifts from traditional to modern methods? Possibly, but only for a limited period of time. Much the same reasoning could be applied to traditional uses of water *in situ*, notably fishing. Conferring such a right on fishers would certainly raise interesting issues, for it would imply limitations to changes of water flows and of water quality. All of these issues need more thought and some experimentation.

Despite possible exceptions, the general point is that industrial, commercial, institutional and municipal uses of water do not give rise to wide concern about *human* rights to water. Although these sectors are growing rapidly in developing nations, for the most part they represent the modern portions of their society. As such, they should be expected to treat water as an economic input, not as a human right.

Governance of Human Rights to Water

The idea of a human right to drinking water has enormous political and popular support around the world—one of those rare cases where NGOs and international agencies seem to be in agreement. As long as we stay at the level of principles and concepts, we can probably come to an agreement on defining those rights in terms of a few tens of litres per day of water of potable quality. However, human rights of any kind are only as good as the word of governments and their approach to governance. It is in these areas that it will be much more difficult to reach agreement.

Disagreement about governance is not only to be expected; in part, it can be applauded. There are many ways in which human rights to water can be made effective and, as long as similar results are achieved, there is no reason to expect or demand identical methods in different nations with different ecologies, different traditions and different government structures. However, more of the disagreement arises either because governments do not fully understand what the concept of rights implies, or they have no intention of granting

rights in practice, at least not to some groups or some regions within the nation. To choose one case that has been publicized due to a vigorous non-governmental movement, some 60 000 Bedouin, living in Israel, get no piped water from the otherwise high coverage of the Israeli distribution system because they live in unrecognized villages (Keinan, 2005). Likewise, Houdret (2005) explores how rural areas and women are systematically discriminated against in Moroccan water policy. Similar cases can be found in other MENA nations.

Two of the starting points for governance in delivering rights are as follows:

- First, the role of government is critical. The senior level of government must accept its responsibility to guarantee rights, and lower levels their responsibility to deliver rights, to everyone under their jurisdiction. Note that 'everyone' is not restricted to citizens but includes any resident.
- Second, it is essential that governments accept that the rationale for a human right lies in the search for equity, not for efficiency. Efficiency is of course important, but equity is the decisive criterion.

Wider Public Participation as a Right

As indicated above, neither the idea nor the application of water rights is new. Traditional systems for allocating water have a strong component of rights. Those rights can be extraordinarily complex and sophisticated. Water from wells and springs can be divided in many ways, with priorities that vary by time of day, time of year, personal or ethnic relationships, and that persist even after a central government asserts its control over water (Trottier, 1999). Governments must be cautious in treading on traditional concepts of water rights, and interfere only if they appear to be grossly inequitable.

What is new is the idea that those people to whom rights to water are granted should have a meaningful role in decision making. The right may be nominally satisfied with so many litres per day of water at acceptable quality, but it will be truncated if it does not also incorporate the right to participate democratically in the choices made about when and how the water is delivered. Few of the documents on human rights to water recognize this dimension, although, ironically, some UN documents have suggested that lack of participation explains why so many goals for household water have not been achieved (Salman, 2005). One of the few documents to specify participation is the recent *Guide on Water as a Human Right* from the World Health Organization (WHO), which states that, once established, "Communities and vulnerable groups will be empowered to take part in decision-making processes" (WHO, 2003, p. 9). WHO is probably over-optimistic. The fight for empowerment will have to be fought in addition to the fight to obtain rights. Public participation with respect to water is still at an exploratory stage (Kontogianni *et al.*, 2005; Warner, 2006).

Water users associations offer one example of the devolvement of decision-making powers, even in nations where participation is rare in other aspects of life. Water users associations have evolved in many parts of the world as alternatives to central management for the delivery of water to local constituencies (Sabbah, 2001; Attia, 2003). Typically in MENA nations, they are mandated to manage tertiary canals in regional irrigation systems. Once promoted largely by NGOs, governments have come to recognize the virtue of water users associations because local management turns out to be more equitable in water use and more efficient in pumping costs than top-down systems organized by government officials

(Rosegrant & Ringler, 2000; Brooks *et al.*, 2007; Attia, 2003). Another gain is that women commonly report that they get a better hearing when there is a formal process for participation in decisions about water use (Brooks, 2002; Singh *et al.*, 2005).

Of course, public participation does not eliminate controversy (Matthews *et al.*, 2007; Warner, 2006). If anything, it increases the difficulty of reaching decisions. There are real differences in the value attached to water between urban and rural people, between farmers and pastoralists, between farmers at the head and farmers at the tail of an irrigation canal. Nor, sadly, does public participation end ethnic, gender and other conflicts, although experience shows that the absence of participation will probably intensify conflict. Even where institutions encourage participation, "power differences will continue to make themselves felt, and some groups will find it more profitable to work around multi-stakeholder processes" (Warner *et al.*, 2006, p. 7). Evidence is strong that the poor, and indeed all marginalized groups, will get full rights only when programmes are explicitly oriented to their benefit (Van Koppen, 1999; Chancellor *et al.*, 2003).

There is one caution: the focus of this workshop is the human right to water. There are many other closely related human rights. It is hard to take advantage of the human right to water unless the human rights to food and to health are also effective. There is growing pressure to bring these interlinked rights together and to treat them as a bundle. That approach is questionable. Over the past few decades the focus on the rights of women was diverted from its main objectives by bringing it within the broader perspective of gender. Gender is an instructive concept, but not the same as women's rights. It is probably better not only to keep rights to water separate from rights to food and to health, but also to keep rights to drinking water separate from rights to water for growing food or for protecting the ecology. Only then will goals be clear and monitoring will have a chance to identify cause and effect.

Research and Rights to Water

Finally, research is also a part of governance. A substantial research agenda could be created around human rights to water, and an even larger one around ethical standards for water use. The bulk of the funding should go toward applied research: less money on the concept of the human right to water, more money on how that right can be delivered in different nations, for vulnerable groups, in rural and urban areas, etc. It is not difficult to suggest examples of research needed:

- Despite all the emphasis on household water, there is little evidence about the relationship between additional water and improvements in human health. Presumably it is positive but convex upward so that, after some point, additional water does not yield significant further gains. Moreover, perverse effects can create a wedge between intended and actual benefits from new water supply systems (Biswas *et al.*, 2005). The research problems are, first, to quantify the relationship between the use of water supply and sanitation services and human health and, second, to determine what is needed to promote greater use of those services.[5]
- Some policy analysts have suggested that it would be better to ensure access to water than to provide a certain quantity of water to each family. How might this approach work, and would it be effective?
- Pricing of water is badly misunderstood, particularly by NGOs, and it is worth exploring how different pricing systems can promote equity as well as efficiency

(Brooks *et al.*, 2007). Increasing block rates are generally equitable, but they can penalize extended families living under one roof or people engaged in urban agriculture. Moreover, it is increasingly important to find imaginative pricing schemes to ensure that human wastewater, both grey and black, is made available for beneficial uses. Perhaps householders could receive a credit on their water bills if their wastewater is delivered in a safe manner.

- Research on water users associations needs to explore ways to extend the approach from local canals, where all the stakeholders are farmers, typically from one ethnic group, to regional feeder canals, where there are a range of stakeholders and several ethnic groups (Brooks *et al.*, 2007).
- It would also be worth looking at traditional systems for allocating and distributing water, particularly in times of drought; they may do as well or better than 'modern' rules. In too many cases today, governments and power elites, together with the pressure of regional markets and even globalization, encroach on and ultimately destroy local rights of water access and use. (For a good example in another region, see Cremers *et al.*, 2005.) Research is needed to document potential losses and, ideally, to avoid ill-considered policy.

The test of applied research is of course not the publications record but the impact on policy. If that means that researchers need to get involved with NGOs or with advocacy campaigns, so be it.

Conclusion

This paper has argued three main points as follows:

(1) It is not necessary to prolong discussion of whether drinking and other household water is a human right. Although not defined as such in formal international law, it is widely accepted that every human being deserves a quantity of water, part of it potable in quality, adequate to live in dignity. This 'soft law' on human rights to household water is so widely accepted that any effort to enshrine a formal United Nations declaration is likely to be counterproductive. The very effort could be taken as evidence that such a right does not currently exist. It may be better simply to operate as if it does.

(2) Effort should now be directed to enlarging the concept of human rights to water in at least two new directions: first, to ensure that enough water is made available for small farmers and householders to grow the food that human beings must ingest directly to live; second, to ensure that enough water is left in the ecosystems so that they remain viable and contribute fully, if indirectly, to human life and to human livelihoods.

(3) Finally, if human rights to water are to be more than statements on paper, attention needs to be devoted to the governance of water in general and to the mechanisms for delivery of those human rights in particular. Notably, rights must be defined not only as so much water at such quality but also in the ability to participate in decisions about the delivery of that right.

Gains on any of these three points would represent an advance in the equity with which fresh water is distributed around the world. They would also probably make a sizeable

contribution to poverty alleviation. Finally, they have the potential to place MENA nations once again in a global leadership position in developing and applying the concept of human rights to water.

At least, that is the optimistic view. The sceptic might respond: Would they really do all that? And he or she would be right to express such scepticism. We do not have a lot of evidence to state with confidence that it makes a difference to human beings, to communities and to ecosystems whether water is or is not assumed or declared to be a human right. Perhaps it is only a matter of faith that some additional nations will act on the basis of the expression (or declaration) of such rights to increase services to previously less well-supplied people or groups or regions. Operating on faith for such an important issue is hardly satisfactory.

The final point is to emphasize that research is vital to search for evidence as to whether widely supported declarations about human rights to natural resources do yield some significant effect. If we can show such an effect, then the research must look more deeply to determine what were the operative clauses and conditions. What was it that made one expression or declaration more (or less) effective than another? Why was it that one expression or declaration caught the attention of policy makers or the public and another did not.

Only when we know how it is that human rights come to be adopted as policy and implemented as practice by governments shall we really be able to say *with confidence* that it is really worth fighting to establish a human right. Only then shall we be able to go beyond a 'general comment' to an effective lever to promote action.

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Notes

1. Credit is due to Professor Stuart Schoenfeld of Glendon College, York University, for this observation.
2. Credit is due to Professor Karen Bakker, University of British Columbia, for this distinction. She has a forthcoming paper in *Antipodes* on the issue.
3. The former figure appears in the Constitution of South Africa; the latter is proposed in an article by Gleick (2000); others have suggested 100 litres per person-day, but that figure is only applicable in regions where it is not likely necessary to assert a right for water. In any event, none of these numbers is based on extensive research.
4. The differences between cost and value as a means of determining price are important but too complex to go into in this paper.
5. An anonymous reviewer deserves credit for suggesting this line of research.

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Right to Water: The Millennium Development Goals and Water in the MENA Region

OLLI VARIS

Introduction

Water, despite being one of the basic needs of human beings, a basic constituent of human health, human dignity and life as a whole, is not universally and unambiguously recognized as a human right. Perhaps it never will be. The discussion is ages old and controversial too (Brooks, 2007, this volume). However, in moral rules and religions, water is seen as a key determinant to a decent human life, and in all major religions, it has a sacral status. The Middle East and North Africa (MENA) both give water a unique eminence.

Within the United Nations (UN), the discussion on water as a human right is as long as the organization itself, as the Universal Declaration of Human Rights by the UN postulates in its Article 25:

> Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and

> necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.

It left water verbally unmentioned, although in many issues that were mentioned, water is inherently there. Recognizing water's key role in health and well-being, in food production, and as a social good, water can be seen as being obliquely inherent as a human right, albeit not directly mentioned.

Several other papers in this volume scrutinize the concept of water as a human right in a high level of detail (e.g. Abdel-Gawad, 2007; Brooks, 2007; Klawitter, 2007). As those studies divulge, the concept is very many-sided, elaborate and complex, and thus far not one commonly agreed paradigm exists.

Despite all of this recognition of water in moral rules, religions as well as formal commitments, more than 1 billion people on this planet still use potentially harmful sources of water to meet their daily dietary and household needs. More striking is the sanitation situation; 2.6 billion people, half the developing world, do not have even a simple 'improved' latrine (WHO & UNICEF, 2004).

It has been estimated that approximately 15 million people in Northern Africa and 23 million in Western Asia lack access to improved drinking water sources. In the former, this means 10% of the people and in the latter, 12%. With regard to sanitation, 40 million in Northern Africa (27%) and 38 million in Western Asia (21%) do not have any access to improved sanitation.

The aim of this analysis is to scrutinize the present level of coverage of adequate water supply and sanitation in the Western Asia and Northern Africa Region, which are subsequently called the MENA countries. The analysis leans on the Millennium Development Goal approach endorsed by the UN system and applied widely in development policies and related studies worldwide. The present situation is analysed in an historical framework and future prospects are included. The Target 10—to halve the proportion of people without sustainable access to safe drinking water—is under particular focus. The analysis leans on the macro-level indicator statistics of UN organizations and the World Bank.

The MENA Region and its Waters

In what follows, the following countries are included to belong to the MENA region:

- *North Africa:* Morocco, Algeria, Tunisia, Libya, Egypt
- *West Asia:* Syria, Lebanon, Israel, Palestine, Jordan, Iraq
- *Arabian Peninsula:* Saudi Arabia, Kuwait, Qatar, Bahrain, United Arab Emirates (UAE), Oman, Yemen
- *Sub-Saharan Africa:* Mauritania, the Sudan, Djibouti, Somalia, the Comoros

The total surface area of these 23 countries comprises 13.8 million km^3, making it 39% larger than Canada, 44% larger than China, 3.8 times of the size of the European Union, or 25 times of Metropolitan France. The MENA countries cover 9% of the world's total surface area.

The population of the MENA countries was 287 million in 2005 (World Bank, 2006), making the region relatively scarcely populated with a mere 20.8 inhabitants per km^2.

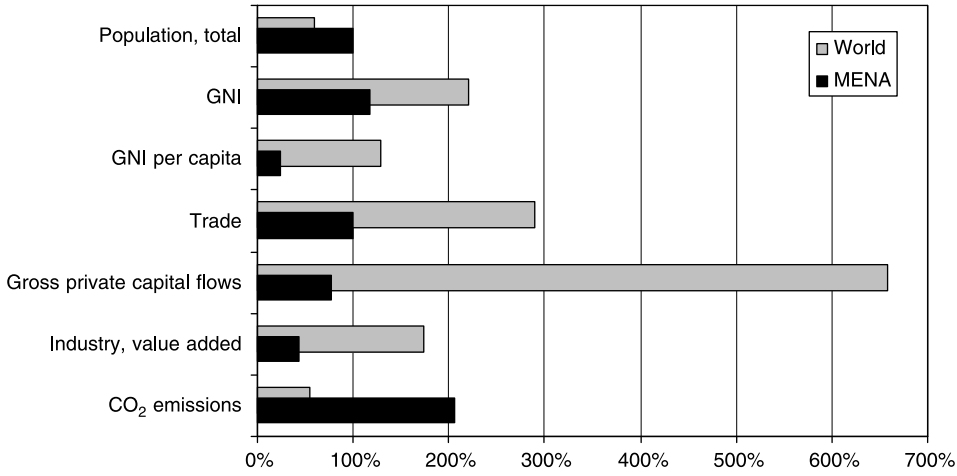

Figure 1. Growth tendencies from 1980 to 2005 in MENA countries and in the world. *Source:* World Bank (2005).

The most important reason for the low population density is the scarcity of water resources: the percentage of arable land of the total land area is only 4.5%. In Canada, this share is 5.0%, in China 15.4% and in Spain 26.1%. However, the MENA population accounts for 5% of the world's total population, and so does the arable land area.

A total of 8 out of 11 oil-exporting OPEC countries are located in the MENA region. They are Algeria, Iran, Iraq, Kuwait, Libya, Qatar, Saudi Arabia and United Arab Emirates. The MENA region's share of total oil exports in the world is 42% (Mons, 2005).

How has the world, and particularly the MENA countries, changed from 1980 to 2005? The world now has 60% more people: 93% more urban and 36% more rural. The MENA region's population has grown much faster, the corresponding rates being 100%, 142% and 58%. The world economy has grown 3.2 fold, whereas the MENA economy has grown 2.2 fold. The Gross National Income (GNI) per capita worldwide has hence grown considerably, 128%, whereas the growth in the MENA region has been merely 18%. The CO_2 emissions of the MENA region have grown four times faster than the world average.

This short statistical outlook (Figure 1) implies that the MENA region has not been fully able to keep pace with the world's economic development. This observation is in line with the recent series of analyses by the United Nations Development Programme (UNDP), which since 2002 has published annually the Arab Human Development Report (UNDP, 2002, 2003c, 2004b). This series of reports draws attention to the very modest economic and social development in the MENA Countries in the past few decades.

The Millennium Development Goals and their Relation to Water

The UN system and all major development institutions have agreed to commit to the eight Millennium Development Goals (MDGs) and 18 Development Targets within those Goals (Table 1). All the 191 UN member countries have pledged to meet these goals by the year 2015.

As Table 1 shows, one of the targets, Target 10, implicitly mentions water supply services. However, it is crucial to appreciate that water is related to almost all other targets as well. The global and local connections of water and development are numerous and broad. The many roles of water are clearly echoed in achieving the concurrent development paradigms such as the MDGs. Of particular importance is the recognition of the cross-cutting role of water in development.

Water has many quite fundamental and quite different facets and functions in human societies. Therefore, the assessment of the role of water in achieving MDGs as well as the concept of water as a human right are not trivial tasks.

Water is intertwined in the everyday life of humans in countless ways. The importance of water and sanitation as drivers for health, food security and quality of life and as a pillar for economic development is unique. As water affects human lives, mankind also has an effect on the hydrological cycle of the planet, in all dimensions from the very local to the global scale. The production of 1 kg of grain consumes 1000–4000 litres of water. Food production, although not being enough for all, already accounts for 90% of water use in developing countries. Hydropower production by damming rivers evokes strong emotions, yet sustainable energy production is among the cornerstones of economic development. The damage caused by floods and droughts is escalating. The human impact on ecosystems is catastrophic in immeasurable ways. Water is largely a political good since a bulk of mankind lives in river basins shared by two or more nations.

Water is a backbone of the economy in very many countries of the world. Water resources management provides the foundation of the agricultural sector, much of the energy sector, is an important part of the urban infrastructure, health care and many other functions of society. Economic growth is desperately needed in the reduction of poverty, but growth alone is not sufficient. Well-being must reach the poor, otherwise the growth only polarizes the economies.

The role of water is very important in this complex interplay. Besides being fundamental to many economic sectors, water is also a key to meeting many of the basic needs that are in turn instrumental in poverty reduction.

- *Water*: The more important economically, the poorer the nation is.
- *Environmental threats*: By far the most detrimental environmental catastrophes are floods and droughts. Water is the main carrier of environmental pollutants, inadequate sanitation often being a major cause for pollutants. It is also the major agent in global erosion, desertification, decline in biodiversity and climate change problems.
- *Traditional societies and the traditional sector*: Their economy is tied to nature and very closely to the water cycle. The development of water management and sanitation requires culturally tailor-made approaches.
- *Housing and the informal sector*: Water and sanitation are key constraints for decent housing and livelihood as well as for the rapidly growing informal sector; the challenges are soaring particularly in urban conditions.
- *Agriculture*: Accounts for 70% of all water use by humans. In most developing countries, agriculture accounts for over 90% of all water withdrawals. Water infrastructure and services provided by aquatic ecosystems are backbones of the economy and livelihoods.

Table 1. The United Nations Millennium Development Goals

Goal	Target
1. Eradicate extreme poverty and hunger	1. Reduce by half the proportion of people living on less than a dollar a day. 2. Reduce by half the proportion of people who suffer from hunger.
2. Achieve universal primary education	3. Ensure that all boys and girls complete a full course of primary schooling.
3. Promote gender equality and empower women	4. Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015.
4. Reduce child mortality	5. Reduce by two-thirds the mortality rate among children under the age of five.
5. Improve maternal health	6. Reduce by three-quarters the maternal mortality ratio.
6. Combat HIV/AIDS, malaria and other diseases	7. Halt and begin to reverse the spread of HIV/AIDS. 8. Halt and begin to reverse the incidence of malaria and other major diseases.
7. Ensure environmental sustainability	9. Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources. 10. *Reduce by half the proportion of people without sustainable access to safe drinking water.* 11. Achieve significant improvement in lives of at least 100 million slum dwellers, by 2020.
8. Develop a global partnership for development	12. Develop further an open trading and financial system that is rule-based, predictable and non-discriminatory. Includes a commitment to good governance, development and poverty reduction—nationally and internationally. 13. Address the least developed countries' special needs. This includes tariff- and quota-free access for their exports; enhanced debt relief for heavily indebted poor countries; cancellation of official bilateral debt; and more generous official development assistance for countries committed to poverty reduction. 14. Address the special needs of landlocked and small island developing states. 15. Deal comprehensively with developing countries' debt problems through national and international measures to make debt sustainable in the long term. 16. In cooperation with the developing countries, develop decent and productive work for youth. 17. In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries. 18. In cooperation with the private sector, make available the benefits of new technologies—especially information and communications technologies.

- *Industry*: In large parts of the developing world (China, Southeast Asia, South Asia, etc. but not so much in the MENA region) industry is developing more rapidly than ever before. Many industrial sectors rely on water. The challenge of pollution is enormous.
- *Energy*: The Johannesburg Plan of Implementation defined the increase in the share of renewable energy sources as the primary goal of the energy sector. It is fundamental to understand that 96% of contemporary renewable energy production comes from either biomass or hydropower. These both rely completely on water resources management.
- *Services*: For many service industries such as tourism—which is the fastest growing sector of industry in the world and among the key potentials in many developing countries—water, adequate sanitation and a healthy environment are elementary.
- *Economic growth:* This is necessary for poverty alleviation, but does not guarantee it. Distribution of wealth is necessary. In economic terms, care must also be taken of the not very profitable sectors such as (capital intensive) food production.

Monitoring the state of and progress in the water sector in a country is not a simple task. It requires an interdisciplinary approach that may involve both qualitative and quantitative assessment techniques. These should be integrated to allow a wide range of issues to be addressed, while at the same time allowing the views and values of a range of stakeholders to be represented.

The water and sanitation sector is typically considered as a sector by itself. However, this sectorial view gives only a very limited appreciation of water because it is also a crucial component in several other sectors. This view has led to the inclusion of water in many important policy tools such as the Poverty Reduction Policy Papers. Water should absolutely be present in such policy tools due to its fundamental role in development. As highlighted by the UN Millennium Project (2004), water is in a key role in achieving most of the Millennium Development Goals, not just in the one that implicitly mentions water (Table 2).

The Status of MDGs in the MENA Countries

The UNDP made a comprehensive assessment of the trends and prospects of the world's countries to achieve the Millennium Development Goals in the Human Development Report of 2003 (UNDP, 2003a). A summary of Arab Countries is also available (UNDP, 2003b). This report uses the UNDP definition for the Arab Region, and in this context calls it the MENA region.

The most important tendencies and results from those two reports have been summarized in Table 3. In North Africa, the overall situation with respect to the trends and to achieving the MDGs is fairly positive. This is particularly the case in Tunisia, Egypt and Libya. Morocco and Algeria have not been progressing at the required rate in order to reach the MDGs, and the two countries must reverse the direction of development in order to achieve the Targets. In North Africa, a particular concern is the retarded rural development, which manifests in the increasing incidence of rural poverty and decreasing level of rural water supplies.

In West Asia, the situation resembles much of that in North Africa, being only slightly better. The exception is Iraq, which has shown much regression in the past decade and must make a sharp turn in the direction of its development in order to reach the MDGs. Iraq's situation is obviously the result of the problematic recent history and concurrent war situation.

In general the Arabian Peninsula also has a fairly good level of development, but some alarming tendencies can be found. Many states have not been taking sufficient care of the education sector. The environmental sector, including the water supply infrastructure related tendencies, should be far more positive. Yemen is an exception in this sub-region with its low starting point to reach the MDGs. Its problems seem to be accumulating and it has even witnessed some regression in the development targets.

Table 2. Water: a cross-cutting tool for the MDGs

Millennium Goal by 2015	Improved water resources management and access to water supply and sanitation has benefits for each of the eight MDGs:
ERADICATE EXTREME POVERTY AND HUNGER Target 1: To halve the proportion of the world's people whose income is less than $1/day	• Water is a factor of production in agriculture, industry and economic activities. • Investments in water infrastructure/services as a catalyst for local/regional development. • Reduced vulnerability to water-related hazards reduces risks in investments and production. • Reduced ecosystems degradation makes livelihood systems more secure. • Improved health increases productive capacities, reduces burden on those who care for the sick.
Target 2: Halve the proportion of the world's people who suffer from hunger	• Water is a direct input to irrigation for expanded grain production. • Reliable water for subsistence agriculture, home gardens, livestock, tree crops. • Sustainable production of fish, tree crops and other foods gathered in common property resources (also affects poverty when such goods are sold for income). • Reduced urban hunger due to cheaper food prices. • Healthy people are better able to absorb the nutrients in food than those suffering from water-related diseases, particularly worms.
ACHIEVE UNIVERSAL PRIMARY EDUCATION Target 3: To ensure that children every-where complete a full course of primary schooling	• Improved school attendance from improved health and reduced water-carrying burdens, especially for girls. • Having separate sanitation facilities for girls and boys in schools increases girls' school attendance.
PROMOTE GENDER EQUALITY AND EMPOWER WOMEN Target 4: To ensure girls and boys have equal access to primary and secondary education	• Community-based organizations for water management improve social capital of women. • Reduced health, and care-giving burdens from improved water services give women time for productive endeavours, education, empowerment activities. • Water and sanitation facilities closer to home put women and girls at less risk for sexual harassment while gathering water and searching for privacy.

Table 2. *Continued*

Millennium Goal by 2015	Improved water resources management and access to water supply and sanitation has benefits for each of the eight MDGs:
	• Higher rates of child survival are a precursor to the demographic transition toward lower fertility rates; having fewer children reduces women's reproductive responsibilities.
REDUCE CHILD MORTALITY Target 5: To reduce by two-thirds the death rate for children under five	• Improved quantities and quality of domestic water and sanitation reduce main morbidity and mortality factors for young children. • Improved nutrition and food security reduces susceptibility to diseases.
IMPROVE MATERNAL HEALTH Target 6: To reduce by three-fourths the rate of maternal mortality	• Improved health and reduced burdens from water portage reduce risks. • Improved health and nutrition reduce susceptibility to anaemia and other conditions that affect maternal mortality. • Sufficient quantities of clean water for washing pre-and-post birth cut down on life-threatening infections. • Higher rates of child survival are a precursor toward lower fertility rates, and fewer pregnancies per woman reduce maternal mortality.
COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES Targets 7 & 8: To halve, halt and begin to reverse the spread of HIV, malaria, other major diseases	• Better water management reduces mosquito habitats. • Better water management reduces risk for a range of water-borne diseases. • Improved health and nutrition reduce susceptibility to/severity of HIV/AIDS and other major diseases.
ENSURE ENVIRONMENTAL SUSTAINABILITY Targets 9 & 10: To stop the unsustainable exploitation of natural resources and *to halve the proportion of people who are unable to reach or afford safe drinking water*	• Improved water management, including pollution control and water conservation, is a key factor in maintaining ecosystems integrity. • Development of integrated management within river basins creates situation where sustainable ecosystems management is possible and upstream-downstream conflicts are reconciled. • Biodiversity conservation, combating desertification furthered by sound water management.
Target 11: To have achieved a significant improvement in the lives of at least 100 million slum dwellers	• Improved domestic water supply and sanitation and better water management reduce the biological pathogens and chemical hazards to which slum dwellers are exposed.

The countries located in Sub-Saharan Africa have the worst problems. Their levels of development are particularly low and the countries are not on track in improving their situation to achieve the MDGs. The Comoros is the only exception, being on track to achieve the MDGs.

Table 3. A country-specific ranking of the status and the prospects for achieving the 11 targets of the Millennium Development Goals

Target	1	2	3	4	5	6	7, 8	9, *10*	11	Progress	Level
North Africa											
Morocco	-	-	+	+	+			o		Off track	Medium
Algeria	-	-	+	o	+					Off track	High
Tunisia	-		+	+	+			o		On track	Very high
Libya				+	+			o		On track	Very high
Egypt	+	+		+	+			+		On track	High
West Asia											
Syria		+	-	o	+					Off track	Very high
Lebanon					o			+		On track	Very high
Palestine					+					On track	Very high
Jordan	o	-	+	o	o			o		Off track	Very high
Iraq		-	+	-	-					Much regression	Low
Arabian Peninsula											
Saudi Arabia		+	-	+	+			+		On track	High
Kuwait		+	o	+	+					On track	Very high
Qatar			+	+	+					On track	Very high
Bahrain			-	o	o					Regression	Very high
UAE			-	-	+					Regression	Very high
Oman			-	o	+			o		Off track	High
Yemen	-	o			o					Regression	Low
Sub-Saharan Africa											
Mauritania	o	o		+	o			o		Off track	Low
Sudan		+		o	o			o		Off track	Very low
Djibouti	-		o	o	o			+		Off track	Low
Somalia		-			o					Regression	Very low
Comoros				+	+			+		On track	Medium

Legends:

Level		Progress
Low	+	On track
Medium	o	Off track
High	-	Regression
No data		No data

Source: Table 2; UNDP (2003a, 2003b).

The progress and future outlook of the MENA region's countries with respect to the MDGs 1 to 7 will be presented below, specifically for each of the 11 Targets mentioned in Table 1. The MDG 8, Develop a global partnership for development, will not be scrutinized in this context.

Target 1: To halve the proportion of the world's people whose income is less than $1/day

This Target is the first part of the MDG 1 encompassed to eradicate extreme poverty and hunger. With respect to this goal, the data shortcomings are considerable; only one-third of the countries have reported data to the United Nations and therefore detailed analysis is not easy.

However, it is clear that the incidence of poverty in the MENA region varies considerably by country. Among the countries for which data are available, the best situation is in Tunisia and Jordan, where poverty affects 8% and 12% of the population, respectively. In Algeria,

Egypt and Morocco, approximately 20% are affected by poverty. The highest incidences of poverty are reported from Yemen (40%), Mauritania (46%) and Djibouti (75%).

The incidence of poverty will most probably rise in the near future in most MENA countries. In 1995–2000, poverty almost doubled in Djibouti and Algeria. It also increased considerably in Algeria and remained constant in Tunisia. Egypt and Jordan have been reporting a decreasing poverty trend.

Rural poverty is a huge problem in most MENA countries. Social inclusion policies and employment policies need to reach rural areas far more than thus far. The UNDP data contain statistics on rural and urban poverty from the following countries: Algeria, Egypt, Mauritania, Morocco, Tunisia and Yemen. In all these countries rural poverty is growing. In Egypt, rural and urban poverty are roughly at the same level, but in all other countries the incidence of rural poverty doubles or even triples the level of urban poverty.

Target 2: To halve the proportion of the world's people who suffer from hunger

Target 2 is the second part of the first MDG dealing with the eradication of extreme poverty and hunger. The MENA region as a whole has not witnessed an improvement in the malnourishment situation since the 1990s. The level of malnourished people has remained at 13% of the region's population. The MENA region is unlikely to meet this Target unless a radical change takes place. The situation has worsened in Jordan, Algeria, Morocco, Iraq and Somalia. Countries that have been able to improve their nourishment situation considerably are Kuwait, Syria, the Sudan, Saudi Arabia and Egypt.

In Somalia, over 7 out of 10 people are malnourished. In Iraq, Sudan and Yemen, 2–3 out of 10 suffer from hunger. These are the countries with the worst hunger situation. In contrast, in Lebanon, the Gulf States and in Saudi Arabia, less than 5% of the population are malnourished.

Target 3: To ensure that children everywhere complete a full course of primary schooling

The achievement of universal primary education is the scope of Target 3. The gross regional average of the level of school enrolment is approximately 80% in the MENA region, but again there are large differences between countries. In Tunisia, Algeria, Palestine, Syria, Bahrain, Qatar, Jordan, Egypt and Iraq, the level of enrolment is over 93%. At the other end of the scale is Djibouti, where only 1 in 3 children start primary school. In Sudan the corresponding figure is less than 50%, in Saudi Arabia under 60% and in Oman, Kuwait and Yemen it is around two-thirds.

In the MENA region as a whole, the situation with respect to this Target is improving at only half of the pace required. The most positive messages come from Tunisia, Jordan, Algeria, Iraq, Qatar and Morocco, which are all developing faster than required to meet this Target. In Syria, Bahrain, UAE, Oman and Saudi Arabia, the net primary school enrolment ratio of children has even decreased.

Target 4: To ensure girls and boys have equal access to primary and secondary education

Target 4 addresses the promotion of gender equality and empowerment of women. The region as a whole is expected to be able to reach this Target.

Nine countries are making good progress towards meeting the Target. They are Mauritania, Libya, Morocco, Saudi-Arabia, Kuwait, Comoros, Egypt, Qatar and Tunisia. Bahrain, Kuwait, Libya and Palestine are already close to the gender parity. In Djibouti, Iraq and Yemen, less than 8 girls attend primary school for 10 boys.

Target 5: To reduce by two-thirds the death rate for children under five

The reduction of child mortality is the scope of Target 5. The mortality rate remains high and it is unlikely that the region will achieve the Target. Over one-tenth of children die before the fifth birthday in the MENA region.

Child mortality is lowest, below 3 per 100, in the Gulf States, and in Libya and Oman. In Palestine, Tunisia, Saudi Arabia, Syria, Lebanon and Jordan it is also fairly low (between 4 and 7 per 100 children die before their fifth birthday). Several countries have witnessed progress, most notably Egypt, Oman, Libya, Palestine, Morocco and Tunisia, and a total of 13 countries are expected to reach the Target by 2015. Those in the worst situation are Somalia (22), Mauritania (17), Djibouti (14) and Iraq (13), which are all witnessing very slow progress.

Target 6: To reduce the rate of maternal mortality by three-quarters

The sixth Target measures the improvement of maternal health. Saudi Arabia, the Gulf States, Jordan and Tunisia are the highest-ranking countries, where below 90 mothers die per 100 000 live births. The lowest-ranked countries are Somalia (1700), the Sudan (1500), Mauritania and Yemen (both around 900). The data shortcomings hamper any further analysis.

Targets 7 & 8: To halve, halt and begin to reverse the spread of HIV, malaria, other major diseases

Combating HIV/AIDS, malaria and other diseases is the focus of Targets 7 and 8. Data on HIV/AIDS are deficient from the MENA region, but an estimated 500 000 incidences have been reported within the region since the outbreak of the epidemic in the early 1980s. Related to the population size of the region, the level of infection is still low when compared to most parts of the world.

For diseases such as tuberculosis and malaria, Somalia, Djibouti, Mauritania and the Sudan have very high incidence rates. Two-thirds of the countries are almost free of those diseases.

Targets 9, 10 & 11: To stop the unsustainable exploitation of natural resources; to halve the proportion of people who are unable to reach or afford safe drinking water and to have achieved a significant improvement in the lives of at least 100 million slum dwellers

Targets 9 to 11 address ensuring environmental sustainability. The region as a whole is on track to meet the Targets. Lebanon and Djibouti have achieved full water supply coverage. In general, the urban coverage is far better than the rural coverage, but Mauritania, Oman, Libya, Yemen and the Sudan face large challenges in urban areas. In Mauritania, only one-third of the urban population has access to a safe water supply, and in Oman, only 40% are in such a situation. Oman, Mauritania, Iraq, Morocco, Tunisia, Syria, Saudi Arabia, Yemen, Libya and the Sudan must work particularly hard in rural areas.

The Water and Sanitation Target in MENA Countries

As the above analysis showed, the MENA region as a whole is on track to reach the MDG for halving the proportion of people without sustainable access to safe drinking water (Target 10). However, the countries in the region differ enormously from each other. Likewise, the divergence inside the countries is also notable, particularly between urban and rural areas.

Whereas the progress with regard to Target 10 is positive in a large proportion of the MENA countries, this is not the case for many other Millennium Development Goals. Particular attention must be paid to the poor progress made (even regression in many cases) with respect to the following MDGs:

(1) Eradicate extreme poverty and hunger.
(2) Achieve universal primary education.
(3) Reduce child mortality.
(4) Improve maternal health.

As elaborated above, all these goals and water are closely connected, and the water sector is both preconditioned and partly responsible for the poor progress in these areas.

Most North African countries are well-off in terms of urban water and sanitation coverage (Tables 4 and 5). Libya has a remarkably low coverage of water supply in rural areas and Morocco's sanitation coverage is relatively low and declining. In rural areas, the situation is far worse. Morocco and Tunisia have a very low coverage of both water supply and sanitation, and Libya of water supply. Most countries show very limited, if any, progress, the exception being Egypt where the services coverage improved markedly between 1990 and 2000.

Most West Asian countries have a fairly high coverage of water and sanitation services, particularly in urban areas. However, due to limitations in data it is difficult to assess the development direction, since only Jordan has data from 1990. The greatest shortcomings in coverage are in rural areas of Iraq, where only 48% of people have appropriate water services and 31% have improved sanitation facilities.

In the Arabian Peninsula, Saudi Arabia and the Gulf States have practically a full coverage. The latter have no data in the World Bank (2004) statistics, but their high level is unambiguous from the WHO and UNESCO (2004) report. Oman and Yemen are again far worse off than the others, and their very low coverage shows insufficient progress in order to meet Target 10 of the MDGs. However, the data for Oman are very inconsistent.

In Sub-Saharan Africa, Djibouti seems to have reached full water supply coverage in urban areas. The country still has a long way to go to achieve the same situation in sanitation. The poor availability of data does not allow much analysis of the other countries, but obviously the rural situation is very problematic in all countries. The progress, too, seems to be very slow.

Capacity of Coping with the MDG-related Challenges

As the above analysis indicates, the MENA region faces huge challenges in achieving the Millennium Development Goals and improving the water and sanitation coverage in the way required. The region's 23 countries that have been highlighted in this analysis are,

Table 4. The progress in improved water supply services in the MENA Countries between 1990 and 2000

	Improved water source (% of population with access)						
	Total		Rural		Urban		
	1990	2002	1990	2000	1990	2000	Notes
North Africa							
Morocco	*75*	*80*	***58***	***56***	94	98	Very low and declining coverage in rural areas
Algeria	95	87	–	82	–	94	Moderate level, missing data
Tunisia	*77*	*82*	***54***	***58***	91	92	Very low but improving coverage in rural areas
Libya	*71*	*72*	*68*	*68*	*72*	*72*	Low coverage and no progress
Egypt	94	98	92	96	97	99	High coverage, improving
West Asia							
Syria	79	*79*	–	*64*	–	94	Low coverage, particularly in rural areas, missing data
Lebanon	100	100	–	100	–	100	Full coverage
Palestine	–	94	–	86	–	97	Coverage shortcomings in rural areas; data gaps
Jordan	98	91	92	84	99	100	Low and declining coverage in rural areas
Iraq	83	81	–	***48***	–	96	Very low coverage in rural areas, missing data
Arabian Peninsula							
Saudi Arabia	–	95	–	***64***	–	100	Very low coverage in rural areas, missing data
Oman	77	79	***30***	***30***	***41***	***41***	Notable data inconsistency
Yemen	69	*69*	–	*68*	–	*74*	Low coverage, missing data
Sub-Saharan Africa							
Mauritania	41	56	***40***	***40***	***34***	***34***	Very low coverage, inconsistent data
Sudan	64	69	*60*	*69*	86	86	Very low coverage in rural areas, data inconsistency
Djibouti	–	100	–	100	–	100	Full coverage but data gaps
Somalia		29					Low coverage, data gaps

Sources: Rural/urban: World Bank (2004); total: World Bank (2006). Data from the Gulf States and the Comoros are missing.

Table 5. The progress in sanitation situation in the MENA Countries between 1990 and 2000 /2002

	Improved sanitation facilities (% of population with access)						
	Total		Rural		Urban		
	1990	2002	1990	2000	1990	2000	Notes
North Africa							
Morocco	***57***	***61***	***31***	***44***	88	86	Very low coverage in rural areas
Algeria	88	92	–	81	–	99	Moderate level, missing data
Tunisia	*75*	80	***48***	*62*	96	96	Very low but improving coverage in rural areas
Libya	97	97	96	96	97	97	High coverage and no progress
Egypt	54	68	79	96	96	100	Improving, highly inconsistent data
West Asia							
Syria	76	77	–	81	–	98	Modest coverage, particularly in rural areas, missing data
Lebanon	–	98	–	87	–	100	Modest coverage in rural areas, data gaps
Palestine	–	76	–	–	–	100	Missing data
Jordan	–	93	95	98	100	100	High coverage, data inconsistency
Iraq	81	*80*	–	***31***	–	93	Very low coverage in rural areas, missing data
Arabian Peninsula							
Saudi Arabia	–	100	–	100	–	100	Full coverage, missing data
UAE	100	100					Full coverage, missing data
Oman	83	89	*61*	*61*	98	98	Very low coverage in rural areas, no progress
Yemen	***21***	***30***	***21***	***21***	69	89	Very low coverage, particularly rural areas. Data inconsistency
Sub-Saharan Africa							
Mauritania	28	42					Low coverage, improving
Sudan	33	34	–	–	87	87	Modest coverage in urban areas, missing data
Djibouti	–	91	–	***50***	–	99	Very low coverage in rural areas but data gaps
Somalia		25					Low coverage, data gaps

Sources: Rural/urban: World Bank (2004); total: World Bank (2006). Data from Kuwait, Qatar, Bahrain and the Comoros are missing.

however, very different from each other, and the region is highly heterogeneous. It contains oil-rich states which have very a highly developed water infrastructure and which have been developing rapidly in many other respects too. Such countries include the Gulf States and Saudi Arabia. On the other hand, it includes countries which have been violent and have suffered from lengthy hostilities, and consequently are facing elevated challenges in providing basic services and meeting basic needs of their populations. These countries include Somalia, the Sudan and Iraq.

This section analyses the coping capacity of the countries in meeting the challenges related to achieving the MDGS, as outlined in the previous sections. For this purpose, four external development indicators are used. These indicators are:

- *Economy*: The Gross National Income (GNI) for the year 2005 by UNDP (2006). In current US dollars and calculated by using the Atlas Method.
- *Human development*: The Human Development Index (HDI) by UNDP (2006). This index is a combination of indicators from economic development, education level and life expectancy.
- *Water poverty*: The Water Poverty Index (WP) by Lawrence *et al.* (2002). This indicator combines information from water resources availability, their accessibility, capacity to tap the water resources, level of use related to the size of the resource, and environmental quality. The higher the score, the better the situation and the lower the water poverty.
- *Governance*: The Corruption Perception Index (CPI) by Transparency International (2006). CPI Score relates to perceptions of the degree of corruption as seen by business people and country analysts and ranges between 10 (highly clean) and 0 (highly corrupt).

Table 6 shows the values of these indicators. They are analyzed together with the data on the achievement of the MDGs (Table 3) as well as the water and sanitation coverage data (Tables 4 and 5). The approach is as follows:

- MDG Data: The summary results presented in the columns Level and Progress of Table 3 were transferred into numerical information. This was done by using the following scale for the Level descriptors.
  Very high = 5
  High = 4
  Medium = 3
  Low = 2
  Very Low = 1
  Thereafter, the Progress descriptor was given a numerical score:
  On track = 2
  Off track = 1
  Regression = 0
  Much regression = -1
  Finally, these two scores were added together by country.
- Now that all the data were in a numerical form, each of the variables (GNI per capita, HDI, water poverty, CPI, MDG, water supply (urban), sanitation (urban), water supply (rural) and sanitation (rural) were standardized for zero mean and

Table 6. The values of the external indicators used in assessing the coping capacity of MENA states in facing the challenges related to achieving the Millennium Development Goals with special reference to water supply and sanitation

Country	GNI per capita	HDI	Water poverty	CPI
North Africa				
Morocco	1570	0.640	52.3	3.2
Algeria	2270	0.728	53.4	3.1
Tunisia	2650	0.760	56.7	4.6
Libya	4560	0.798	48.6	2.7
Egypt	1250	0.702	61.9	3.3
West Asia				
Syria	1570	0.640	52.3	3.2
Lebanon	2270	0.728	53.4	3.1
Palestine	2650	0.760	56.7	4.6
Jordan	4560	0.798	48.6	2.7
Iraq	1250	0.702	61.9	3.3
Arabian Peninsula				
Saudi Arabia	10170	0.777	58.0	3.3
Kuwait	24040	0.871	61.7	4.8
Qatar	n.a.	0.844	n.a.	6
Bahrain	14370	0.859	n.a.	5.7
UAE	23770	0.839	46.5	6.2
Oman	9070	0.810	62.6	5.4
Yemen	570	0.492	50.5	2.6
Sub-Saharan Africa				
Mauritania	530	0.486	55.0	3.1
Sudan	520	0.516	52.8	2
Djibouti	960	0.494	n.a.	n.a.
Somalia	n.a.	n.a.	n.a.	n.a.
Comoros	560	0.556	n.a.	n.a.

Note: Not available = n.a.
Sources as indicated in the text.

unit variance. This was done using the formula:

$$z = (y - \underline{y})/s$$

where z is the standardized value (called z-score in statistics), y is the original value, $\underline{y}$ is the mean of this variable for all the countries under study, and s is its standard deviation.

The results are presented as radar plots and discussed specifically for each of the four sub-regions as defined in Table 3.

North Africa

The results for the five North African countries of the analysis described above are shown in Figure 2. In the plots, the zero level implies the average of all the MENA countries included in this analysis. Level 1 means one standard deviation above the average, and -1

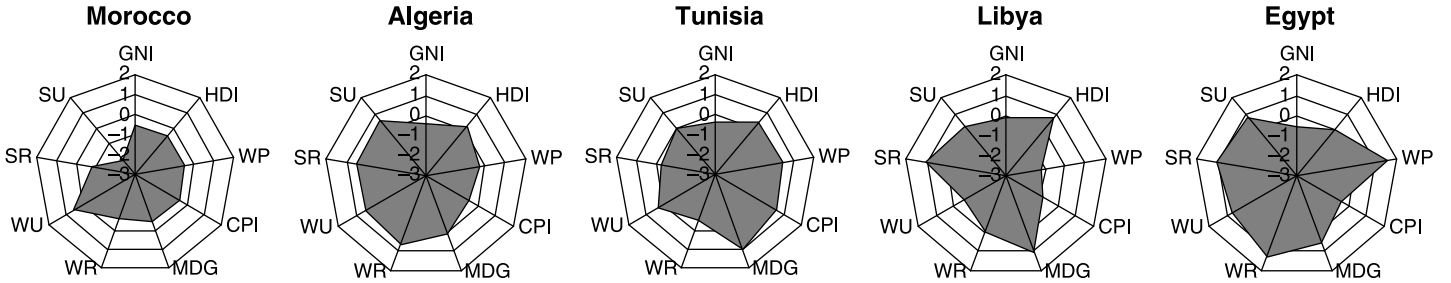

Figure 2. North Africa: the scaled indicators on the MDGs, the coping capacity of achieving the MDGs, and the water and sanitation coverage. *Note*: GNI = Gross National Income; HDI = Human Development Index; WP = Water Poverty Index; CPI = Corruption Perception Index; MDG = Millennium Development Goal; SU = Improved water source, urban areas; SR = Improved water source, rural areas; WU = Improved sanitation facilities, urban areas; WR = Improved sanitation facilities, rural areas. The scale and acronyms used, as well as the sources, are further indicated in the text.

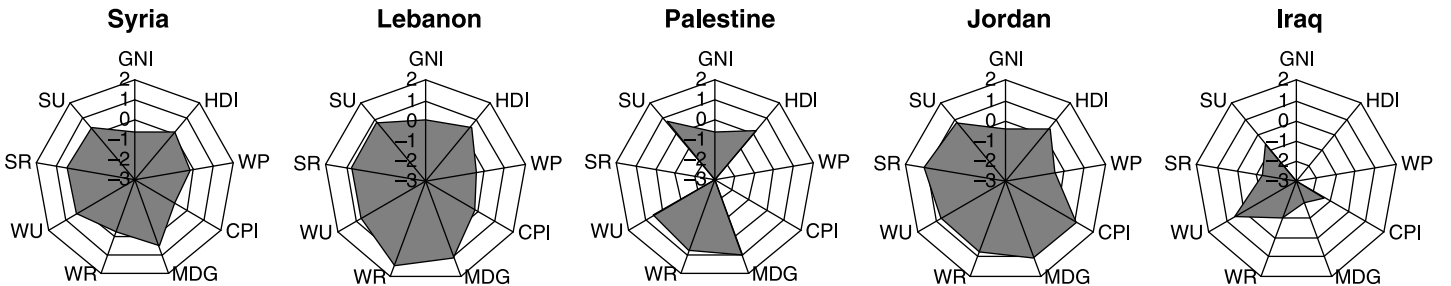

Figure 3. West Asia: the scaled indicators on the MDGs, the coping capacity of achieving the MDGs, and the water and sanitation coverage. *Note*: GNI = Gross National Income; HDI = Human Development Index; WP = Water Poverty Index; CPI = Corruption Perception Index; MDG = Millennium Development Goal; SU = Improved water source, urban areas; SR = Improved water source, rural areas; WU = Improved sanitation facilities, urban areas; WR = Improved sanitation facilities, rural areas. The scale and acronyms used, as well as the sources, are further indicated in the text.

means one standard deviation below the average. Missing values are indicated as missing shading in the sector of the respective variable.

The analysis shows that in the case of Morocco, all the external indicators are slightly below the regional average. The rural water supply and sanitation are also slightly inferior to the regional average. Urban water supply is clearly above, while the urban sanitation is strongly below this average.

Algeria is somewhat above the regional average with respect to almost all the variables, with the exceptions of GNI per capita, water poverty and CPI, which fall below the average.

In Tunisia, the external indicators (except the GNI per capita) gain higher values than the water and sanitation indices. The latter are close to the regional average.

Libya presents interesting results. In terms of water supply and sanitation, the rural situation seems to be better in relative terms than the urban one. In fact, they are both at the same absolute level, but in most MENA countries the rural situation lags behind the urban one and therefore this relative analysis gives such results. The water supply coverage is inferior to the sanitation coverage. The HDI value and MDG score are much above the average whereas the other external indicators are around the regional average. This implies that Libya's social issues are better than aspects of economic, governance and water resources, as related to the entire MENA region.

Egypt has already achieved a very high level of water and sanitation coverage in both urban and rural areas. It also tops the region (together with Iraq) on coping with water poverty. Egypt has its problems in the economy (GNI per capita) and in governance (CPI).

West Asia

Syria also has the lowest score in the economy and governance, like Egypt. The other variables are very close to the average for the MENA region (Figure 3).

In Lebanon, the situation resembles much of that in Algeria, in view of the indicators used. The water and sanitation coverage is clearly above the regional average, and the deficiencies are in the economy, water poverty and governance.

Jordan is not very different from Lebanon, except the governance score is clearly higher in Jordan, being superior to the region's average. Palestine is difficult to compare with the others due to data limitations, but in the economy, human development, MDG score, water poverty as well as the water and sanitation data that are available, the situation resembles much of that in Jordan and Lebanon. Iraq also has considerable limited data and due to the current conflict situation, the scores for those data that are available are relatively low.

Arabian Peninsula

The Arabian Peninsula is economically the strongest part of the MENA region. The Gulf States are top in the economy comparison as well as in the MDG achievements. However, these states have serious data limitations and comparisons are not easy. Figure 4 therefore excludes Bahrain and Qatar.

Saudi Arabia is clearly above the MENA regional average in all aspects except governance (CPI) and water poverty. Oman is strong in governance, water poverty and human development, and slightly above the region's average in the economy and MDG achievement. However, water services are very poor. Yemen's plot shows very contrasted

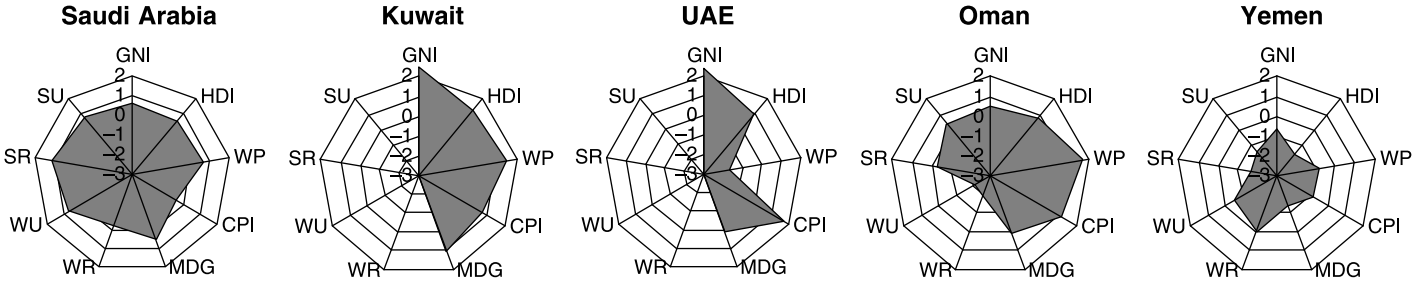

Figure 4. Arabian Peninsula: the scaled indicators on the MDGs, the coping capacity of achieving the MDGs, and the water and sanitation coverage. The Gulf States are not included due to two reasons: their situation with respect to MDGs is very good, and the data coverage is weak. *Note*: GNI = Gross National Income; HDI = Human Development Index; WP = Water Poverty Index; CPI = Corruption Perception Index; MDG = Millennium Development Goal; SU = Improved water source, urban areas; SR = Improved water source, rural areas; WU = Improved sanitation facilities, urban areas; WR = Improved sanitation facilities, rural areas. The scale and acronyms used, as well as the sources, are further indicated in the text.

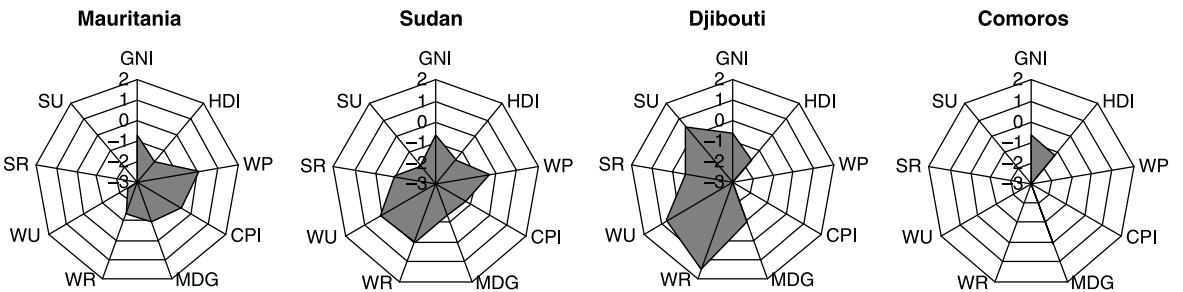

Figure 5. Sub-Saharan Africa: the scaled indicators on the MDGs, the coping capacity of achieving the MDGs, and the water and sanitation coverage. Somalia is excluded due to data shortage. *Note*: GNI = Gross National Income; HDI = Human Development Index; WP = Water Poverty Index; CPI = Corruption Perception Index; MDG = Millennium Development Goal; SU = Improved water source, urban areas; SR = Improved water source, rural areas; WU = Improved sanitation facilities, urban areas; WR = Improved sanitation facilities, rural areas. The scale and acronyms used, as well as the sources, are further indicated in the text.

development to that in Oman. The country is close to the regional average in its water supply, but far below that level in all other respects.

Sub-Saharan Africa

Whereas the Arabian Peninsula is economically the strongest part of the MENA region (with the exception of Yemen), the Sub-Saharan MENA countries Mauritania, the Sudan, Somalia, Djibouti and Comoros constitute the poorest part of the region. However, the data for Somalia and Comoros are too incomplete for detailed comparisons.

Despite the poverty, the water supply situation in the Sudan and Djibouti is relatively good. In the former it is at the regional average and in the latter it is clearly above it. Mauritania, in contrast has much to improve in its water services. Interestingly, in all countries included in Figure 5, the Human Development Index falls very low and is clearly below the GNI per capita. The MDG score is also particularly low.

What Can We Expect within the Water Sector of the MENA Countries by 2015?

As already mentioned, on average the MENA region is making relatively good progress in meeting Target 10. However, the discrepancies between countries and between rural and urban areas are vast. It must be appreciated that several countries have huge coverage shortcomings and show very little, if any, progress. The other MDGs and Targets are also related to water and complicate the picture.

How can the region be expected to develop by the year 2015? Since the water sector is profoundly tied to geography, human resources, the economy, climate and several other regional and national features, as well as to many corresponding global tendencies, this analysis relies principally on them. As seen at the beginning, the past tendencies in economic and social development of the MENA countries have been far below the world's average.

In an analysis of water related future tendencies and threats in the MENA countries by 2030, Varis & Abu-Zeid (2006) identified the following trends and tendencies that will constitute a complex vicious circle (Figure 6):

- The population continues to grow fast and the urban population doubles (Figure 3).
- The economy is under structural pressures.
- Regional integration is low.
- Education is under massive growth pressure.
- Growing problem of unemployment and poverty, and most new jobs are informal.
- Food security is increasingly based on self-reliance instead of self-sufficiency.
- Climate change may cause prolonged droughts.
- Environmental stress should be relieved.

If the development tendencies continue until 2015 and beyond in the same direction as they have done in the past few decades, the MENA region will face various problems and challenges. Most probably, however, these trends will change in one way or another. There may even be dramatic changes, but such changes are not easy to foresee. Where might be the surprises and unpredictablities?

The water sector should seriously prepare for and vaccinate itself against various potential challenges and surprises that follow in one way or another from the various components of the vicious circle of the exceptionally rapid and partly uncontrollable

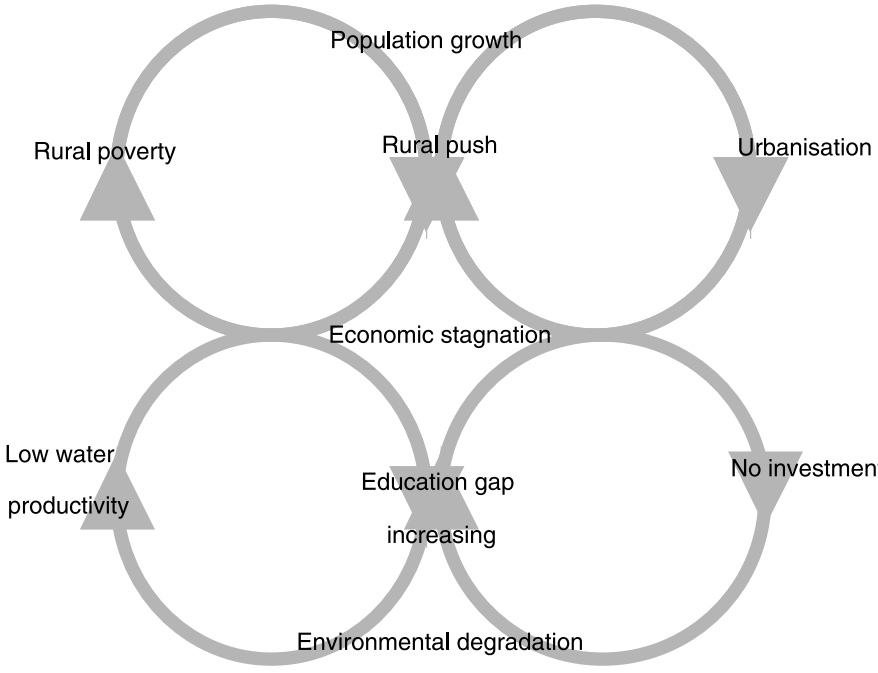

Figure 6. The tendencies of the MENA region constitute a complicated context for the water sector.

urbanization, mounting informal sector, difficulties in getting revenues from taxes, the split of the public sector-dominated society into more privatized, formal and informal echelons, and growing environmental problems. Required investments in the water sector will escalate from the already high level as urbanization goes on in very water scarce areas. So, the finances must be in place. If there was a major investment boom to industries, then the water sector should be capable of dealing with the needs of a huge expansion of infrastructure. Otherwise, the possibilities of facing the future situations will be challenging indeed.

Another source of potential surprises and challenges to the water sector of the MENA region comes from political factors, both inside the countries and in the international arena. Past decades have seen long stable periods in several of the region's countries, but also conflicts and unpredictable changes in regimes and political-economic systems.

The MENA water sector documents and the UN agency-dominated MDG analyses have so far been too immune to the consideration of such factors and their potential roles in shaping the region's future water strategies. The following list includes some potentially very important future topics of water policies, which are under-represented in much of the current water sector debate:

- *From rural to urban.* How can the water sector target the doubling urban population? The number of urban poor may still essentially grow faster. Will slum-upgrading policies become a crucial task for the MENA region's water sector (Figure 7)?

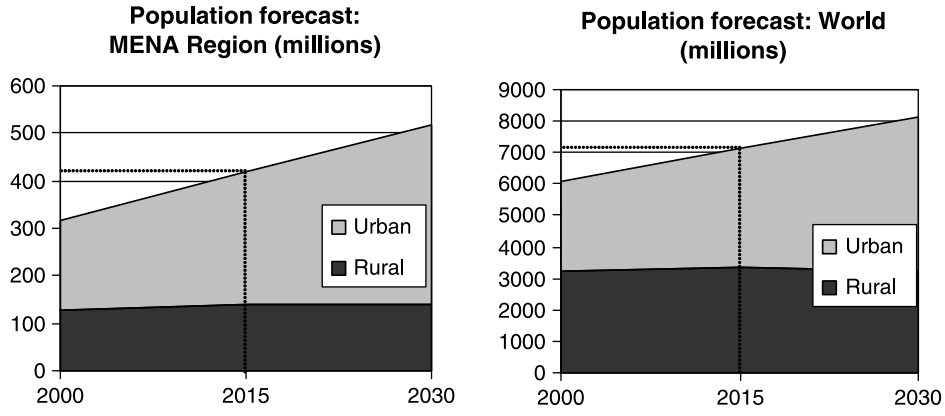

Figure 7. Urban and rural population forecast for the MENA region and in the world as a total by 2030. *Source:* UN (2002).

- *From natural resources to human resources reliance.* How could the extremely scarce fresh water of the region be used to create more economic and social welfare than today? The modern industries and trade are still in their infancy in the MENA countries. Scarce natural resources are becoming increasingly under pressure but the huge human potential should be tapped to develop the region. Basing the economy on human resources and modern industries instead of continuing with the exceptionally high reliance on natural resources, in which the region has a growing competitive disadvantage, should also be an issue for the water sector.
- *From physical scarcity to environmental quality.* There should certainly be increased concern about water quality and pollution abatement. Water quality and the environmental protection of water resources have largely been given lower priority in terms of investments, without considering the associated environmental and health degradation costs. The MENA region cannot afford for this to continue.
- *From national to regional policies.* The MENA region will most probably be exposed to increasing trade and globalization pressures. The water sector will be linked increasingly to economic policies and the regional dimension is likely to grow. The future of transboundary water issues that are already very high on the region's political agenda are still unclear and difficult to predict, but may have the potential to be resolved if more regionally focused water policies were forthcoming.

Accordingly, the pressures and potential surprises to the water sector come largely from trends, tendencies and occurrences that are external to the water sector. The water sector must be prepared to tackle the exceptional development pressures in the MENA region in the forthcoming few decades.

Concluding Remarks

A common saying goes: 'there are lies, there are big lies, and there are statistics'. According to this saying, this analysis, being largely based on development indicator

statistics collected by international organizations such as the United Nations and the World Bank, is faulty. Indeed, there is no doubt that datasets such as the ones used here contain many inaccuracies, over simplifications and immense generalizations, and must therefore be understood as being highly indicative. International comparisons made with such data are, however, often very illuminating and make it possible to see the macro-level bottlenecks and shortcomings as well as pointing out success stories.

The progress in achieving the Millennium Development Goals in relation to water within the Middle East and North Africa region was the topic of this analysis. This was done within the context of the analysis of water as a human right in the region. The MDGs comprise 18 targets—most of which are related to the water sector—and the MENA region has 23 countries. This creates a rather large matrix of different conditions and development paths. To condense strongly, and take Target 10 into particular focus, the following outlines the concurrent situation (see also UNDP, 2003a, 2004a; WHO & UNICEF, 2004).

The region as a whole is relatively well on track to meet the water and sanitation Target 10. Several countries such as Lebanon, the Gulf States and Djibouti are approaching the full water supply coverage. However, the low rural coverage is a massive challenge in more than half of the region's countries, and the tendency in improvement of the rural coverage is low or non-existent in numerous countries. Several, including Mauritania, Oman, Libya, Yemen and the Sudan, face huge challenges in both urban and rural areas. Oman, Mauritania, Iraq, Morocco, Tunisia, Syria, Saudi Arabia, Yemen, Libya and the Sudan must work particularly hard in rural areas. The MENA region is highly diverse with respect to challenges related to achieving the Millennium Development Goals as well as to coping with these challenges.

However, the low level of progress, even regression in many cases, with respect to several crucial MDGs must not be forgotten. The MENA region has serious problems in meeting the poverty goal (MDG 1), the education goal (MDG 2), the child mortality goal (MDG 4) and obviously also the maternal health goal (MDG 5), although in the case of the last one, data limitations do not allow sound analysis. All these issues are deeply interconnected to water, being either preconditions to water related development, or hampered by water related problems.

Within the MDG reference period, by 2015 the MENA region overall faces the following four challenges:

(1) Change the tide in the rural situation. The gap between urban and rural service levels is very large, even widening in most MENA countries. This urban bias, together with obvious other biases in the same direction, contributes to the rural push of people to urban areas and consequent growth of the urban population. This is a problematic development in cases where the new urban immigrants have no or insufficient means to access the formal labour market.
(2) Be prepared for a rapid expansion of the urban informal sector, which must be handled predominantly as a social service, with the very limited applicability of economic and market-based approaches. Target 11, encompassing a reduction in the slum population, is mostly on track in the MENA region, which is a favourable situation at this point, but the challenge is at risk of growing considerably from the past situation in many MENA countries (cf. Varis & Abu Zeid, 2006).

(3) Take care of the already relatively high level of urban formal services, and be prepared for rapid growth, albeit far less rapid than in the informal urban sector. Heavy competition for water and other resources, accompanied by environmental degradation are further challenges.
(4) The links to the progress in other MDGs and targets as well as to economic development are crucial and should be appreciated, because in many ways they are preconditions to the possible progress in the water and sanitation sector.

The everyday right to water is still a distant dream for a considerable proportion of the population in most of the MENA countries. What we often forget is that rights usually come along with responsibilities. Discussion without responsibilities—by whom, for whom, etc —should be included in the rights related discussion. Talking about water as a human right may be useful, but certainly fundamental is the need to improve the everyday lives of the tens of millions of MENA region inhabitants whose lives are not improving at the pace articulated in the Millennium Development Goals of the United Nations. Whose responsibility this is, is the key question.

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The Right to Water

ANTONIO EMBID IRUJO

Introduction

The 'right to water' is a term that is in vogue these days throughout the world. Apart from the relative antiquity of the expression, it now represents the challenges faced by the United Nations (UN) as it tries to resolve the serious problems of access to water. The challenges confront those who are in on the ground floor of a right whose juridical basis, in the last resort, is to be found in international law.

It is of interest to highlight this concern in the field of international jurisprudence for the right to water. The concern is also closely linked to current events in which the debate about the vital nature of water lies at the logical basis of reasoning, as well as to a certain belief in solidarity, both social and among states, and in the primordial role played by the public authorities in enabling access to water, without which life is impossible. This set of current circumstances is based on the following data:

- The efforts of the UN to tackle the problem of the absence of access, in the case of much of the world's population, to potable water supplies and to even the most basic systems of sanitation. The Millennium Development Goals include the proclamation of 2005–15 as the period in which to halve the number of people denied access to water and sanitation as part of the campaign against poverty.[1] It is estimated that 1.5 billion people are in this situation, meaning that major improvements will have to be made in the living conditions of 750 million if the UN's target is to be met. As a result, the task that lies ahead in terms

of construction of infrastructure is a truly impressive one. It must be said, too, that progress made during the current decade, apart from some debates and statements that in a certain sense might be regarded as fairly useless,[2] give few grounds for optimism.[3]

- Second, Europe is in the process of implementing the 2000 Water Framework Directive that includes, among other things, a principle of the cost recovery of water services (Article 9). This relates to the right to water because full recovery of costs could be an obstacle to the right of some people to water.
- In Spain, the specific issue of the right to water has become embroiled in the process of the reforms of the Autonomy Statutes. The reform of the Statute of Autonomy of the Community of Valencia has consecrated citizens' rights to surplus water from river basins that have excess supplies available.

The Role of International Law in the Construction of the Right to Water

The Relevance of the International Covenant on Economic, Social and Cultural Rights

The juridical basis of the right to water in international law (Salman & McInerney-Lankford, 2004; Klawitter & Qazzaz, 2005; Langford, 2005), apart from some partial references,[4] derives from Articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights of 19 December 1966, which is reproduced here as follows:

> Article 11. 1. The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions. The States Parties will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international co-operation based on free consent. General comment on its implementation.
>
> 2. The States Parties to the present Covenant, recognizing the fundamental right of everyone to be free from hunger, shall take, individually and through international co-operation, the measures, including specific programmes, which are needed:
>
> (a) To improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources;
>
> (b) Taking into account the problems of both food-importing and food-exporting countries, to ensure an equitable distribution of world food supplies in relation to need.
>
> Article 12. 1. The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.

> 2. The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for:
>
> (a) The provision for the reduction of the stillbirth-rate and of infant mortality and for the healthy development of the child;
>
> (b) The improvement of all aspects of environmental and industrial hygiene;
>
> (c) The prevention, treatment and control of epidemic, endemic, occupational and other diseases;
>
> (d) The creation of conditions that would assure to all medical service and medical attention in the event of sickness.

These precepts do not expressly refer to the right to water; rather they are about the right to an adequate quality of life and the right to good health. Although they do not refer to the right to water by name, others who have studied them[5] do so, while the UN Committee on Economic Social and Cultural Rights referred to the right as 'genuine' at its 29th session in Geneva from 11–29 November 2002. The committee's General Observation No. 15, significantly entitled "*The Right to Water* (Articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights)" leaves no doubt on this, although it must be emphasized that we are talking about legal interpretations, some of them doubtless worthy of being highlighted, but formulated against the backdrop of the absence of any real proclamation of such a right. In the above-mentioned 2002 document, the definition of the right to water would read as follows:

> The human right to water is the right of everyone to have at his or her disposal sufficient clean, acceptable, accessible and obtainable water for personal and domestic uses.

Note that this definition includes two types of water use that, in reality and from a Spanish perspective, could be one. "Personal and domestic use" is close to what Spanish law describes as "supply to the population" (ref. Article. 60.3.1 TRLA).

The committee's fundamental concern to set a juridical basis for the right on the above-mentioned Articles 11 and 12 while providing it with a final thrust that also links it to the International Declaration of Human Rights (1948). This is the content of the relevant paragraph:

> Article 11, paragraph 1, of the Covenant specifies a number of rights emanating from, and indispensable for, the realization of the right to an adequate standard of living "including adequate food, clothing and housing". The use of the word "including" indicates that this catalogue of rights was not intended to be exhaustive. *The right to water clearly falls within the category of guarantees essential for securing an adequate standard of living, particularly since it is one of the most fundamental conditions for survival. … The right to water is also inextricably related to the right to the highest attainable standard of health (Art. 12, para. 1) and the rights to adequate housing and adequate food* (Art. 11, para. 1). The right should

> also be seen in conjunction with other rights enshrined in the International Bill of Human Rights, foremost amongst them the right to life and human dignity.

From what has been quoted so far, one can deduce the link between the right to water and some of the minimal conditions of human existence in such a way that the right is the instrument by which they are to be achieved or assured. It is not a question of linking the right to water with an economic or social activity but of providing the elements for the development of life under basic conditions that are minimal (but sufficient) in terms of quality.

This interpretation of the committee's document becomes much clearer when it points to those who must enjoy the right to water, including "disadvantaged and marginalized farmers", particularly the women among them. Later it adds "indigenous peoples".

The document goes on to examine the content of the right to water by saying that it also implies the possession of both freedoms and entitlements.

> The freedoms include the right to maintain access to existing water supplies necessary for the right to water, and the right to be free from interference, such as the right to be free from arbitrary disconnections or contamination of water supplies. By contrast, the entitlements include the right to a system of water supply and management that provides equality of opportunity for people to enjoy the right to water.

The definition of the right to water included the reference to two uses: personal and domestic. The committee, as it expounds on the various factors that are relevant to exercising the right to water, explains what is meant by domestic and personal uses. They are: "drinking, personal sanitation, washing of clothes, food preparation, personal and household hygiene".

Not included, then, is industrial use as it is in Spain's case of supply to human settlements, which includes industries of low consumption that are linked to the municipal supply network. In order to attend to these uses water must be sufficient in quantity, but also in quality. The quality perspective is additional to that of quantity (which is not precisely measured, although the World Health Organization (2000) refers to 20 litres of potable water per person per day. On the quality issue the committee concludes that:

> The water required for each personal or domestic use must be safe, therefore free from micro-organisms, chemical substances and radiological hazards that constitute a threat to a person's health. Furthermore, water should be of an acceptable colour, odour and taste for each personal or domestic use.

An understanding of what the right to water means within the international juridical order also requires an examination of another of the adjectives used in the initial definition: 'accessibility', a word that could have four superimposed dimensions: physical accessibility, economic accessibility, the principle of non-discrimination, and access to information.[6]

Definition, juridical basis, content, those subject to the right, etc, but the committee also refers to the duty of the participating states to ensure fulfilment of the right to water. Human rights are formulated as a counter-balance to those of states; this is the classical

structure of human rights in the face of public authorities apart from the most difficult and ever-problematical issue of what German doctrine refers to as *drittwirkung*, the impact on third parties of fundamental rights. This question, which falls more within the ambit of national law, is logically absent from the committee's document, which has to do with international law. The description of states' duties by the committee uses three classical concepts: the duties to respect, protect and fulfil, on all of which it provides a very complete panorama that includes specific details of the content, which will not be the concern of this paper.

At the same time, the participating states have duties at an international level, not only with regard to their nationals and within their borders. The committee specifically refers to the states being prohibited from taking measures that present obstacles to the exercise of the right to potable water in other countries; they must abstain at all times from the imposition of embargoes or similar measures that impede supplies of water, or of the goods and services that are essential guarantees of the right to water. In this context, there is a ringing phrase that is not always adhered to in international relations: "Water should never be used as an instrument of political and economic pressure". The duties of states in this regard reflect on the attitudes of their citizens because "they should take steps to prevent their own citizens and companies from violating the right to water of individuals and communities in other countries".

The committee also refers to the inclusion of the right to water in domestic legislation. Those whose right to water has been violated, it says, must be able to count on effective legal resources with which to react both at a national and at an international level.

To sum up, although the right to water is not enshrined in any international convention such as the International Covenant on Economic, Social and Cultural Rights, the committee finds it implicit in other rights that the committee expressly regulates and that it can be perfectly well be described through a statement of the classic content of the fundamental (human) rights, such as subject, object, procedure, defence, etc.

Moreover, there is certainly nothing excessively remarkable in this manner of proceeding jurisprudentially, since it is perfectly common in other fields of law and also in relation to rights that are proclaimed or constructed in legal terms subsequent to the appearance of major declarations, conventions or treaties on human rights, as is the case of the jurisprudence of the European Court of Human Rights with regard to environmental law.

Finally, the defence of this right, once it has been established (at least in this interpretation) by an international treaty, would have the backing of the very mechanisms that are used to defend the treaty. This is what is referred to by Articles 16 and subsequent which, however, offer no other solutions worthy of highlighting.

Declarations by International Conferences

Although the value of such declarations is not the same as an instrument produced by a convention, reference may be made here to the 1992 Declaration of Dublin on water and sustainable development that contains the four famous principles that have engendered extensive literature.

The fourth principle, which begins by saying in economic terms that "water has an economic value in all its competing uses and should be recognized as an economic good" goes on to add:

> Within this principle, it is vital to recognize first *the basic right of all human beings to have access to clean water and sanitation at an affordable price* …

The proclamation of a fundamental right that includes both supply and sanitation while making specific reference to 'an affordable price' sets the framework for the content of the right within the broad-based statements of a declaration of this nature.

Reference is also made to documents included within the International Decade of Action, Water for Life, 2005–2015. The first is the plan to implement the decisions of the World Summit on Sustainable Development (The Plan for the Implementation of Johannesburg, produced by the World Summit on Sustainable Development held in Johannesburg, South Africa from 26 August to 4 September 2002). There was also the ministerial declaration of the Third World Water Forum in Kyoto (22–23 March 2003), entitled Message from the Lake Biwa and Yodo River Basin. The forum was organized by the World Water Council.

Having established the existence of 1.1 billion people who lack potable water and 2.4 billion without sanitation, the documents, propose a series of measures to halve the figures by 2015. Without any doubt, these documents are the intellectual heirs of a certain *opinio iuris* on the existence of a right to water; only thus can their content be understood, although the same above-mentioned reservations must be maintained on the operability of the right and even on its very existence, which has been reached only by means of legal interpretation.

Partial Conclusions. A Special Mention for the US 'Water for the Poor Act 2005'

All the above is sufficiently representative of the context, origins and meaning of the right to water within an international legal context, and that the jurisprudential interpretation of the International Covenant of Economic, Social and Cultural Rights of 19 December 1966 is the most worthy of mention. The fundamental outlines of this right, never expressly proclaimed as such, but following the above-mentioned observation of the United Nations Committee on Economic, Social and Cultural Rights and within the context of the documents referred to, can be summed up as follows.

(1) It is a human right, a personal right, a right of all persons.
(2) It is formulated as a counter-balance to the power of states.
(3) Its construction derives from an international convention that does not specifically proclaim it but which permits its existence to be arrived at by means of a process of juridical interpretation of a type that is common in the legal field.
(4) Its content relates to the basic necessities of life: personal and domestic uses. Industrial and agricultural uses, much less those for recreation or other purposes, are by no means included.
(5) It deals with the provision of water in sufficient quantity but also with certain quality standards. The conditions of quantity and quality do not directly appear in the international documents that have been studied; rather they would depend on the content of another type of more technical documents.
(6) The right to water relates not only to supply questions but also to the removal of residual water by means of sanitation infrastructure (sewerage). Similarly,

the technical conditions of the sanitation infrastructure are to be found in technical documents to which the previous comments also apply.

(7) Some secondary elements, such as the right to information, also form part of the right to water.

(8) The right to water imposes certain duties on states in relation to their citizens but also in relation to other states and the nationals of other states.

(9) The mechanisms by which the right to water is to be enforced are those of each of the legal instruments that recognize it. It cannot be said, at least in an ideal sense, that they are optimum since they include not one single element of jurisdictional control or of an authority with sufficient power to issue judgements on states.

Finally, another three characteristics can be noted which, although not expressly stated in the texts under study, can clearly be deduced from them, or in the context of the current practical exercise of the right to water:

(1) The right is formulated without any reference to the juridical status of water. No declarations are to be found on whether the water in question is public or private, nor in the former case, whether it belongs to the nation state (or some other public authority) or is subject to some type of tribal, collective or communal title. What exists is a right to the supply of water, which seems to suggest that, rather than a 'real' right to the object in question, what is proposed is the development of an activity of the state (or by the competent public authorities) that aims to provide a service of this very object. In any case, a jurist cannot fail to underline the difficulty in proclaiming collective rights, of a public content, over waters that in formal terms are privately owned.

(2) The effective implementation of this right will not only depend on how states act in relation to their citizens. It needs to be achieved within the framework of cooperation among 'First World' states and international organizations that will have to substitute for, or at least complement, the efforts of many states that have been so far incapable of providing their citizens with potable water, there being no reason to suppose that they will be able to do so in the future without external help. This question opens up a series of issues that cannot be fully dealt with here, although it is necessary to highlight the legislative example of what is the world's most powerful nation thus far, the United States of America. The US recently approved the Water for the Poor Act, which came into force on 30 November 2005. The Water for the Poor Act[7] mandates the US government[8] to provide much more financial backing for cooperation programmes in sub-Saharan Africa, Asia and Latin America with the aim of achieving the Millennium Goals (the law specifically names them as such) and halve by 2015 the number of people in the world who have no access to potable water or sanitation services.

(3) At no point does the committee identify the right to water with water provided exclusively by the public sector or, in consequence, rule out the provision of water by the private sector and/or by means of private-juridical means of a type that, in the field of Spanish law, would mainly mean concessions. The question is worth highlighting because many social groups (certain NGOs and even some ministers at the Fourth World Water Forum[9]) have identified the right

to water with a prohibition on its privatization or on related services.[10] As far as they are concerned, the essential content of the right to water would be the absence of private formulas for service provision. Apart from adding 'service formulas' to what is a much more straightforward right in its conception, this question appears nowhere in the committee's interpretative work, nor in the doctrine that has emerged as a result of study of the issue.

The Right to Water and Communal Use of the Hydraulic Public Domain

One of the reasons for the scant academic attention that has been paid to the right to water lies in the belief of many jurists that 'communal use' of the hydraulic public domain already includes the content of the right to water or is its equivalent.

In effect, the question of use (whether communal or private) is fundamental to an understanding of the nature of public property, above all of water, and it is so despite the presence of private waters in certain regulatory frameworks. Originally, property in the public domain was so insofar as it was destined for public use and that is the original perspective of Spain's Water Law in its 1866 and 1879 versions. It was not until the introduction in Article 339 of the 1888–1889 Civil Code of property destined for public service within the heading of property in the public domain that a distinction could be drawn in the close relationship between public domain and public use by the addition of a new perspective, that of service.

Communal Use in the Water Law's 1866 and 1879 Versions

This is the perspective that can provide an understanding of the importance that, in the early stages of contemporary Spanish water law, was given to communal uses. The 1866 and 1879 versions of the Water Law devotes three Articles to them in which a communal use is portrayed as consisting in the granting of a subjective right to 'everyone' to carry out determined actions linked to daily life.

First, the reference is extremely broad: the right is of 'everyone'. Both Spanish and the relevant foreign[11] legal doctrine will interpret this as meaning that the right extends not only to those on the river banks but to 'everyone' and what in those days could have added to the amplitude of the expression, to foreigners as well as to the Spanish. The right is extended to persons of whatever nationality and without any other reference (to age, sex, social origin etc). As a result, some people began to speak of a 'public' right to water, or even of a 'natural right' to water use, an issue that reached the Supreme Court in a verdict issued on 15 April 1981. There was probably no intention to make a connection between the expression 'natural right' and the theory of natural rights in general. It seems more likely that it had to do with the fact that such communal uses of the hydraulic public domain were 'natural' (in the sense of usual, everyday or not artificial).[12]

Second, communal use is for everyone and can be carried out by everyone acting together. In addition, being a general communal use it requires no authorization, and usually it is free of charge.

Third, of more interest than the foregoing is to refer to the object of communal use (Articles 126–128 of the 1879 Law). These Articles are based on the understanding of different forms of communal use depending on whether or not the water follows its natural course (Guy de Montellá & Massó-Escofet, 1956; Martín-Retortillo, 1997).

- Where the water follows its natural 'and public' course, communal use consists of everyone being able to "drink, wash clothes, dishes or anything else, bathe, or to water and bathe herds and stock". These concepts describe a personal and domestic use as well as a use linked to an economic activity, stock rearing, of which the general communal use would be a mere instrument (Article 126).
- When waters are separated artificially from their natural course to flow through "open canals, courses or aqueducts, even when they pertain to the holders of private concessions", communal use also exists and consists of 'everyone' being able to "extract and take away in small containers whatever they need for domestic or manufacturing use or for the watering of isolated plants". The reference is highlighted in this case to 'manufacturing' uses, an 'industrial' utilization on which the Law places severe limitations since the water must be extracted in 'small containers' that would obviously be insufficient to supply a major undertaking. Should it not already have remained sufficiently clear, the same section goes on to insist that extraction "must be effected by hand, without any type of machine or apparatus and without detaining the flow of the water or causing any wear and tear on the banks of the canal or course". Obviously so where water is diverted from its natural and public course, it states the precept that the authority must "limit the exercise of this right when it has a negative impact on the holder of the water concession" (Article 127).
- Finally, Article 128, also with reference to "open canals, courses or aqueducts of public waters, though temporarily the property of holders of concessions", states that everyone can "wash clothes, dishes and other objects so long as in doing so the banks suffer no wear and tear, and the use to which the water is finally put does not require the conservation of its state of purity". In addition, "horses and other farm animals may only be bathed and watered at places specially set aside for that purpose".

There are two further questions on this legal framework.

First, the Articles in question refer in all cases only to surface waters, never to subterranean waters. This is in keeping with the 19th century legislation in general since the public domain can refer only to surface waters, while underground waters are private and susceptible to private appropriation; it would make no sense at all to speak about communal uses of private waters. But that is only an initial explanation because, in fact, the nature of the property rights is almost incidental, given that communal use is about free access and the use of water without having recourse to any mechanical means or works. This explains why the current legislation, which has made subterranean waters public (ref. Article 2(a) of the Law of 29/1985), in what is an apparent intellectual contradiction that needs to be taken into consideration, allows no communal use in relation to these waters. Communal use can only be made of them when they emerge through the earth in natural form (springs), which is to say when they become surface waters.

Second, the precepts referred to portray a pretty simple society in terms of its structure, economic activity and use of natural resources. A basically rural society that renders comprehensible the 'openness' to stock-rearing uses, although, in what should be a logical development or statement of a related issue, there is no possibility of undertaking substantive uses for irrigation; all that is allowed is the watering of 'isolated plants'. 'Manufacturing' uses are similarly restricted since the water for such purposes may only

be extracted in small vessels. Similarly, in the case of drinking water, there is no supply worthy of the name to villages and towns on the basis of the way in which communal uses are configured. While it appears that 'everyone' has the right, in reality only persons considered individually can go to public water courses and satisfy their thirst in temporary or isolated form.

Communal Use in the Revised Text of the Water Law

By the time the 1985 Water Law appeared, society had advanced by leaps and bounds since the era of the 1866–1879 Law, yet the juridical construction of communal uses was very similar to that of the 19th century legislation. Article 50 (here quoted from the 2001 TRLA, which was unchanged from Article 48 of the 1985 Law) continues to define the right thus:

a) Once again 'everyone' has the right, although only in relations to surface waters that flow through their 'natural course', which is to say every single person without regard to nationality, age or condition. The only limitation is imposed by the 'laws and regulations' and the sole restriction that the "quality and volume of the water" should not be affected. Communal use is general, which is to say carried out by everyone, jointly, without the need for authorization and free of charge. Article 51 of the TRLA deals with two special communal uses that require authorization and have to do with navigation, the use of pleasure vessels and moorings or jetties.

b) On content, a distinction continues to be made depending on whether water follows its natural or an artificial course:

- If the water flows by its natural course, communal use consists of "drinking, bathing and other domestic uses, as well as for watering farm animals". By comparison with the 1866–1879 Law, the faculty of bathing farm animals has disappeared; now they may only be watered.
- Where the water flows by an artificial course, there is no change in the content of the right, but there are more limitations that derive from the need for conservation of the aqueduct. The sketchier nature of the regulations by comparison with those of the 1886–1879 Law is clear for all to see, as is the disappearance of any form of manufacturing use, incipient as it may have been (with the use of small vessels).
- Now, as before, water must not be deviated from its course to enable communal uses. "The normal regime of use" must be observed.
- Finally, Article 50 contains a reference to the general prohibition on abuse of the right and waste or misuse of the water. Such a reference should not be limited to communal uses; rather it should be thought through at an institutional level for application to any type of use, given that enforcement would be more possible in relation to private uses.

Shortcomings of the Category of Communal Use for the Challenges that the Right to Water Currently Presents

Everything indicated in the second section with reference to the current right consolidates the conclusions at which I had previously arrived. Communal use and its known juridical

regulation are of no effective use within the perspective and functionality of the right to water as we have seen it become established in international law. In no way can it be identified with the right to water in terms of its reach and consequences. At an international level, the right to water refers strictly to personal and domestic uses; all types of industrial or economic references remain outside its consideration. The right to water is about tackling situations of profound human degradation or where human life itself is rendered impossible. Such situations must necessarily be understood primarily within the contexts of Third World countries that are far removed from that of Spain, which in no way means to say that a right to water cannot be applicable in Spain under the terms and conditions to which later reference will be made.

No understanding of the right to water can therefore be gained from the TRLA's regulation of communal uses. Attention should, however, be given to the latest reform of this text, in Law 11/2005 of 25 June, which introduces to Article 111 bis of the TRLA an economic reference that, as will be seen, is imbued with the spirit in which the right to water should be legally understood.

Private Use is Not Included in the Right to Water

Finally, in order to conclude by firming up the possible content of the right to water, it will be said that private uses can in no way form part of it. Just as the traditional content of communal uses can help towards an understanding of that particular right, in the case of private uses Spanish legal tradition has established that they can only be acquired by concrete forms from which is necessarily absent any reference to a subjective 'right' from which could be automatically derived, as if due, the title to a right over water or to the hydraulic public domain in general. The acquisitive prescription (the only assumption that could change, although not decisively, the view that I am stating) having disappeared in the 1985 Water Law, the only way now to acquire rights to the private use of water is by means of a legal disposition or though an administrative concession. The Law makes quite clear that there can be no right until the Law itself includes that specific content. As a result, it can be understood that the clearest assumption on the granting of rights by a legal disposition (the one foreseen by Article 54.2 of the TRLA, which grants to private persons and entities the faculty of using up to 7000 m^3 a year from springs located within their estates or from underground sources) could disappear in a regulatory change without the disappearance being considered as an expropriation for which compensation would be due, unless the well in question satisfies the same demands as the right to water and no alternative or substitute exists.

On the other hand, an administrative concession, drawn up as a contract or as an administrative act that requires acceptance, is the clearest example of the gracious granting by the Administration of a right to which no legally sustainable previous pretension exists. It should be recalled that Article 59 of the TRLA states that the granting of a concession is discretional, although it must fall within the framework of the existing legislation and, in more concrete terms, the hydrological plans. There is, then, no 'right' to water to be established in the case of private uses which are clearly those that lead to economically substantial utilization in irrigation for agriculture, in industry, fish-farming, for leisure purposes, and so on. There is no way that anyone can use the 'right to water' to support a claim against a public authority for the granting of a water concession through which to undertake an economic activity. Both from the perspective that has been reviewed of the

right to water in international law and from the very institutional assumptions on which Spanish law bases the use of the public domain, any attempt to include private uses within these rights is clearly outlandish.

The Right to Water in Spanish Domestic Law: From the Communal Uses of the Water Legislation to the Establishment of a Duty of Service in Legislation at a Local Level

The route by which communal water uses came to be considered as being included in Spanish law on the right to water has been blocked off. There is no way of going down that route without turning the content of the law on its head.

The terms of the analysis that has been undertaken has brought us to a situation pertaining to that of an organized society and with a level of development, such as Spain's, in which citizens are routinely provided with water and which, in most cases, there is an organized system of removal, and even of purification, of residual water that makes it available for other uses or, at the very least, innocuous to eco-systems. That is the perspective of a public service that is regulated and into which, for the purposes of observation, what the role of the right to water would be within it.

Leaving to one side the historical antecedents, what we have today is the 1985 Law of the Bases of a Local Regime (LBRL by its Spanish initials), as well as the specific regulations of the autonomous regions on local issues. In these terms it is recalled that Article 26.1 of the LBRL obliges all municipalities, alone or in association, to provide the 'domiciliary supply of water', Article 25.2.1 having expressed a generic municipal responsibility for 'water supply'. Under that heading, sewage facilities also appear as a municipal responsibility as expressed in Article 25.2.ll) and above all in Article 26. 1(a) of the LBRL (basic obligation). Meanwhile, responsibility for purification is best defined by Royal Decree-Law 1/1995 of 28 December, which sets the standards applicable to the treatment of residual urban water and the many standards set on the matter by the autonomous regions.

At the same time, Article 18.1(g) of the LBRL indicates that residents have a right to "demand to receive the corresponding public service, or to have it established, given that it is a municipal responsibility of an obligatory nature". With all that in mind, we can undertake a legal interpretation of what relates to public service in the above-mentioned legislation.

Obligatory Subjects in the Provision of Public Services under Consideration

Domiciliary supply and sewage are tasks that municipalities are duty-bound to accomplish: they are basic municipal obligations (Article 26.1 of the LBRL). Only in exceptional cases can exceptions to this duty of service and only when granted by an Autonomous Community (as regional autonomous governments are known in Spain) to small municipalities (Article 26.2 LBRL).

In the fields of both supply and sanitation and, above all, from the perspective of the purification of residual urban waters, there can be assumptions of responsibility for service provision that go beyond municipal level to that of the Autonomous Community.

Development of these public services can be achieved through the different forms of provision that the laws regulate and in either a direct or an indirect manner. If so, the

contract of public services can be used, in which case the figure of concessionaire appears. The concessionaire's duties, both in supply and sanitation, will depend on the list of administrative clauses (in fact, on the content of the contract of which the list forms part) that will have been drawn up by the public authority that issued the contract (Sosa-Wagner, 2002). Therefore, it makes no sense to individualize in legal terms the figure of the concessionaire for the effects of service provision because the concessionaire's duties are predetermined by the authority that issues the contract and is in any case bound by the duties it owes to the holders of the right.

Residents' Right to Public Service

The residents are the active subjects of the right. Article 18.1(g) of the LBRL refers to the right to provision and, if necessary, the establishment, of public services for which the municipality is obligatorily responsible. The concept of who constitutes a resident is very broad-based since it includes all those on the municipal roll with which all those who normally live in the municipality have to register (Article 15 LBRL). Therefore, it excludes all reference to nationality and, of course to sex, age or any other condition that could serve as an element of discrimination. A resident can take action, including bringing the issue to the court that hears administrative disputes, in order to have access to, or have established, the services to which we refer.

The Content of Service Provision. Suspension of Provision for Non-Payment

In the absence of state legislation and, almost all legislation by Autonomous Communities, the municipal ordinances will determine what the services of urban supply and sanitation consist of. In the case of services to which concessions have been granted, this determination (or its form) will also be found in the list of administrative clauses that have served to grant them.

It seems excessive at this stage to refer to the content, the object, of these services that form a perspective of the right to water. It should simply be said that the principle of the continuity of public services is the most relevant of the legal regime. At the same time, the clause on improvement that is implicit in all public services and can be used, among other things, to proceed to the modification of the contract (the modification of the service itself), is at the same level as a key element in the regulation of public services.

This local regulatory framework will make appropriate mention of the consequences for the user of non-payment of the established price. To those who might argue that a service that relates to a human right should never be suspended, I would say that I do not share that view. On the contrary, it appears to me to be a basic issue of the legal regime of public services that is absolutely necessary to its coherence; it is also necessary to the avoidance in principle of any attempt at fraud in the payment of charges that would endanger the maintenance of the service itself. A different question is that the tariffs can be structured (progressively as consumption increases) to favour those on lower incomes who presumably consume less, even though this is not always the case. Yet another question is that those who, for whatever reason, are unable to pay for the services could receive economic aid in the form of social assistance so that they can meet their obligations. Any such aid would fall outside the framework of the operation of the service and the question of non-payment. Rather it would be a straightforward manifestation, in this particular case,

of the human right to water (or perhaps the right to health or to adequate standards of quality of life). Such assistance would come under the heading of Articles 1 and 9 of the Spanish Constitution which stipulate that a society based on the principles of collective solidarity on which the social and democratic rule of law is founded cannot tolerate the withdrawal of a service that is vital to a life worthy of the name.

The Price of the Service. Difficulties in the Determination of an Affordable Price

Law 11/2005 has introduced a modification of the TRLA's previous modification of its text by Article 129 of Law 62/2003, of 30 December to include the so-called Water Framework Directive. The change consists in adding a third paragraph to the second section of Article 111 bis, stating the new principle in the following terms:

> To this end, the administration with responsibility for water supply shall establish a tariff structure incorporating bands in accordance with consumption levels, with the aim of *meeting basic needs at an affordable price* and discouraging excessive consumption.

The original regulation introduced the principle of the recovery of costs for water services to our legislation in a very simple fashion. Now, soon after, comes this latest modification which puts a material limit on the principle of cost recovery, at least when considered at an individual level and not that of the service as a whole. Note that it speaks about "basic needs", an expression clearly linked to the content of the right to water as we have seen in the course of our thoughts on international law. In addition, these basic needs, by contrast with other needs, have to be met at an "affordable price".

Basic needs and an affordable price are, though it seems obvious to say so, indeterminate legal concepts. There appears to be no difficulty in specifying basic needs in terms of the content of the right to water that have been examined previously in this paper. Moreover, that content will have frequently been specified in the municipal ordinances that are applicable, as indicated in the second point of this section. Meanwhile, 'affordable price' is a concept based on European Community law for economic services of general interest or, as they finally have been described, for obligations relating to 'universal service' and which now appear to be incorporated in the TRLA thanks to Law 11/2005.

In water supply, the 'affordable price' ought to be based on economic studies of which consideration of the structure of income and spending of the society to which they apply is a key element of the decision to be adopted.

The Constitutionality of the Introduction of a Price for Water

Finally, this section discusses the constitutional possibility of the introduction of a price for water. First, this is because of the usefulness of mere speculation on whether a natural resource can have a price. Second, the traditional claim that communal uses should be 'free of charge' would be clearly undermined by a charge for water for such purposes. In these terms, the question of the constitutional admissibility of putting a price on water may come as a surprise, but it has to be done, simply to discover whether the Spanish legal tradition of regarding water as free is a constitutional requirement as well as an undoubted historical reality.

The introduction of a price for water use does not run contrary to the Spanish Constitution. There is not one constitutional precept on which a position contrary to the fixing of a price could be based. Not one Article could be interpreted as consecrating citizens' rights to receive the resource free of charge. Not one legal-constitutional rock exists to which could be anchored the traditional argument that, because water is essential to life, etc. it would be impossible to put a price on it, hence it would necessarily have to be free. Not one basis exists within the Spanish Constitution that could justify the perpetuation of this dogma. What does exist in the Spanish Constitution on the legal regime of the public domain is, in fact, a broad remission to the Water Law (ref. Article 132.1 Span. Const.), an instrument which, as a result, has an almost unlimited capacity to configure the legal regime of the public domain with the sole limitations of respect for the principles that dictate that it may not be alienated, prescribed or embargoed, as well as the Law's necessary regulation of any modifications (Article 132.1 Span. Const.). Nothing in the Constitution is contrary to a price being fixed for the use of onshore waters.

Quite a different question is whether the Constitution contains arguments that would permit a reduction or even a total waiver of the price of water—now including the price of the service that the authorities provide in supplying it—in favour of certain social categories or in several circumstances (for certain uses, in certain places, etc). This type of reasoning could be based on the Constitution's general mandate (Article 9.2) to the public authorities to strive for 'real equality' among individuals. This suggests a wide range of possibilities for giving aid to disadvantaged groups, among them provision of the service free of charge or the reduction of tariffs. The principle of equality before the law, a fundamental right present in Article 14 of the Constitution, would thus be translated into material equality by the various measures that could be derived from Article 9.2. The same measures could also be substantiated on other guiding principles of social and economic policy (for example, the right to healthcare, Article 43 of the Constitution, or to quality of life, Article 45.2). In this case, the 'right to water' could be of significance, in terms of free provision or provision at a reduced price, in an urban context in a way that ought to be reflected in municipal ordinances. This is the context in which the 'affordable price' of Article 111 bis of the TRLA has to be understood.

Article 138.1 of the Constitution can be recalled and its mandate to achieve an "adequate and just economic balance among the various parts of Spanish territory". This could have a specific impact in various areas, among them the establishment of water prices that are variable and justifiably so.

Conclusion

The following propositions are a conclusion of what has gone before.

First, the right to water, established as has been indicated, in fragile form by international law (on the basis of a legal interpretation of a text that never expressly proclaims it), cannot be replaced at a domestic level by the regulation of communal uses of the hydraulic public domain. The right to water forms the basis of the aspirations with which individuals confront public authorities within a relatively restricted ambit that is confined to the supply of water of reasonable quality and its subsequent removal, but communal uses do not come within the ambit covered by the right to water.

Second, it is difficult to separate the right to water from efforts to combat poverty. The effective achievement of the right to water would imply that certain of the conditions

of poverty have been overcome. Or, to put it another way, the overcoming of certain conditions of poverty would necessarily include achievement of the right to water. Therefore, it is understandable that the right to water, as established on a certain legal interpretation in the field of international law, should be such an effective demand, above all in Third World countries, especially in certain of their territorial zones. That does not mean that the right to water could have no effect in a domestic Spanish context, but its impact would be limited.

Third, as far as Spain is concerned, the right to water will operate within the framework of the provision of certain public services, and its effective realization has to be understood as one of the subjective rights that pertain to the establishment and provision of public services (for example, those of residents within the framework of the LBRL). These rights do not fall within the category of fundamental rights.

Fourth, in Spain, the right to water can contribute no more than the provision of water of sufficient quality for basic personal and domestic use, and hence not in limitless quantity, while the same limitation also applies to sanitation (sewage). There is no right whatsoever to water supply for economic activities of any nature, since that would imply private utilization of the public domain, which, according to the terms of the TRLA, can only be achieved by legal disposition or concession. Prior subjective rights that link to the content of the Water Law, or that determine the inexorable or obligatory granting of a concession, simply do not exist in our legal system.

Finally, and though it would not be an indispensable demand, it seems reasonable to ask that a substantially reformed Water Law should include some form of appeal to the principles of the right to water that goes beyond the current reference to an 'affordable price' in urban supply which, of course is the take-off point. That would help towards a necessary conceptual clarification that would undermine the high demagogic positions that are incompatible with an adequate juridical study of an issue that is more than sensitive.

Notes

1. The aim of halving the number of those who have no access to water supplies comes from the Millennium Development Goals agreed by the 191 UN member states at a plenary session of the 2000 Millennium Summit. The 2002 Johannesburg Summit on Sustainable Development added the goal of halving the number of people with no access to sanitation. General information from the UN (2005).
2. For example, there were many bitter and angry debates at the Fourth World Water Forum (Mexico City, 16–22 March 2006) under the slogan "Local actions for a global challenge". The final document of the ministerial summit, rather than a proclamation of the right to water, contains only certain indirect formulations. Curiously, many of the participants in these debates identified the right to water as a ban on privatization which, as we will have occasion to prove, is a concept totally absent from the juridical interpretation of the right to water made by a United Nations committee.
3. According to various media reports, Jacques Diouf, the Seneghalese FAO Secretary General, declared at the opening in Porto Alegre of the Second International Conference on Agrarian Reform and Rural Development that it would take 146 years to meet the goals of halving poverty that the UN set for 2015.
4. Thus see Article 14. 2(h) of the Convention on the Elimination of All Forms of Discrimination against Women, of 18 December 1979, which speaks of women's rights "to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and *water supply*, transport and communications". Equally Article 24.2(c) of the Convention on the Rights of the Child of 20 December 1989 refers to the obligation of signatory states to "To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and *clean drinking-water*, taking into consideration the dangers and risks of environmental pollution".

5. See Salman & McInerney-Lankford (2004) and its very interesting doctrinal references, as a whole.
6. The link between the right to information and the Aarhus Convention is obvious.
7. The Law, as its first section, express states, can also be referred to as 'Senator Paul Simon Water for the Poor Act of 2005', in honour of the former Democratic senator for Illinois who was an early proponent of the need for a universal right of access to potable water.
8. In fact, the Law represents a modification of the 1961 Foreign Assistance Act and others (The Agricultural Trade Development and Assistance Act of 1954) which introduced specific aims with regard to the provision of potable water and sanitation that had to lead to specific measures taken primordially by the Secretary of State but also by other departments and federal agencies. Within 180 days of it entering into force, the Secretary of State was to present a report on how its legal provisions were to be enforced. Every year until 2015, the Secretary of State has to present reports on the process of implementation of the law.
9. In this sense, according to information that can easily be checked from any available media reports on the Fourth Forum, the most representative stance was that of the Bolivian Water Minister. The Bolivian stance was supported by nations such as Cuba and Venezuela.
10. In this context it is worth highlighting Uruguay's constitutional reform as a result of a referendum held on 31 October 2004. Paragraph three of Article 47 mentions that the public service of sanitation of water for human consumption must be provided "exclusively and directly by state juridical persons". This mention has much to do with a privatization process in the country, opposition to which by the trade union movement led to the referendum in question. Given the difficulties in interpreting the measure, the new government of Mr Tabaré Vázquez dictated a resolution on 20 May 2005 that ordered that private companies should continue to provide services until their respective contracts expired.
11. See Mayer (1969). This author states that, at the time of writing, nothing had changed in relation to communal use with regard to the old concepts (those of the police-state). The right to communal use of property in the public domain belongs to everyone (*jedermann*) and the 'new' juridical framework (that of the constitutional, legal state) is of relevance only in the configuration of this position with that of a 'freedom', not by subjecting it to more limitations than those contemplated by law. Reference on all the foregoing, above all what is said on p. 77 and subsequent pages of volume 2.
12. This is what I believe Mayer (1969) means when, in reference to the rule of law, he states that: "Es gibt jetzt einen gewissen Kreis solcher Lebensäusserungen, der als *natürlich* und selbstverständlich angesehen wird der Art, dass auch die öffentliche Gewalt ihn zu achten hat und ihn eingreifen darf nur in der Kraft des Gesetzes". op. cit., pp. 76–77 (my emphasis).

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Water as a Human Right: The Palestinian Occupied Territories as an Example

ABDALLAH ABU-EID

Introduction

Water as a human right is a comparatively new topic, and is still somewhat controversial as a legal right. Despite the enormous importance and impact of water on the lives of human beings and animals, the international community still has not explicitly recognized the right to water as right *per se*.

Despite this fact, water is interrelated legally to several other rights, especially those rights recognized recently by the international community as legally binding human rights. They include the rights to life, a clean environment, health and development, as set out in basic human rights conventions.

Water is critical to life and societies so many experts have been asking why water has not been incorporated in various instruments of human rights, particularly those called the 'Bill of Rights'. Many experts consider that the right to water is implicitly included in many such instruments (Gleick, 1999).

Because it is known that an increasing number of people throughout the world die everyday from avoidable water-related diseases, mostly in developing countries, it is right to ask the question: "Why is water still not considered as a human right *per se*?" (Scanlon *et al.*, 2004).

The international community recently recognized this loophole in the system of international human rights law and there were several attempts to rectify this situation through a series of conferences under the aegis of the United Nations Organization and through other avenues.

The UN considered the year 2003 as the 'International Year of Fresh Water' with a declared aim to assert the UN's Millennium Declaration Goal: "to halve, by the year

2015 … the proportion of people who are unable to reach, or to afford, safe drinking water and to stop the unsustainable exploitation of water resources" (Millennium Declaration, 2000).

The World Summit on Sustainable Development, held in Johannesburg in 2002, also set a similar target aiming at halving the proportion of people who do not have access to basic sanitation by 2015. It recognized the key role of water in agriculture, energy, health, biodiversity and ecosystems as well as in combating poverty. All this indicates that the availability of clean, fresh water has become one of the most prominent issues facing humanity today. It is expected that this issue will be even more important for mankind in the future, as a growing demand for all types of water is increasing and some water sources are exposed to more pollution (UN Doc. DPI/2293A, 2002).

The joint international efforts in improving the quality and quantity of water, guaranteeing the essential need of water for poor societies and ensuring better water management, will be very critical and decisive in meeting the needs of the increasing demand for water, especially in the areas where water is scarce.

Adequate water resources are vital for the majority of societies. In the Palestinian Occupied Territories (POT), there are two obstacles to water resources: one natural and the other man-made.

It should be noted that the PNA is theoretically responsible for water through the Palestinian Water Authority (PWA). The PWA is in charge of distributing the limited shares of water allowed to the Palestinian population and allocated by the Taba II Agreement of 1995. However, this Authority has no real power with respect to many aspects of management of water. The control of most aspects of water and general policies on the drawing of water are still in the hands of the Israeli authorities, leaving the PWA without any real powers in this sphere.

This paper deals with three issues in three sections: the binding rules of international law; water as a human right in international law; and the legal status of the right to water in the Palestinian Occupied Territories.

The Binding Rules of International Law

Before examining the legal status of water in rules of international law, it is important to clarify the sources of international law in both its branches: public international law (in time of peace) and international humanitarian law (in time of war and occupation). These sources are usually the main binding rules of international law.

Sources of International Law

It should be mentioned that international law has three main sources: international conventions, international customs and the general principles of law recognized by civilized nations, as set out by Article (38) of the Statute of the International Court of Justice (ICJ).

The same Article referred also to 'Subsidiary' sources: judicial decisions and the teachings of the most highly qualified publicists of various nations. However, in general, the two main sources of international law are conventions and customs (Shaw, 1995). These are almost the same sources of human rights in both branches in international law.

Conventions are binding to states that, not only signed them, but also ratified them, or acceded to them, according to their internal legal system. This principle is explicitly stated by Articles (13, 14 and 15) of the Vienna Convention on the Law of Treaties of 1969.

Customary rules of international law were historically the major source of that law, but they retreated to the second place, after treaties, during the last few decades, due to the great increase in the number of states and the need for new and dynamic rules in modern international relations. Notwithstanding, customary rules are still considered the second source of international law. It should be added that many rules enshrined in new treaties and conventions include a large number of customary rules codified in these conventions.

The Nature of Law

Law is a device for social control to stop people doing things they might be likely to do if left to personal inclination alone. However, there is sometimes confusion between rules of law, which are legally binding and other principles of morality and mere force, which are not binding legally (Salmond, 1957).

One of the striking characteristics of a rule of law, distinguishing it from a rule or principle of morality or religion, is that the first is a common absolute rule which has a penalty imposed by the ruling authority in the state, even sometimes by coercion. The latter lack this important element (Murphy & Coleman, 1984).

Three centuries ago, there were no laws enacted by a legislative authority. Laws were imposed by the ruling king or emperor. Hence there appeared some theories trying to define and set out the requisites of law. One of the most prominent theories was the 'Theory of Natural Law'. This theory tried to push forward the 'morality factor' in each rule of law. St. Augustine, one of the authors of this theory, declared in his famous slogan: "an unjust law is no law at all" (Akehurst, 1980, p. 20).

Therefore, it can be said that the proponents of the Theory of Natural Law considered that "moral validity is a logically necessary condition for legal validity. Satisfying certain demands of morality is part of the very definition of law" (Murphy & Coleman, 1984, p. 14).

It should be noted that even at present there are some modern laws that still refer to Natural Law as a last source of law in civil and commercial codes. Some others substitute it with the term 'principles of justice and equity', such as Article 2 of the Jordanian Civil Code of 2000 and Article 3 of the Jordanian Companies' Code of 2003.

The Nature of International Law

The nature of treaties and customs is the same because both of them reflect the free will and consent of states party to them. Notwithstanding, the majority of jurists and experts consider 'international customs' as legally binding to all member states of the international community, even for those states newly established which did not exist when that particular international custom was established (Brownlie, 1987).

The nature of international law and municipal law are almost the same, although different subjects are addressed by their rules. The subjects of international law are mainly independent states, as it governs and regulates relations between these states. Therefore the rules of international law differ from those of municipal law in the sphere of enforcement. It is much more difficult and complicated to enforce the rules of international

law against sovereign states, while local law enforcement against individual persons and corporate bodies is notably easier.

With regard to the relationship between the two sets of law, it could be said that there is a close link between them. There are two systems of laws, vis-à-vis the impact of international law on municipal law:

- *The Latine system of private law:* This system gives priority to rules of international law, to which the state is legally bound. Therefore, in the case of conflict between the two sets of rules the international law rule supersedes.
- *The Anglo-Saxon common law system:* This refuses to apply rules of international law, although legally binding to the state, in the municipal law unless such a rule is incorporated into the municipal law of that state (Lillich & Hannum, 1995).

Soft Law

During recent decades there were numerous international conferences, governmental and non-governmental, declarations, guidelines and resolutions of the General Assembly of the UN and other international organizations. Some authors and experts, particularly in the realm of human rights, consider that many of these instruments constitute what could be called 'soft law'.

The majority of states, jurists and the rulings of ICJ do not consider these instruments as legally binding rules of international law, even though they were issued by governmental bodies. They do not consider them to be part of the main sources of international law.

However, an increasing number of jurists consider 'soft law' as a prelude to becoming customary law, especially when adopted unanimously by states and accompanied by recurrent state practice of that rule by a majority of states. In this case, they argue, such a rule develops into customary law, and that these instruments facilitate the existence of *opinio juris,* which is a major factor in customary law. Such rules may even become part of conventional legally binding law if they are adopted by states in a convention or a treaty.

This practice became usual during the past three or four decades, especially in the sphere of rules relating to human rights in public international law (Lillich & Hannum, 1995, p. 93).

Water as a Human Right in International Law

Some jurists consider that water is 'a human right' in international law instruments. This section will examine this in the light of what was mentioned above concerning branches of international law and binding instruments of that law.

Therefore, the paper will examine the status of water first in public international law and second, in international humanitarian law.

The Status of Water in Public International Law

In public international law instruments, several rights were considered as legally binding human rights. In these rights, such as the right to life, the right to development and the right to a standard of living, it may be said that water is indirectly implied as a part of each one of them, but it was not considered implicitly as a human right *per se*. It seems curious why

the international community, while codifying numerous human rights explicitly in legally binding instruments, neglected to do the same to water.

However, some legal experts consider water as a human right because they think that it is enough to be implicitly mentioned in these conventions in order to become a legally binding human right (Scanlon *et al.*, 2004). This is erroneous because a legally binding human right needs to be clearly and explicitly stipulated as a human right in order to be considered as such a right *per se*.

It cannot be *a priori* considered as a human right because human rights are definitely and precisely mentioned in a human rights instrument of international law. There cannot be analogy in such serious legally binding rules.

The importance of a right to water in international law. In order for 'a right to water' to be considered legally binding it should be a part of a legally binding instrument (e.g. an international or regional convention or a municipal law). The current study concentrates on the right to water in international law, therefore, it will examine the status of water in international conventions, and other instruments of international law and relations, to decide whether a right to water *per se* exists or not, and the importance of including such a right independently and separately in an international legally binding instrument.

It could be said that water may be considered as a human right, according to those authors, experts and proponents of 'Natural Law' mentioned earlier. In the past, when laws were rare and there were no rules of international human rights law, some authors considered that rights that were necessary for morality and justice and a humanitarian existence could be considered as 'natural rights'.

Therefore, as water is essential for life and the existence of humankind, it could, in this sense and logic, be categorized as 'a human right', just as the right to life and the right to liberty were considered in the past before being codified in binding instruments of international law.

International legal instruments and the right to water. The specific mention of water, as a human right, has been rarely made in international conventions. Other rights, in which water is an essential component, are mentioned in several international legal instruments.

Some of these instruments are non-binding for states and/or governments party to them. As this study is dealing with binding rules in international law of human rights, it will only consider binding conventions, treaties and some other declarations, resolutions and standards.

The International Covenant on Civil and Political Rights (ICCPR) is one of the most prominent conventions of human rights. The following rights, in which water is an essential component, were included in the Covenant:

- *Right to life:* Some experts consider that since water is indispensable to life, therefore, the right to water is implied whenever the right is mentioned (Scanlon *et al.*, 2004). This interpretation could be correct politically and socially but not legally. Legal theories distinguish between the right and its components (Salmond, 1957).

  Therefore, the right to water, however essential to human life, cannot be considered an explicit human right binding to all states, members of the ICCPR and their authorities unless it is specifically stipulated as a human right *per se*.

However, it may be considered that the right to water is a natural right developed into a legal right ensuing from a customary rule. This can be attributed to the fact that all modern states, authorities and communities, respect the right to water and consider that every member of their community shall at least have access to clean drinking water. In this case it could be said that the two elements of customary law exist: recurrent continuous practice of states and their belief that such behaviour is a legal obligation *(opinio juris)*.

- *Right to development:* This right has its own merits that are totally different from the right to life. It is a new right that is not so essentially critical to human life. Moreover, it cannot be practiced individually as it is a collective right. Unlike the right to life, it is not stipulated in an international binding instrument. Furthermore, it cannot be considered a natural right and, consequently, cannot be conceived as a customary rule.

  Notwithstanding all these differences, the right to development, particularly with regard to agriculture and industrial activities, cannot be implemented without water. However, water as a component of this right, cannot be considered as a human right *per se*, because the right to development is a new right not codified in a convention.

- *Right to health and right to a standard of living:* These two rights are interrelated. They are set out in a leading legal instrument of international law of human rights, the ICESCR.

  In 2002 the UN Committee on Economic, Social and Cultural Rights adopted the General comment No. 15, which stated that "the human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights".

  The right to water is implied in Articles 11 and 12 of the ICESCR, while it is mentioned directly by the General Comment 15. Some experts consider the General Comment as "an interpretive body which considered the 'right to water' as a prerequisite to the realization of other human rights" (Scanlon *et al.*, 2004, p. 1).

  Nevertheless, General Comment 15 is issued by a committee of an organ of the United Nations, so its legal value cannot be more than that of Resolutions of the General Assembly or the ICESCR itself. Therefore, such a comment could only be part of a 'soft law', which is not legally binding unless it develops into a source of international law: a custom or a convention (Lillich & Hannum, 1995).

The Direct Reference to Water in International Human Rights Instruments

The direct reference to water *per se* is mentioned in two sets of human rights conventions of public international law and some conventions of international humanitarian law.

Conventions of public international law. There is a direct reference to water in the Convention of Elimination of All Forms of Discrimination Against Women (CEDAW) of 1979 and the Convention of the Rights of the Child (CRC) of 1989. Even in these two conventions the right to water was not absolute and did not form the main crux of the convention's text.

In CEDAW, Article 14(h) mentioned that there should be equality between women and men in "… sanitation, electricity and 'water supply'". Its purpose was not to establish

a 'human right to water' but to 'prohibit discrimination in water supply' vis-à-vis women. Therefore, from a legal viewpoint, it is not correct to consider that such a direct mention of water can be construed to mean a right to water, but, it is a step forward in the direction of codifying water as a human right.

With regard to the Convention of the Child, Article 24-2(c) explicitly mentioned 'clean drinking water' while stressing some states' obligations towards children in combating contagious diseases and malnutrition among children. It should be noted that this stipulation was aimed at protecting children, especially in poor countries, from diseases caused by lack of clean drinking water.

However, it is an excellent, but insufficient, attempt to list the right to water among other rights that have been introduced to several international human rights conventions, on an equal footing with the rights to a clean environment, sanitation and a standard of health.

The Status of Water in Other International Instruments of Human Rights

The reference to water, as a human right or as an essential element of life has been stipulated in several documents on the environment. Most of these instruments are legally non-binding. The most important of them are as follows:

The Stockholm Declaration. This declaration includes principles of the protection of environment. Its Principle (2) recognizes the fundamental right to "an environment of quality that permits a life of dignity and well being", and that "natural resources of the earth including ... Water ... must be safeguarded for the benefit of present and future generations".

Such a declaration cannot be considered legally binding unless it constitutes an international customary law. In addition, water is mentioned here as a natural resource, which should be safeguarded, but is not recognized as 'a human right' *per se*. However, it could be considered as a 'soft law' and a prelude to becoming customary law.

Mar del Plata Action Plan. The Action Plan of the UN Water Conference held in Mar del Plata in 1977, declared that: "all people have the right to drinking water in quantities and of quality equal to their basic needs". It also recommended an International Drinking Water Supply and Sanitation Decade for the 1980s (Preamble of the UN Water Conference, Mar del Plata, 1977).

This Action Plan states that 'drinking water' is a human right for all people in quantities and quality equal to their basic needs. However, several questions come to mind. Does this declaration constitute a legally binding obligation and could it be considered as a source of international law?

The answer is that it is a general declaration and does not rise to a binding convention. It could be considered 'soft law' on its way to becoming customary law, binding to all states, if the conditions of international customary law were met. However, its wording reveals that it is one of the best international instruments on water.

The other point is that if it is binding it creates a legal obligation of states bound by it only for 'drinking water'. It is an excellent step towards the full recognition of water as a human right, particularly because it stated the right to drinking water and was accompanied by conditions relating to water quantity and quality and basic needs of people.

Agenda 21. This declaration on 'sustainable development' explicitly stated that the "right to water entails the three elements: access, quality and quantity", including that "... the general objective is to ... make certain that adequate supplies of water of good quality are maintained for the entire population of this planet". It further added that: "it is also meant to provide all peoples, whatever their stage of development and their social and economic conditions, have the right to have access to drinking water in quantities and of a quality equal to their basic needs".

This declaration can be considered as the most important international instrument which explicitly stressed the right to water. It further noted that "Water is to be viewed as a natural resource and a social and economic good, whose quantity and quality determine the nature of its utilization".

Even though Agenda 21 is not legally binding, this declaration can be considered 'soft law' in the same way as the previous instrument, which may become a binding source of international law in the future. Added to several other international declarations, statements and resolutions, it may constitute a basis for the 'right to water' by becoming customary law or by being codified in an international treaty or convention.

Other regional instruments. In addition, there are other regional legal instruments that recognize the right to water explicitly or implicitly. Most important of these are the following:

- The African Charter on Human and People's Rights, and the African Charter on the Right and Welfare of the Child.
- European Commission of the United Nations for Europe (ECE) Protocol on Water and Health to the 1992 Convention on the Use of Transboundary Watercourses and international lakes.

The ECE Protocol mentioned the three aspects of human right to water. These regional legal instruments are binding to their member states and constitute good basis for the development of the right to water.

Water as a Human Right in International Humanitarian Law

International Humanitarian Law (IHL) regulates groups of rules of both a customary and conventional nature. These rules are applied to all international armed conflicts, including cases of belligerent occupation. They include two sets of laws:

- The Hague Conventions of 1907 including the regulations annexed to the Fourth Convention. These are 13 conventions codifying all previous customary rules.
- The Four Geneva Conventions of 1949 and the two Additional Protocols of 1977. The most relevant to this study are the Third and Fourth Conventions and the First International Protocol of 1977.

At present almost all states of the international community are parties to these conventions. Therefore, these conventions are considered among the most respectable and prestigious conventions of human rights (Schindler & Toman, 1973).

All these conventions, including the two Additional Protocols of 1977, are considered conventional law which has a law-making nature as they usually set out rules of a peremptory nature in which no state can act in its international relations contrary to their

rules. They are considered *jus cogens* which the Vienna Convention on the Laws of Treaties of 1969 considers any agreement contrary to them null and void (in its Article 53).

Some rules of these conventions referred to one or two types of water: drinking and washing water. This is because of the humanitarian nature of these conventions, since they were meant to alleviate the suffering of soldiers and other belligerents participating in the armed conflict and the civilian population under occupation. Drinking water is the main type of water they mention. However, some of these conventions mention other types of water, especially those used for bathing or for hygiene and health.

Water in the Three Instruments of IHL. Types of water referred to in the Third and Fourth Geneva Conventions and The First International Protocol are as follows:

The Third Geneva Convention Relative to the Treatment of War Prisoners of 1949. Several Articles refer to the following types of water that should be supplied to prisoners of war (POWs) by the Detaining Power:

- Drinking Water: Articles 26 and 46 of the convention stated that "Sufficient drinking water shall be supplied to prisoners of war".
- Portable Water: Article 20 states that the Detaining Power "shall supply prisoners of war, who are being evacuated, with sufficient food and portable water, and with necessary clothing and medical attention".
- Bathing Water and Water for Toilet and Laundry: Article 29 of this Convention notes three types of water for POWs. These are "bathing water, sufficient water and soap for their personal toilet and for washing their personal laundry".

The Fourth Geneva Convention Relative to the Protection of Civilian Persons in Time of War of 1949. This convention stipulates that the Detaining Power of the Protected Persons:

> shall take all necessary and possible measures to ensure that protected persons shall ... be accommodated in buildings or quarters which afford every possible safeguard as regards hygiene and health ... They shall be provided with sufficient water and soap for their daily personal toilet and for washing their washing laundry.

In addition, two other Articles concentrated on providing the internees with drinking water and sufficient and good food to maintain their good health (Article 85 of the 4th Convention).

The Additional Protocol (1) to The Four Geneva Conventions. This protocol prohibits the warring parties to "attack, destroy, remove or render useless objects indispensable to the survival of the civilian population; such as foodstuffs ... and drinking water installations and supplies and irrigation works... " It should be noted that this protocol added a new protection to "the installations of drinking water" in order to ensure economic and health protection of the civilian population living under occupation. This is a clear progressive step in its wording "it is prohibited ..." and in protecting the installations of the drinking water in order to guarantee the lives of these civilian populations and prevent their starvation or their forced movement out of their homes (Article 54 of the Protocol).

The Legal Status of Water in the Rules of IHL

All the rules of the four Geneva Conventions are legally binding to all states party to these conventions, which include almost all the member states. At present, 194 states are party to these conventions. This number exceeds the total number of the member states of the UNO (http://www.irc.org/web/eng) of the international community. This means that in times of war, drinking water, bathing water and sanitation water are considered protected human rights.

With regard to the First International Protocol of 1977, it is considered legally binding only to those states that are party to it. Israel is still not party to this protocol but it is party to the four Geneva Conventions of 1949.

For the Hague Regulations of 1907, these regulations are considered to be a compilation and codification of previous rules of customary law. Therefore, because they are considered the international customary rules, they were considered by majority of jurists as binding to all member states of the international community, even to those states which never signed them, or did not exist when they were collected and codified in 1907 (Starke, 1972).

It should be noted that according to the clear wording of the relevant Articles in these instruments of IHL, only the above-mentioned three types of water (drinking water, potable water and water for hygiene and washing) are considered human rights and only for prisoners of war and/or protected persons.

Therefore, it is erroneous to believe that all types of water for all usages are considered as a human right under occupation or during armed conflicts. This means that the Occupying Power cannot expropriate or requisite water and deprive the whole population of the occupied territory of their water needs or of their natural resources. However, this is a different legal matter that will be later dealt with in the next section.

The Legal Status of the Right to Water in the Palestinian Occupied Territories

It is unrealistic and impossible to discuss the legal status of the right to water in an occupied territory without examining the legal status of the occupied territory itself, especially if that ‘status’ is being disputed and is controversial. Therefore, the legal status of the Palestinian Occupied Territories (POT) and the type of rules that should be applicable to them will be mentioned briefly.

Legal Status of the POT

The vast majority of states, the UN General Assembly and the Security Council have noted that the POT are occupied territories and that the Hague Regulations of 1907 and the Fourth Geneva Convention of 1949 should be applied *de jure* (Mallison & Mallison, 1986). On 9 July 2004, The International Court of Justice, in its advisory legal opinion, issued the Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory which confirmed this opinion and refuted Israel’s contention that the Fourth Geneva Convention of 1949 is non-applicable *de jure* on the POT. The court confirmed that Israel is an Occupying Power according to the conditions set out in Article 2 of the Convention, and it is bound to apply the Fourth Geneva Convention *de jure* and the Hague Regulations of 1907. The Court further noted that this was also the legal opinion of the ICRC in a declaration issued by the ICRC on 5 December 2001 (International Court of Justice Advisory Opinion on the Israeli Wall, 2004).

Laws of Belligerent Occupation

The international community set out two sets of legal rules that should be applicable to the occupied territory. These rules are laws of belligerent occupation. They give the occupant some administrative rights, particularly with regard to protecting its troops but, at the same time, they impose several restrictions of its powers for the interest and well-being of the civilian population and the interned soldiers of the enemy who become prisoners of war (POWs). The occupant is considered an "administrator and usufructuary in this territory", according to Article 55 of the regulations.

Two categories of international rules are applicable to the occupied territory:

- The Hague Regulations of 1907: These are the regulations annexed to the Fourth Hague Convention of 1907 officially called 'Regulations Respecting the Laws and Customs of War on Land'.
- The Fourth Geneva Convention of 1949 and the First Additional Protocol of the Four Geneva Conventions: The Fourth Geneva Convention Relative to the Protection of Civilian Persons in Time of War is considered by many jurists as a purely humanitarian convention which has its main goal as protecting the civilian population (called "protected persons" in the document) and prohibiting the Occupying Power from treating them badly, encroaching upon their property or endangering their lives (Abi-Saab, 1984).

All these legal instruments were intended to govern the short belligerent occupation. Therefore, many international jurists criticized the existing rules governing belligerent occupation, considering them outdated and insufficient, especially in prolonged occupation (Falk, 1989).

Economic Activities and Natural Resources under Belligerent Occupation

The Fourth Geneva Convention was mostly dedicated to the protection of persons. It paid limited attention to protecting private and public property, the economy or natural resources. The First Additional Protocol added some Articles including additional protection to natural resources, particularly regarding land. Article (85) of the Protocol considered settlement in the occupied territory a "crime of war".

The Hague Regulations paid attention to the protection of the property of the civilian population, especially private property, although it had limited ambiguous Articles in this regard. These limited Articles are not enough to protect all types of property and economic activities, including natural resources, particularly given the ambiguous language used in the Articles. These regulations became outdated and were insufficient to cover modern economic and financial activities (Falk, 1989).

Water Rights in the Laws of War

The mention of water in the two sources of rules under belligerent occupation was strictly limited to a few Articles and to certain types of water, such as drinking water, as noted earlier.

Water is scarce in the POT and in Israel. Its nature makes it part of the land. The Israeli occupational authority has controlled all economic and financial activities since the

beginning of the occupation. They issued military orders, amending or abrogating the existing Jordanian, Ottoman and British Mandate laws in order to use these 'orders' as a vehicle to assert control over these activities and to further their interests. Despite the absence of clear rules of IHL protecting modern economic and financial activities or natural resources, and that these rules were issued approximately 100 years ago and are considered obsolete, the existing rules could be interpreted in a dynamic evolutionary way to fill the loopholes and rectify the shortcomings (Cassese, 1992).

"The powers and duties of the occupant in the field of economic activities are fairly simple" (Cassese, 1992, p. 420). The occupant must respect private property. He assures that "private property may not be confiscated, but all kinds of privately owned war materials may be seized, but must be restored at the conclusion of peace and indemnities must be paid for them" (Cassese, 1992, pp. 420–421). However, private property may only be requisitioned for the needs of the army of occupation upon payment in cash or in the provision of a receipt, with payment as soon as possible (Article 52 of the Hague Regulations). Private property in these Regulations should be respected (Article 46). They maybe expropriated in the public interest of the whole inhabitants of the occupied territory (Cassese, 1992).

However, these rules were set out to apply in a short-term occupation, unlike the Israeli prolonged occupation. They alone cannot continue to govern all political and socio-economic relations in the occupied territory. Moreover, the international community created new principles and rules in contemporary international law to protect private property and many types of human rights, including water rights. Public international law rules protect the right of each nation to self-determination as well as their rights on natural resources (UN General Assembly Resolution 2625, 1970).

These rights are considered by many prominent jurists as *jus cogens* and are also applicable to occupied territories, in addition to the rules of IHL (Cassese, 1992) and the International Court of Justice (2004) ruling.

Water Rights in Public International Law

International rules of water law are relatively new. They consist of a group of customary rules. The only treaty in this regard, the 1997 Convention on the Law of Non-Navigational Uses of International Watercourses, drafted by the International Law Commission, still did not come into force.

However, these rules deal mostly with surface water, although some experts say that they could be applied to groundwater. However, groundwater issues have some specific characteristics, which makes their shared water conflict more complicated (Hayton & Utton, 1989). With regard to this Utton states: "The Laws governing groundwater nationally are inadequately developed, and the law governing transboundary groundwaters is only at the beginning state of development" (Teclaff & Utton, 1981).

The main principles of international water law are:

- limited territorial sovereignty;
- optimal and sustainable water use;
- equitable utilization;
- no appreciable harm;
- the principle to cooperate; and
- peaceful dispute settlement.

These principles are considered as binding rules of customary law. They mostly govern shared waters and their conflicts (Van Edig, 1999).

It should be noted here that in the case of belligerent occupation, these rules of public international law are also applicable to human rights rules and water rights in addition to rules of international humanitarian law mentioned above (International Court of Justice Advisory Opinion on the Issue of the Israeli Wall, 2004).

Water in the POT

Most water resources in the POT come from the three water aquifers in the West Bank and the coastal aquifer in the Gaza Strip. In addition to these resources there are two other resources, the river Jordan basin and some springs. However, these latter sources are not as important as the first source, the aquifers.

As noted earlier, the Israelis began taking all necessary measures to control Palestinian land and water. They delivered most water resources in the POT to the Israeli National Water Company, MEKEROT, giving it a great deal of authority to control almost all water resources and management.

The main purpose of controlling land and water in the POT was to transfer tens of thousands of their civilian population into the POT, putting pressure on the Palestinian population so they would be forced to leave the country. This policy was more evident when the Likud Party assumed power in 1977 (Rouyer, 2000).

There is a large gap between water supply and water demand in the POT, and this is increasing over time because the water supply is artificially constrained by the Israeli occupational authorities. The gap has severe adverse effects on both current and future Palestinian socio-economic development. Moreover, there is a great deal of uncertainty with regard to the quantity of cheap, locally accessible water that will be available for future Palestinian use.

It is clear that the utilization of national groundwater and the riparian share in the Jordan River system is much cheaper than seawater desalination or water imports. Such national resources should be utilized first, and costly water sources, which are more difficult to obtain, should only be developed at a later period. This issue is totally related to the water available to Palestinians from the Israeli authorities (PECDAR, 2003).

It should be noted that the groundwater quality of the coastal aquifer in the Gaza Strip has been substantially impacted by vast over-extraction in excess of the sustainable yield of the aquifer, by raw wastewater discharges, agriculture water return flow and salt water intrusion.

It is obvious that the water gap and dilemma in the POT will totally depend on the development of the peace process between the Israelis and Palestinians as well as on the behaviour of the Israeli authorities vis-à-vis Palestinian national and political rights among which water rights are high in the agenda (Assaf, 2004).

However, there is a lack of reliable data in the POT, not only due to the lack of hydrological monitoring capabilities, but also due to the Israeli restrictions and refusal to cooperate on the issue of water data. The Israeli authorities consider the matter to be as important as security issues. Therefore, most Palestinian experts either depend on the data revealed by the relevant Israeli authorities, who are rare and inaccurate with regard to the water situation in the POT, or they try to gather their own data, where they encounter great difficulties due to the Israeli obstacles. Hence these data also lack accuracy.

Inequity of water consumption brings into focus the essential political nature of the water dispute. Some Palestinian experts estimated that in 1992 the per capita annual water consumption in the POT was 155 MCM, while it was 411 MCM in Israel proper and 2235 MCM in the Israeli settlement (Rabi *et al.*, 1993). Dugard, the UN Special Rapporteur of the Commission on Human Rights in the POT states in his report of August 2005 that the Israeli settlers consume seven times per capita more than individual Palestinians.

However, consumption differs from year-to-year and also depends on the amount of rainfall, but most Israeli figures for the consumption of water, especially in agriculture, are disputed by Palestinian and some foreign experts.

With regard to other data that documents water consumption in both Israel and the POT, the study by Simon Klawitter on water issues in the POT deals with this matter in detail and is published in this volume.

Some serious repercussions concerning water issues have been caused by the construction of the wall. One of its serious consequences is that it will keep, under Israel's total control, the most rich and important water resource in the POT—the Western Aquifer which lies inside the West Bank along the green line—the Israeli recognized border. The wall includes approximately 12% of the West Bank's territory and its construction amounts to a *de facto* annexation of this land, which includes approximately 35% of its replenished water of the West Bank.

Most important is that these Israeli policies constitute a grave violation of the recognized right of the Palestinian people to self-determination, and their right to control and utilize their natural resources in accordance with their right to sovereignty on their own territory, as the ICJ assured in its advisory opinion of July 2004 with regard to the legal consequences of the construction of the wall inside the POT.

Therefore, it is very difficult practically that a 'right to water as a human right' could materialize under all these illegal and continuous Israeli measures, despite the attempts of the Palestinian Authority (PA) to codify this right in new laws enacted by the Legislative Council (LC).

Status of Water under the Palestinian Authority

The PA was established in 1996 with limited authority on a limited territory and few financial sources, in accordance to the Declaration of Principles signed between Israel and the PLO in Washington DC in September 1993, (known as the Oslo Accords).

The Israeli Authorities continued their iron-fist policy, specifically with regard to controlling land and water and taking all measures possible to weaken the PA and diminish any possibility of establishing a Palestinian independent state besides Israeli in the POT.

Nevertheless, the PA drew up a water policy and strategy, particulars of which were stated in a document issued by the Palestinian Water Authority (PWA) in January 1996. This water policy was to be the basis for decisions on the structure and tasks of water sector institutions and the water section legislation (Palestinian Water Authority, 2001). This water policy of the PWA and the subsequent Water Law No. 3 (2002) had the following principles.

All sources of water should be the property of the state. This is mainly because in the prevailing situation of water, land and the economy in the POT, a just, equitable and sustainable allocation among all water users could be best ensured by the state. To this end, all well drilling, production and supply should be allowed by permit or license.

Water has unique value for human survival and health and all citizens shall have a right to water of good quality for personal consumption at costs they can afford. Therefore, Water Law No. 3 (2002) had very serious provisions setting out a National Authority. It considered that all sources of water were in the public domain and, most importantly, it stated that "every person has the right to obtain his needs of good quality of water for human needs". It added that "Every governmental or nongovernmental establishment, working in the field of water, shall take all necessary procedures to guarantee this right and set forth all necessary plans to develop its services".

This provision in a binding rule of law is clear evidence that the PA is one of the few authorities in the world to enact a law considering 'water as a human right'. However, the question remains to what extent such a provision will be enacted in practical terms considering the prevailing difficult situation in the POT.

Domestic, industrial and agricultural development and investments must be compatible with the water resource quantity available. This principle means that economic development should not imply unsustainable water use or irreversible environmental damage. The role of agriculture is particularly important in the economy of the POT, with the major share of water resources being used for agricultural purposes, and this consumption should adjust on a cost-efficiency basis.

- Water is an economic commodity, therefore the damage resulting from the destruction of its usefulness should be paid by the party causing that damage (such as pollution).
- Water supply must be based on a sustainable development for all available water resources.
- The development of water resources for the POT must be coordinated at the national level and carried out the appropriate local level.
- The national water sector management should be carried out by one responsible body with the separation of the institutional responsibility for policy and regulatory functions from the service delivery functions.
- Water matters should be dealt with at the highest level within the government for the effective coordination of sectorized interests. The PWA should carry out its activities in close collaboration with the relevant sectarian authorities.
- Public participation in water sector management should be ensured.
- This means that local authorities should participate in water planning, operation and management. Moreover, public awareness of the role of water in both the public and private domains and its social, environmental and economic value is important for informed decision making.
- Water management at all levels should integrate water quality and quantity.
- Usable water is always a function of both quality and quantity, which are strongly connected and should be seriously considered.
- Water supply and wastewater management should be integrated at all administrative levels.
- Protection and pollution control of water resources should be ensured.
- In this context, all preventive measures against pollution should be ensured and legal actions against offenders should be taken.
- Conservation and optimum utilization of water should be promoted and enhanced.

- The government will cooperate with regional and extra-regional parties to promote the optimum utilization of water resources, to identify and develop new and additional supplies, and to collect and have relevant information and data.

Based on the above elements of water policy, the National Water Policy for the POT has been formulated by the Palestinian National Authority to address the increasing scarcity of water resources in the POT and the political complexity in relation to this valuable resource. This policy contains the above outlined points and principles for governing policy and planning for the water sector. When drafting the Palestinian water strategy, the above points were summarized and re-prioritized to capture the most important issues and strategic interventions to be considered when developing water resources for supply purposes.

Thus, the overall objective of the water strategy includes, *inter alia*, equitable and sustainable management and development of the POT water resources (Assaf, 2004). Therefore, the legal status of water in the POT is characterized by paradoxical attitudes. Water drilling, administration, licensing, distribution and setting out general strategies are still mostly in the hands of the Israeli occupational authorities.

Palestinian water rights are still not free, while on the other hand the PA has set out a comprehensive, modern national strategy for all aspects of water in some parts of the POT. Therefore, it is correct to say that the status of water in the POT remains difficult.

Water is still 'a human right' only on paper, and a wish that is difficult to achieve as long as the Israeli occupation continues to control the land, the water, the natural resources, and the economy and destroys the aspirations of the Palestinian people for an independent state.

Conclusions

The most important conclusions of this study are that most water rights of the Palestinian people are still in the hands of the Israeli authorities. These authorities are adamant in refusing to allow a Palestinian state to become established near the State of Israel in a peaceful way. They still insist on encroaching on the Palestinian right to self-determination and statehood of which water rights and the title to Palestinian lands are tributaries of the major right to 'self-determination'.

However, water rights are part of international law. They differ from 'water as a human right' which is substantially considered as a part of municipal law.

It was noted above that the PA exerted every possible effort to promulgate modern progressive laws with regard to water. Among these laws was the Water Law No. 3 (2002) which stipulates explicitly that "every person has the right to obtain his needs of good quality of water for human needs". It provided for 'every person', not every citizen, which shows the progressive nature of the law because everybody in the POT, even a tourist or a visitor has the right to water of an adequate quantity and good quality. These stipulations conform to the already established rules and principles of public international law and those existing rules of international humanitarian law.

However, the just and equitable implementation of these rules is in the hands of the Israeli occupation that still controls the territory of the POT, including its water, land and economy.

In this regard, member states of the international community have the legal duty to afford all kinds of protection to the Palestinian people enshrined in the rules of IHL, specifically in Article (1) common to all Four Geneva Conventions of 1949, which

considers that all member states have "the duty to ensure respect of the rights and obligations of the treaty". In addition, all these states have the same obligation by virtue of the rules of customary law set out in the UN General Assembly Resolution No. 2625 of 1970.

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Water as a Human Right: The Understanding of Water Rights in Palestine

SIMONE KLAWITTER

Introduction

Particularly in arid and semi-arid regions, access to sufficient water regarding quality, quantity and affordability is vital for economic development. In Palestine people often lack access to an adequate supply of water and sanitation. With an average population growth of 3.5% in Palestine and insufficient sanitation, fresh water resources in Palestine are affected by increasing pollution and over-use, resulting in a growing scarcity in quality and quantity of water. The consequence is raised competition among the different users and uses of water.

The human rights approach to water puts the needs of people first concerning water use and promotes human-centred water resource development based on a coherent framework of binding legal norms and governmental accountability. It aims to empower individuals to achieve their full potential and the freedom to take up opportunities in using water. The right to drinking water is defined as the right of every individual to have access to the amount of water required to meet basic needs.

The human right to water has been explicitly recognized in several international human rights treaties, particularly in the International Covenant on Economic, Social and Cultural Rights in which it is defined as follows: "The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses" (UN, 2002).

Box 1 outlines the criteria that have been used to evaluate the right to water within the national Palestinian water sector.

Meeting the UN Concept on Water as a Human Right: The Palestinian Water Sector

Development Objectives and Policies of the Palestinian Water Sector

Population. There are currently approximately 3.6 million people living in Palestine, 2.3 million in the West Bank and 1.3 million in the Gaza Strip. The numbers are based on a 1997 census that was taken by the Palestinian Central Bureau of Statistics. The population growth amounts to 3.5%, based on 3.2% in the West Bank and 4.0% in the Gaza Strip.

As outlined by Assaf (2004), this high population growth is the fundamental parameter affecting future water needs. It determines not only increasing municipal demand, but also agricultural demand since many Palestinians still depend on the agricultural sector for their income generation. Of growing importance is also the increasing industrial demand to provide an economy to support the economic development within Palestine.

More than 50% of the population of Palestine lives in an urban environment, 28.5% in rural areas and 15% in camps. In addition to the 3.6 million Palestinians living in the West Bank or the Gaza Strip, there are more than 4.5 million Palestinians living outside, most of them in other Arab countries. There are a further 1.5 million Palestinians living inside Israel, holding Israeli citizenship (UNEP, 2002; Shalabi, 2003).

This touches upon the right of return argument within the final status negotiations between the Palestinians and Israelis, where the acknowledgement of the Palestinian sovereignty over water resources, water rights allocation of shared water resources and compensation for damages within Palestine during the Israeli occupation and as a result of the Israeli water production during the last decades is in the centre of discussion. The interim agreement that Israel and the Palestinian Authority signed in 1995 (Oslo II) includes the most updated understanding on water that has been reached. It is more detailed than previous documents and is seen by many water experts as a turning point from which the responsibility for the water sector was given to the Palestinian Authority. In reality, the agreement did not significantly change the scope of the Israeli control over the water resources. At least the agreement explicitly recognizes the Palestinian water resource rights, which will then be negotiated in the permanent status negotiations and settled in the Permanent Status Agreement relating to the various water resources.

Although it has not stated exactly what these rights are, the provision was essential for the Palestinians, whose rights are denied by Israel's occupation policy of the West Bank and the Gaza Strip. Some water experts, not only Israeli, argue that insisting on the reallocation of water rights in the region hinders a more practically-oriented solution focusing on increasing the water supply to the people in need by utilizing alternative water resources. They refer to the Jordan-Israel Peace treaty where the question of water rights was solved by using the term 'rightful allocation'.

Box 1. The evaluation criteria of the UN concept

(1) Availability

Regarding physical access the Comment states that "a water supply is sufficient and continuous for personal and domestic uses, such as drinking, personal sanitation, washing of clothes, food preparation, personal and household hygiene" if it follows at least the basic access defined in the WHO guidelines. It needs to be taken into account that some individuals and groups may also require additional water due to health, climate and work conditions.

(2) Water quality

Water is often also scarce in quality. The water supplied must be safe regarding water quality for domestic use aspects as well. The Committee refers to the WHO Guidelines for drinking water quality which are meant to guide governments to develop national water quality standards to be sufficient to fulfil all human beings needs.

(3) Accessibility

With regard to the Comment, water and water facilities and services must be accessible to every human being. It identifies four overlapping dimensions:

(a) Physical accessibility:

"Water, and adequate water facilities and services, must be within safe physical reach for all sections of the population. Sufficient, safe and acceptable water must be accessible within, or in the immediate vicinity, of each household, educational institution and workplace. All water facilities and services must be of sufficient quality, culturally appropriate and sensitive to gender, life-cycle and privacy requirements. Physical security should not be threatened during access to water facilities and services."

WHO Guidelines for water availability mentioned above serve as the guiding document in assessing that criterion as well.

(b) Economic accessibility:

"Water, and water facilities and services, must be affordable for all. The direct and indirect costs and charges associated with securing water must be affordable, and must not compromise or threaten the realization of other Covenant rights."

In general, water service is affordable, when not more then 5% of the average family income needs to be spent for water.

(c) Non-discrimination against marginalized areas or groups:

"Water and water facilities and services must be accessible to all, including the most vulnerable or marginalized sections of the population, in law and in fact, without discrimination on any of the prohibited grounds."

Governments are obliged to take steps to remove any de facto discrimination that could impede enjoyment or exercise the right to water. They have to give special attention to those individuals and groups who have traditionally faced difficulties in exercising the right to water, e.g. women, children, minority groups, indigenous peoples, refugees, asylum seekers, internally displaced persons, migrant workers, prisoners and detainees.

(d) Information on water issues:

All states are obliged to make information about water freely accessible, "including the right to seek, receive and impart information concerning water issues."

Sources: WHO (1997); AWWA (2000); UN (2002).

The Role of Water in Palestinian Economic Development

The Palestinian economy has not expanded beyond agriculture, small-scale industry and a high level of unemployment. Every economic activity requires Israeli approval. With the beginning of the second Intifada in 2000 the level of economic activity even decreased.

The standard of living varies a great deal within the Palestinian society. The outbreak of the second Intifada has had a strong impact on the economic situation of the Palestinian households. According to a World Bank study which used a poverty line of US$2 per day, it was estimated, that 21% of the Palestinian population were poor on the eve of the Intifada, a number that almost tripled by December 2002 (World Bank, 2003). In 2003 due to job creation, the World Bank estimated the poverty rate among the Palestinian population was 47% (World Bank, 2004a). Nevertheless, in 2004 16% of the Palestinian population lived in subsistence poverty (equivalent to 12% of the Palestinian households). Subsistence poverty is defined as the cost of satisfying the minimum calorie intake, plus an allowance for basic non-food items, such as clothes and shelter. The World Bank estimates the subsistence poverty line for West Bank and Gaza is US$1.6 per capita and day.

The prospects are that Palestine will depend on foreign aid for many years to come. In 2003 the foreign aid paid to the Palestinian economy was approximately US$2 billion while the total Palestinian GDP accounted for 1.8 billion (CIA, 2005).

Water is a precondition for economic development, especially in Palestine where, based on 2002 data, 8% of the GDP is still contributed by the agricultural sector. The industrial sector contributes approximately 28% and services approximately 63%.

Irrigation is a vital component of agricultural production in Palestine due to the climatic conditions, but irrigation, and therefore extensive agriculture, is restricted by the limited water resources available to the Palestinians as outlined above.

Palestinian agricultural activity includes both intensive irrigated farming primarily in Gaza, the Jordan Valley and the northern districts of the West Bank, and extensive rain-fed farming, primarily in the West Bank highlands. Rain-fed farming is the predominant agricultural pattern in the West Bank, accounting for 94% of the total cultivated area. Palestinians irrigate approximately 11% of their cultivated lands, while Israel irrigates more than 50% of its cultivated land. The agricultural sector contributes only 2.8% to the Israeli GDP (CIA, 2005).

According to Attaya (2005), agriculture plays a crucial role in ensuring job opportunities and employment. The contribution of agriculture to employment has risen from 12.7% in 1995 to 16% in 2004. In addition, agriculture has guaranteed work for more than 39% of those employed in informal sectors. Moreover, it provided work for more than 17% of the Palestinian families in 2004 who cultivated their lands and raised animals for their survival (PCBS, 2005a, 2005b). The agricultural sector still plays a central role in achieving food security for Palestinian families as a remarkable number of families still depend on this

Table 1. Share of Palestinian population below poverty line (US$2/capita/day)

Year	1999	2000	2001	2002	2003
Poverty rate	20.1%	30.7%	45.7%	60.0%	47.0%

Note: Depending on the definition of poverty rate and the estimations of the real consumption, the results regarding the poverty rate vary significantly.
Source: World Bank (2003, 2004a).

sector for the provision of their basic food needs (PCBS, 2005c). Furthermore, water as a resource itself is considered to promote many Palestinian industries such as food, fodder, leather, shoes, soap, furniture, cosmetics and tourist industry.

Development of a National Water Policy

The first draft of the Palestinian water policy was issued in 1996 by the PWA and discussed thereafter within a wide multi-stakeholder dialogue. Since then the principles of the water policy (see Box 2) have been the basic elements for decisions on the structure and tasks of the water sector, its institutions and legislations.

The water policy has been formulated to address the overall political complexity of the Palestinian water sector, taking account of the increasing water scarcity of the region.

Box 2. Principles of Palestinian water policy

- All sources of water should be the property of the state.
- Water has a unique value for human survival and health, and all citizens have a right to water of good quality for personal consumption at costs they can afford.
- Domestic, industrial and agricultural development and investments must be compatible with the water resource quantity available.
- Water is an economic good. Damages resulting from the destruction of its value (e.g. pollution) should be paid by the party causing the damage (polluter pay principle).
- Water supply must be based on and restricted to a sustainable development of all available water resources.
- The development of the water resources of the Palestinian Territory must be coordinated at the national level and carried out at the appropriate local level.
- The national water sector management should be carried out by a central institution with the separation of institutional responsibility for policy and regulatory functions from service delivery.
- Public and stakeholder participation in the water sector management should be ensured.
- Water management at all levels should integrate water quality and quantity.
- Water supply and wastewater management should be integrated at all administrative levels.
- The optimal development of water supply must be complemented with a consistent water demand management.
- Protection and pollution control of water resources should be ensured by appropriate personal and financial capacity and institutions.
- Conservation and optimum utilization of water resources should be promoted and enhanced.
- The Palestinians will pursue their interests related to allocation of water resources which are shared with its neighbours.
- The government will cooperate with regional and extra-regional parties to promote the optimum utilization of water resources, to identify and develop new and additional supplies, and to collect and share relevant information and data.

Source: PWA (2004).

As a result of the multi-stakeholder dialogue, the water policy based on the above-mentioned elements was summarized and re-prioritized, for example:

- pursue Palestinian water rights;
- strengthen national policies and regulations;
- build institutional capacity and develop human resources;
- improve information services and assessment of water resources;
- govern water and wastewater investments and operations;
- enforce pollution control and protection of water resources;
- promote public awareness and participation;
- regional and international cooperation.

Thus, the basis for a Palestinian water policy and strategy has been drafted. Numerous studies exist analysing the history, recent situation and future prospects of the Palestinian water sector. Many scenarios are formulated to handle changes, e.g. population growth or climate change. However, the formulated policy still needs to be fully implemented. As outlined by Assaf (2004), there is still a strong need to cope with growing demand, deteriorating quality and conflict between user categories, while constantly having to deal with the issues of water allocation of shared water resources and inner-Palestinian political conflicts. Capacity building of local utilities is necessary as well as the promotion of ownership, commitment and awareness not only in local institutions—public, private, non-governmental—but also of the general civil society. To date, supply-oriented and resource-oriented water management dominates the Palestinian water sector with a strong emphasis on structural measures to cope with supply of water and water-related services. The policy measures for water resources development, planning and supervision that include non-structural measures such as data collection and analyses, legislation and regulation, economic incentives and penalties, as well as public participation, still need to be implemented. Future water resource planning in Palestine should also include adequate links and co-ordination with other Palestinian national master plans, such as agriculture in general, forestry, economic and industrial expansion and urban planning.

Therein the international donor community plays an important role since high investments are needed to create an appropriate water infrastructure and build capacity within the water sector. Development aid is often used as means in foreign policy promoting the interest of donor countries. Nonetheless, basic democratic conditions such as the condemnation of violence should apply. In addition, especially in the case of Palestine and Israel, each country should recognize the other's sovereign right of existence as an independent state.

National Water Resource Assessment: Base and Potential

There are two main types of water resources naturally available to the Palestinian people: groundwater, contained in aquifers and surface waters in rivers and streams. With regard to groundwater there are two major aquifers: the Mountain Aquifer and the Coastal Aquifer. The Mountain Aquifer underlies the West Bank and extends beneath the 1949 Armistice Line (Green Line) into Israel. The Coastal Aquifer underlies the costal plain of Israel and the Gaza Strip.

The Mountain Aquifer extends from the eastern approaches of the Coastal Aquifer under the hills of the West Bank. It comprises three sections: the Eastern Aquifer Basin (EAB), the Northern Aquifer Basin (NAB) and the Western Aquifer Basin (WAB).

The EAB is considered a Palestinian endogenous basin, while the NEAB and the WAB extend behind the Armistice Line into Israeli areas.

The complexity of the situation of allocating the water, e.g. from the Mountain Aquifer, is shown by the following:

- Israel drills deep groundwater wells in the West Bank as well as water from water resources inside the Green Line.
- Israel sells water to Palestinian communities from wells under Israeli control in the West Bank as well as from outside of the West Bank.
- Israel serves water to Israeli settlements within the West Bank from water sources within and outside the West Bank.
- Based on various water rights schemes, Palestine drills its wells for their own use.
- In some cases Israel prevents the Palestinians from drilling wells for their own use and under their own control.
- From the viewpoint of the Palestinians, Israel is not willing to give up all wells they drilled or confiscated illegally in the West Bank during the occupation.

Wells within the West Bank

There are 561 wells, 519 Palestinian wells (wells controlled by the Palestinian Water Authority, local municipalities or the West Bank Water Department, farmers or other private users) and 42 wells under Israeli control (wells under the control of the National Water Company of Israel, MEKOROT) in the West Bank.

Of these 519 wells under Palestinian control 353 are production wells (additionally 18 new production wells since 1999) with a total yield of 72.3 MCM/year. All Palestinian domestic wells in the West Bank meet the WHO standard for drinking water with regard to the chloride concentration limits, while only approximately 70% of these wells meet the WHO standard with regard to nitrate concentration limits.

There are 38 Israeli production wells in the West Bank with a total yield of 50 MCM/year. The wells under Israeli control are mainly used to serve water to the Israeli settlements and military camps. Approximately 94% of the Israeli wells meet the WHO standard for drinking water with regard to chloride concentration limits.

Although the Palestinians control approximately 90% of the total number of wells in the West Bank, their production is less than 60% of the total well production. The distribution only partly depends on natural factors such as recharge. The Palestinians have accused the Israelis for their policy of active prevention of Palestinian development in each of the

Table 2. Palestinian and Israeli shares of well use (MCM/year) inside and outside the West Bank

		Palestinian		Israeli			
Basin	Palestinian & Israeli Use	Use	Share	Inside the West Bank	Outside the West Bank	Subtotal	Share
EAB	62.7	26.4	42%	34.3	2	36.3	58%
NEAB	91	19.1	21%	12.9	59.1	72	79%
WAB	571.6	26.8	5%	2.8	542	544.8	95%
Total	725.3	72.3	10%	50	603.1	653.1	90%

Source: PWA (2000).

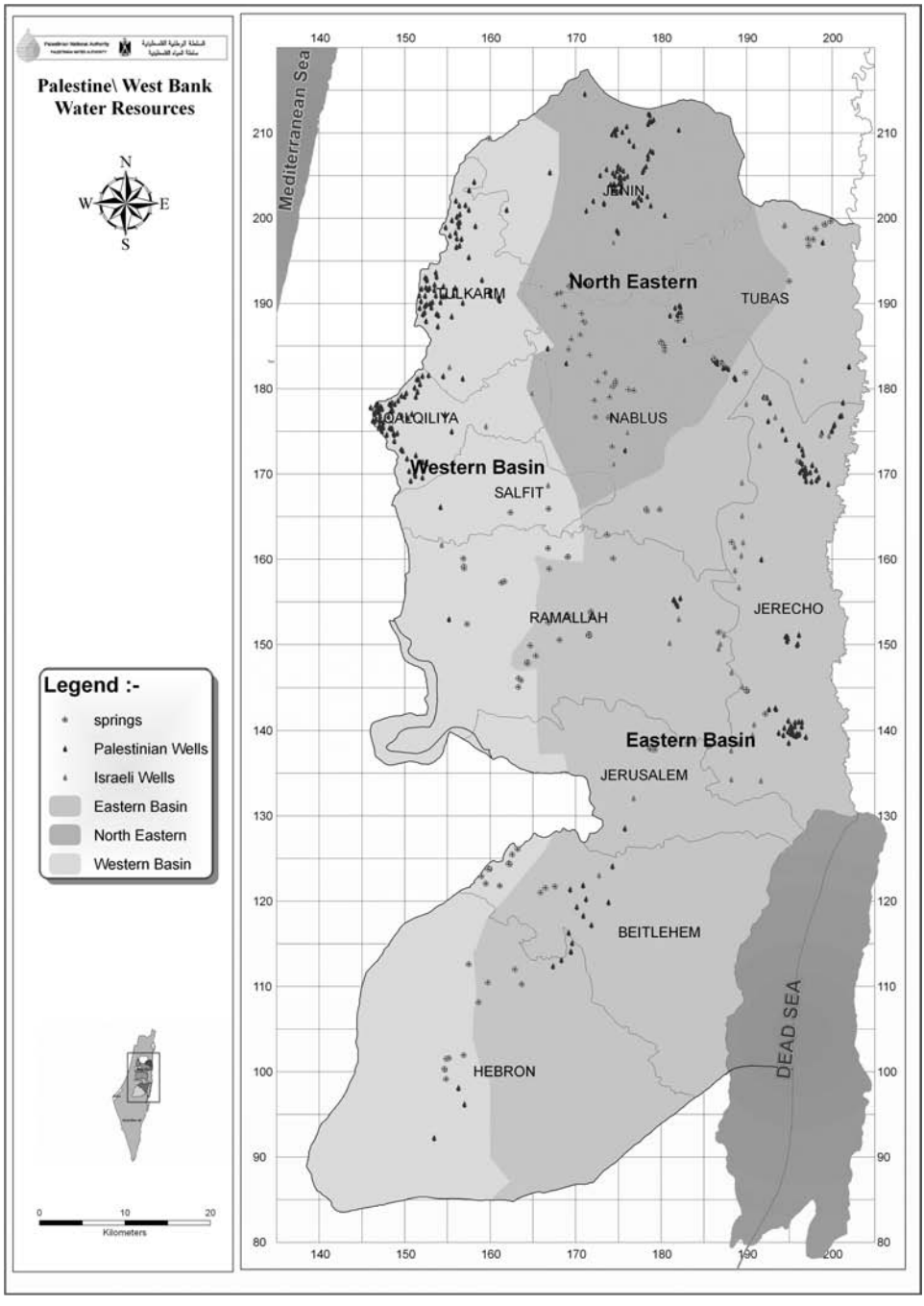


Figure 1. Wells of the Mountain Aquifer under Israeli and Palestinian control. *Note*: Data in the Table refer to the hydrological year 1998/1999 based on Palestinian sources. *Source*: PWA (2000)

Mountain Aquifer basins since 1967. Figure 1 comprises the detailed numbers for wells inside and outside the West Bank (PWA, 2000).

The recharge of the Mountain Aquifer is taking place almost entirely within the West Bank by direct rainfall infiltration. With an estimated 672 MCM/year overall recharge the Mountain Aquifer is the most important factor of renewable groundwater resources in the whole area. The Western Basin stands out with approximately 366 MCM annual recharge, accounting for approximately 54% of the overall recharge of the Mountain Aquifer. Comparing discharge and recharge of the aquifer, it can be seen that all basins are already over-exploited. The numbers range from 25% (EAB, NEAB) to 70% (WAB) of annual over-exploitation. The Palestinians blame Israel for the dramatic over-exploitation, not exclusively, but predominantly, which originates from the Israeli over-use of the WAB (PWA, 2000).

Springs within the West Bank

In the West Bank there are 146 measurable springs under Palestinian control with a discharge of approximately 65.9 MCM/year. The Palestinians control another 163 non-measured springs. Eleven springs are under Israeli control with a discharge of approximately 88.3 MCM/year. More than 200 springs with very small water outlets are neither measured nor recorded. The springs are mainly used for agricultural purposes. Most of the Palestinian springs are considered fresh while springs under Israeli control are primarily brackish.

An even more drastic picture appears when evaluating the shares of spring use inside and outside of the West Bank. Recently mainly springs of the EAB have been over-exploited by excessive pumping in the WAB and its two major natural outlets became almost entirely dry.

The renewable water sources of the water in the West Bank are estimated to be 650 MCM/year, in addition to the surface runoff in the Wadis, estimated to be 70 MCM/year (PWA, 2004) (Table 3, Figure 2).

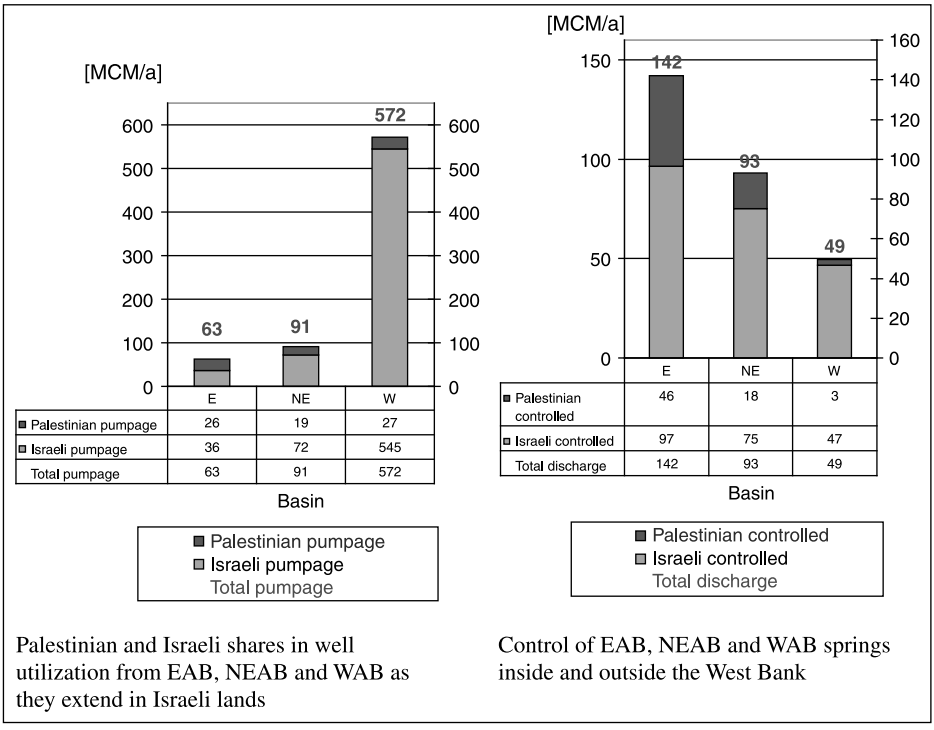
Water Resources of the Gaza Strip

Water supply within the Gaza strip depends entirely on the Gaza Coastal Aquifer, a shallow aquifer that underlies the entire Gaza Governorates and extends into Israel. The natural renewable recharge is in the order of 45 MCM/year (PWA, 2004).

Table 3 Palestinians and Israeli shares of spring use (MCM/year) inside and outside the West Bank

		Israeli					Palestinian	
		Inside	Outside the West Bank				Use	
Basin	Palestinian & Israeli Use	Saline	Fresh	Saline	Subtotal	Share	Fresh	Share
EAB	142.1	88.3	0.5	7.8	96.6	68%	45.5	32%
NEAB	93	0		75.2	75.2	81%	17.8	19%
WAB	49.4	0		46.8	46.8	95%	2.6	5%
Total	284.5	88.3		130.3	218.6	77%	65.9	23%

Note: Data based on averages of the years 1988–99 and on long-term averages for the Dead Sea springs
Source: PWA (2000).



Palestinian and Israeli shares in well utilization from EAB, NEAB and WAB as they extend in Israeli lands

Control of EAB, NEAB and WAB springs inside and outside the West Bank

Figure 2. Utilization of the Mountain Aquifer by Israel and Palestine. *Source*: PWA (2000).

Water Demand and Consumption

Palestinian total use from the groundwater resources in the West Bank has been estimated to be 120 MCM/year. About 86 MCM/year (71%) is used to irrigate approximately 90 000 dunums (1 dunum = 1000 m^2). The remaining 34 MCM/year are used for domestic

Box 3. Evaluation of the UN criteria for water as a human right: water availability

- High level of natural water scarcity: arid-semi-arid climate, low precipitation, high variation of precipitation in different areas.
- Restricted access to water sources due to Israeli control of water resources and Israeli occupation.
- Irregular water supply across the West Bank and Gaza, especially in water scarce summer months.
- High water distribution network loses (up to 40%) due to deteriorating networks and leaky pipes in need of repair and destruction of water infrastructure caused by military activity during the occupation

Source: PWA (2000); UNEP (2002); CESR (2003).

Box 4. Evaluation of the UN criteria for water as a human right: water quality

- Water quality of water resources is deteriorating and subject to continuous increase in salinity due to over-abstraction and to the percolation of sewage in the area.
- Public health problems are increasing due to discontinues water supply, lack of facilities for appropriate hygiene, and low level of wastewater treatment caused by deteriorating economic conditions.

Source: PWA (2000, 2003).

and industrial consumption. The level of either technical or economic water losses is very high and accounts for approximately 40% of water supplied.

In Gaza, total use of water by the Palestinians is about 125 MCM/year. It is used either to irrigate 120 000 dunums of land or for domestic and industrial consumption. The water crisis in Gaza is not limited to the deficit in water supply, but also to quality of water. Due to over-exploitation and inappropriate wastewater treatment the Coastal Aquifer as the main water resource for the Gaza Strip is heavily polluted and it causes a huge number of health problems.

In 2002, as quoted by the World Bank (2004b), the average per capita supply for the West Bank and the Gaza amounted to about 106 l/capita/day based on average water supply figures. Consumption is significantly lower due to high system losses (technical losses, illegal connections, defective metering and meter reading) and accounts often for only 65 l/capita/day. It should be noted that the water consumption in different areas of the West Bank and the Gaza strip differs very much according to the supply situation (e.g. central water supply, water tankers).

In 2005, 257 communities of the West Bank (82 with a population greater than 500) had no central water supply networks and depended on traditional means such as rainwater harvesting, or adjacent wells or supply via water tankers. Table 4 lists communities with a water supply rate of less than 20 l/capita/day (see also Figure 3).

National Water Policy

In order to secure an environmentally sound and sustainable development of water resources through efficient and equitable water management, the PWA has formulated key elements of the Palestinian water management strategy (PWA, 2004):

- secure Palestinian water rights;
- strengthen national policies and regulations;
- build institutional capacity and develop human resources;
- improve information services and assessment of water resources;
- regulate and coordinate integrated water and wastewater investments and operations;
- enforce water pollution control and production of water resources;
- build public awareness and participation;
- promote regional and international co-operation

Table 4. West Bank communities with less than 20 l/capita/day water supply (2003)

Governorate	Name	Population	Supplied quantities (CM)	Supply rate (l/capita/day)
Jenin	Birqin	5 595	14 032	7
Jenin	Umm At Tut	951	3 632	10
Jenin	Ash Shuhada	1 649	9 520	16
Jenin	Jalqamus	1 771	5 532	9
Jenin	Al Mughayir	2 124	5 424	7
Jenin	Fahmeh	2 313	11 798	14
Tubas	Aqaba	5 723	5 328	3
Ramallah	Jammala	1 355	3 760	8
Ramallah	Saffa	3 769	7 812	6
Ramallah	Beit ur At Tihta	4 116	8 222	5
Bethlehem	Al Ma'sara	746	4 642	17
Hebron	Beit Kahil	5 481	5 032	3
Hebron	Idna	17 613	107 000	17
Hebron	Taffuh	9 175	6 841	2
Hebron	Dura	20 165	100 000	14
Hebron	Tawwas	137	818	16
Hebron	Al Bireh	291	1 580	15
Hebron	Ad Dahiriya	26 726	156 000	16

Source: PWA (2005).

The formulated strategy has been discussed within a wide multi-stakeholder dialogue.

Institutional Setting and Process: Principal Stakeholder, their Roles, Interest and Conflicts

The roles and responsibilities in the water sector in Palestine are still scattered, fragmented and rather unclear about what has often led to inefficient management and uncoordinated investments in new infrastructure and capacity building. A first attempt to reform the Palestinian water sector was undertaken with the establishment of the Palestinian Water Authority (PWA) in 1995 as regulatory body, whose main responsibility is to monitor and control the managerial, technical and financial performance at the national, regional and local levels.

Principles for the institutional reforms within the water sector have been defined as follows:

- The regulation of the water sector by only one responsible body, with the separation of the institutional responsibility for policy and regulatory functions from those of service delivery.
- The establishment of three regional water utilities in the West Bank and one in Gaza.
- Private sector participation in the funding and implementation of water projects.

Figure 5 summarizes the current structure of the water sector and the allocation of roles and responsibilities.

The organization of the Palestinian water sector envisages a clear separation between policy formulation, regulation and service delivery functions. The National Water Council

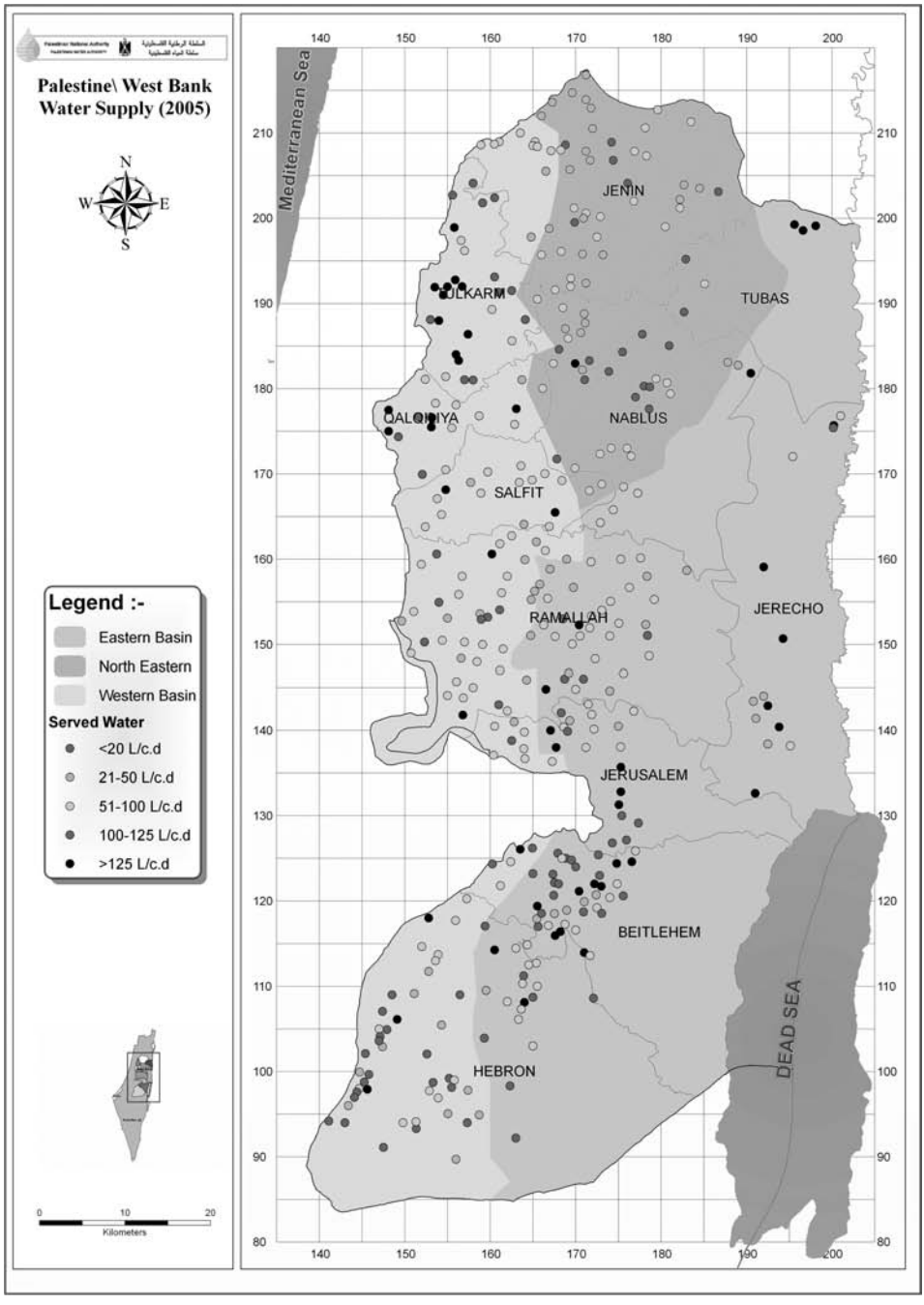
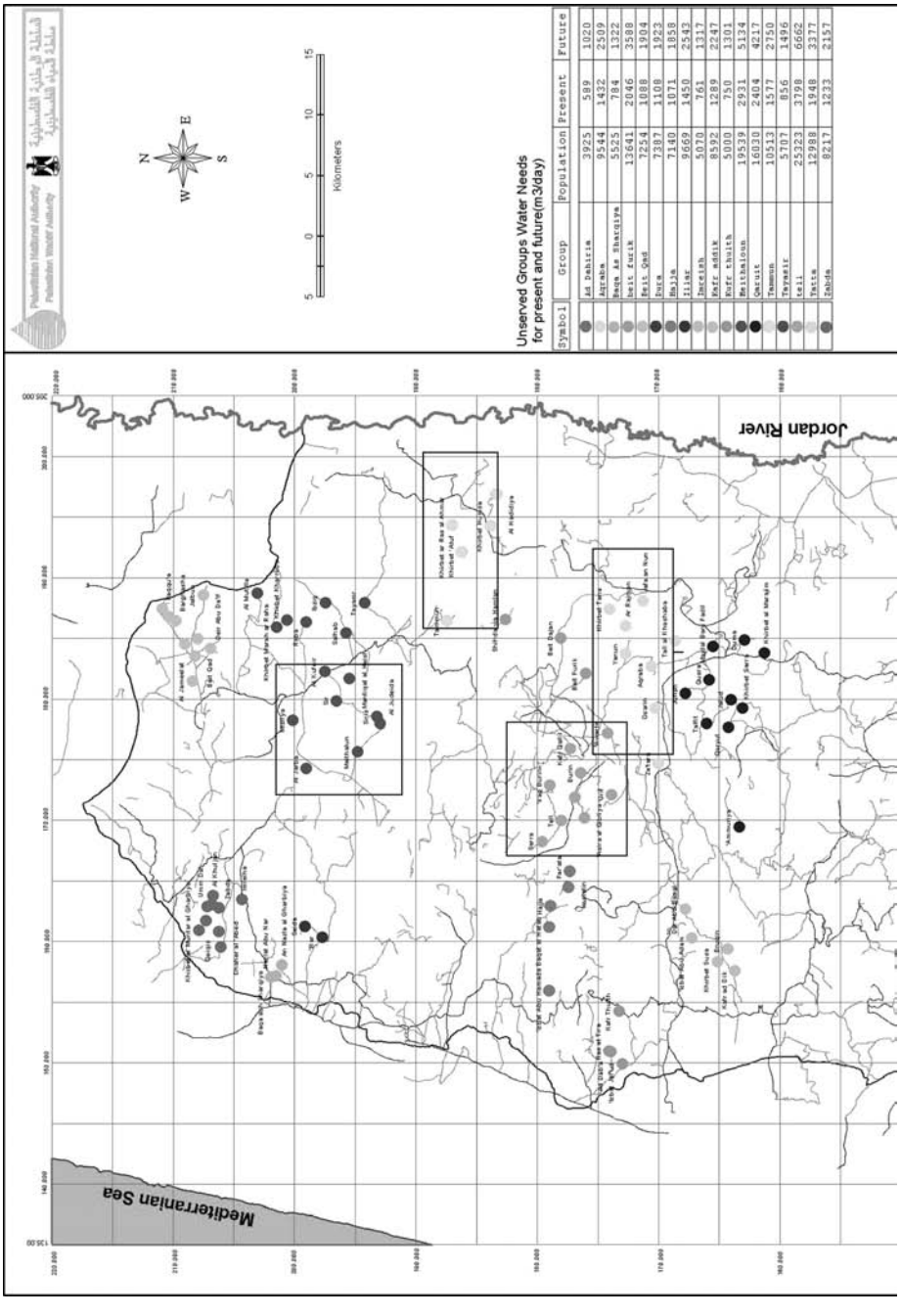


Figure 3. West Bank water supply rates (2005). *Source*: PWA (2005)


Palestinian National Authority
Palestinian Water Authority
سلطة المياه الفلسطينية
سلطة المياه الوطنية الفلسطينية
N
E
S
W
5 0 5 10 15
Kilometers
Unserved Groups Water Needs
for present and future(m3/day)
Symbol | Group | Population | Present | Future
Ad Dahiriya | 3925 | 589 | 1020
Aqraba | 9544 | 1432 | 2509
Beqa' Ar Sharqiya | 5525 | 784 | 1322
Beit Furik | 13641 | 2046 | 3588
Beit Qad | 7254 | 1088 | 1904
Dura | 7387 | 1108 | 1923
Hajja | 7140 | 1071 | 1858
Jiljal | 9669 | 1450 | 2543
Jneisin | 5070 | 761 | 1317
Kafr addik | 8592 | 1289 | 2247
Kufr thulth | 5000 | 750 | 1301
Meithaloun | 19539 | 2931 | 5134
Qaryut | 16030 | 2404 | 4217
Tammun | 10513 | 1577 | 2750
Tayasir | 5707 | 856 | 1496
tell | 25323 | 3798 | 6662
Yatta | 12988 | 1948 | 3377
Zeita | 8217 | 1233 | 2157
Jordan River
Mediterranian Sea

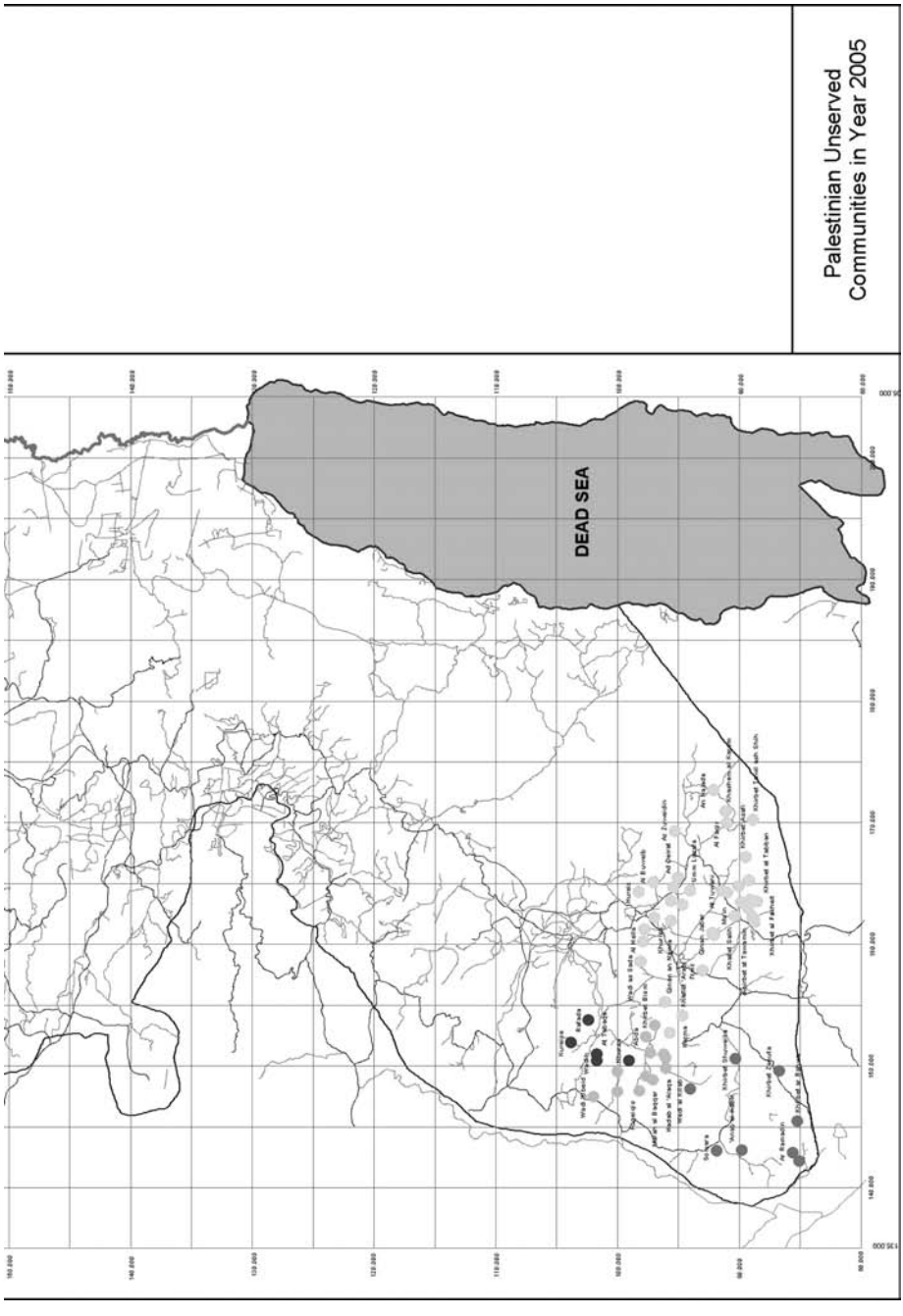


Figure 4. West Bank un-served communities (2005). *Source*: PWA (2005)

Box 5. Water supply shortage in Ramallah and Al Bireh cities in 2005

In general and especially during summer time, Palestinian communities in the West Bank suffer from shortage in water supply. Demand for water during summer time is always larger and the supplied quantities of water are always limited. This is normally accompanied by reduction in the supplied quantities provided by the Israeli MEKOROT water supply company and reduction in the water pressure that will directly affect the water supply to the related communities.

In Summer 2005 the situation became even worse. The problem reached its greatest level when people in Ramallah, Al Bireh and Betunia cities, which are considered major cities in the Governorate, started to purchase tanked water from different low quality sources. The costs for tanked water were very high and ranged between 15 to 20 NIS per CM (approximately US$3–4 per CM).

The water shortage was caused by maintenance work and connection changes on water pipes done by the Israeli water company MEKOROT which is supplying the respective Palestinian communities. The average price of 1 CM purchased water from MEKOROT used in the domestic water sector is 2.50 NIS (approximately US$0.50)

Source: PHG (2005).

Box 6. Evaluation of the UN criteria for water as a human right: physical accessibility

- High number of Palestinian people depend on buying water from private or municipal water tankers: approximately 1/3 of the Palestinian population.
- No central water supply for approximately 215 000.
- Limited access to trucked water due to restriction in mobility by irregular closing of checkpoints or denying of access to water sources by Israeli military.
- 42.3% of localities have a continuous water supply, 19.2% partial.
- 26.3% of households in the West Bank rely on cisterns.
- 22% of population are not served with piped water.
- 55% of West Bank localities are served by piped water, 88% of population.
- 95% of Gaza Strip localities are served by piped water.

Source: PWA (2003); Assaf (2004).

is the policy-making body and the Palestinian Water Authority will be the regulator. A Bulk Water Utility (to be established as proposed by the Water Law approved in July 2002) would be responsible for wholesale service delivery and Regional Water Utilities would be responsible for delivering water to all customers. Figure 5 shows the proposed structure and regulation of the Palestinian water sector.

The National Palestinian Water Council (NWC)

The NWC is chaired by the President of the Palestinian National Authority (PNA) and comprises five ministers, six other members representing government and non-

government organizations and the head of the PWA as the secretary of the Council. The members of the NWC review and approve national water policy, review and approve quotas, reconsider the issue of private ownership of water, examine the central water projects and approve their implementation, and enhance regional and international cooperation in water.

Until now the NWC has not constituted what hinders an effective institutional reform. In 2000 a water tariff regulation was drafted by the PWA with the help of the donor community, but it still needs to be approved by the NWC. Therefore, an appropriate water pricing and tariff policy could not be formulated and implemented, focusing on the coverage of at least operating and maintenance costs, which is a precondition of most funding agencies to support infrastructure investments in Palestine.

Box 7. Evaluation of the UN criteria for water as a human right: economic accessibility

- Water prices vary depending on water source, e.g. 6 NIS /CM (approximately US$1) in Bethlehem area, but up to 40 NIS for tanked water, e.g. in Hebron area.
- Low ability to pay for water, due to economic crises percentage of income to be spent for water is very high and often exceeds the benchmark of 5% of family income.
- Low level of cost recovery.
- Often low willingness to pay for water, especially when water is purchased from MEKOROT.

Source: AWWA (2000); PWA (2003).

Box 8. Evaluation of the UN criteria for water as a human right: non-discrimination against marginalized areas or groups

- Marginalized groups are particularly affected by the growing crisis of food insecurity, including water for Palestinian families living under the Israeli occupation due to their limited capacity to adapt to abrupt changing water supply situations (e.g. denied access, irregular supply, and low water quality).
- Despite their everyday responsibility over water, women (organizations) do not have an active role in the water policies or in providing access to water.
- Knowledge about water is in the female domain, and it is women who must pass on this knowledge to children. However, awareness programmes for educating women about water issues, water-related diseases and water conservation are lacking.
- Handicapped people need appropriate shelter, food, safe drinking water and medical attention. Ongoing hostilities impede access to those in need of special assistance as well as the safe transportation of relief supplies.
- Discrimination of remote areas in central water infrastructure access (rural villages and refugee camps).
- Discrimination of rural areas in infrastructure investment, prioritization of urban areas in central West Bank or Gaza city, partly due to donor strategies.

Palestinian Water Authority (PWA)

The Palestinian Water Authority (PWA) is the central public authority in the water sector established under the Presidential Resolution No. 90 of 1995, acting under the direct responsibility of the President of the Palestinian National Authority. The PWA's responsibility is to act as the main regulatory body for water resources management and development and infrastructure planning in Palestine with the following primary objectives:

- the execution of the national water policy as approved by the National Water Council;
- ensuring the most efficient management of available water resources in Palestine;
- ensuring a reliable water supply through optimal planning and management of water resources and exploring further resources to ensure balanced management between supply and demand;
- the setting of standards and the establishment of technical specifications to assure quality control of water works;
- licensing the exploitation of water resources, including the construction of water projects; and
- consolidation of co-operation between the PWA and other relevant parties, especially international donors and NGOs;

Since it was established in 1995 the PWA has taken several steps to strengthen the institutional framework (World Bank, 2004b):

- formulation of a new water law;
- formulation of national water policy and related multi-stakeholder dialogue;
- establishment of NWC as the main policy body for the water sector;
- consolidation of existing municipal water departments into regional water utilities;
- formulation of plans for to establish bulk water supply utilities based on WBWD; and
- development of regulatory capacity.

The PWA has been through a difficult process of establishment and consolidation and at the same time has been involved in necessary infrastructure planning and implementation. At present the institutional framework is still suffering from significant overlaps in roles and responsibilities, the investment and regulatory frameworks are still works in progress.

Although the water utilities are partly in place, most of the planning, design and construction supervision tasks are still done by the PWA. In future the PWA must restrict itself to its primary functions as a strategic and regulatory body. The focus will hopefully turn to the representation of Palestinian interests and rights in bi-lateral and regional contexts. Capacity building is needed to meet these important challenges. As noted by the PWA itself (PWA, 2004), a very important factor which will need specific attention is the motivation and dedication of the staff or team acting with the common goal of enabling the PWA to resolve important water resource challenges facing Palestine. The latter is highly dependent on the attitude and capability of the leaders and their ability to identify relevant tasks and appropriate training and career opportunities for the PWA staff.

The PWA is still playing a mutable role. Recently the institution has been restructured by creating separate development (PWA Project Management Unit) and regulatory departments. The necessary institutional structures to completely separate both roles are still being developed. Since NWC as a main policy actor and actors to take over the development function are not yet in place, capacity building is needed in order not to create an institutional vacuum for those development functions. (See Figure 6.)

West Bank Water Department (WBWD)

The West Bank Water Department is a governmental body that was transferred from the Israeli Civil Authority (ICA) to the Palestinian National Authority in application of Article 40 of the Oslo II Agreement. It is responsible for operating and maintaining bulk water facilities. The operation of 13 wells, 6 booster stations and 12 reservoirs with a capacity of more than 500 CM is still strongly monitored by MEKOROT, which, to a large extent is performing most operating procedures and maintenance activities that would correspond to WBWD. The general director of WBWD is nominated by PA but appointed by the Israeli Civil Authority.

It is claimed that the ownership of the wells and related infrastructure, operated by WBWD, have been returned to PA in application of the Oslo II Accords. The manifold tasks of WBWD are as follows:

- WBWD buys water from MEKOROT and other Israeli water suppliers for a water price set by the Joint Water Committee (JWC).
- WBWD provides bulk water to Israeli settlements at JWC prices.
- WBWD sells bulk water to Palestinian users, billing and collections refers to PWA tariff regulations.
- WBWD produces water from PWA wells.
- The execution of all related water projects, such as infrastructure extension, reservoirs maintenance, development of new wells.
- MEKOROT provides all maintenance services for movable assets to WBWD, such as vehicles.
- WBWD is responsible for meter reading for Palestinian users, MEKOROT is meter reading for Israeli users (settlements).

WBWD has no financial autonomy because all O&M expenditures related to the WBWD infrastructure, WBWD wells and payroll of personnel hired before June 1996 are paid either by MEKOROT or ICA, and are charged on a monthly basis from MEKOROT to WBWD. This bill and all other additional costs are paid by PWA on behalf of WBWD.

Municipalities and Village Councils

Municipalities and village councils are mainly responsible for supplying water to their people, either getting the water from WBWD, from their own or PWA wells.

Some exemptions exist with municipal owned water utilities, such as the Jerusalem Water Undertaking (JWU), which supplies water to Ramallah and Al Bireh and neighbouring villages and the Water Supply and Sewage Service Authority (WSSA), which is responsible for the water supply and sewage collection for Bethlehem, Beit Sahur and Beit Jala. Both are municipal owned utilities.

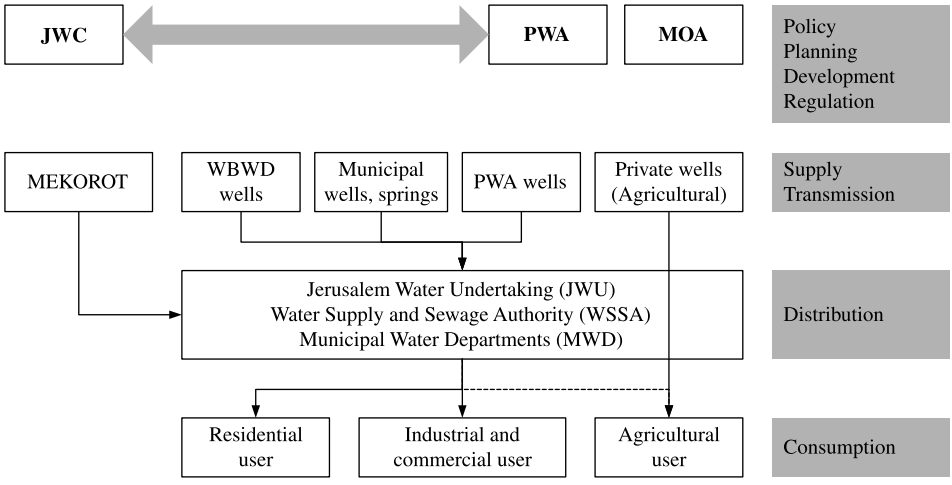


Figure 5. Institutional setting and process within the Palestinian water sector

Palestinian Bulk Water Supply Utility (Not Yet in Place)

Within the new institutional framework an autonomous Palestinian Bulk Water Supply Utility is planned to be set up which will be responsible for the management of all trans-regional bulk water supply systems and activities, such as:

- the operation and maintenance of all existing transmission lines, currently operated by WBWD, providing bulk water supply to Palestinian communities;

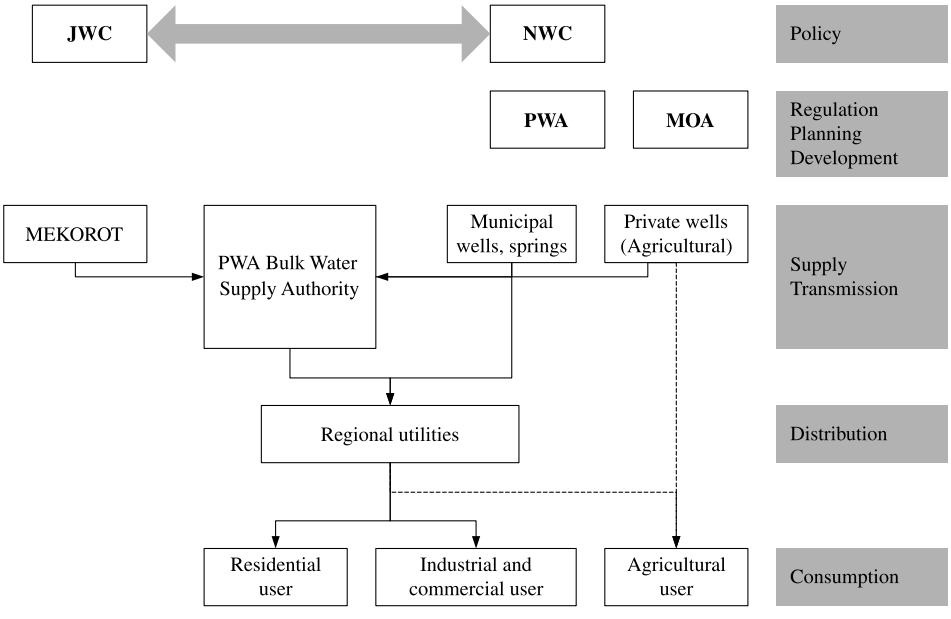


Figure 6. Proposed institutional setting of the Palestinian water sector

Box 9. Evaluation of the UN criteria for water as a human right: information on water use

- Comprehensive database for water resources has been developed.
- No centralized institution for information on water use in place.
- Low access to water use data by people.
- Low willingness to openly publish data by different stakeholder groups within the Palestinian water sector.
- Different level of water awareness among Palestinian people, strong correlation to economic status, the better the status the higher the awareness.
- High awareness of all people of Palestinian water rights, but low awareness of people's individual (human) right to water.

- water project management and operation, currently developed by the Palestinian Water Authority; and
- the development and management of alternative water resources, envisaged in the National Water Plan (NWP), such as desalinated water, treated wastewater with different quality levels, brackish water.

The Bulk Water Supply Utility would be licensed by PWA to operate water production facilities, purchase portable water from national and international suppliers, and convey the water to local municipal and industrial water distribution systems. The operation, maintenance and management of those local water distribution facilities will be progressively taken over by the four planned Regional Water Supply Utilities as requested by the new water law.

Regional Water Supply Utilities (Not Yet in Place)

Four Regional Water Supply Utilities will be created to deliver water to the different end users. The supply area is divided geographically:

- Northern Utility (Nablus, Jenin, Tulkarem, Qalqilia, Salfit and Tubas Governorates)
- Central Utility (Jerusalem, Ramallah and Al-Bireh and Jericho Governorates)
- Northern Utility (Hebron and Bethlehem Governorates)
- Coastal Utility (Gaza Strip Governorates)

Main Concerns and Development Objectives with Regard to Water as a Human Right in Palestine

The UN concept for water as a human right is used as a tool for analysis using the criteria given within the concept. The main concerns and development objectives concerning the UN concept evaluating the Palestinian water sector that have been identified are as follows:

Limited access to and low availability of water resources. Water availability is limited due to the semi-arid nature of the area, but in addition Palestinians have only limited

access to the water resources to be shared with their neighbours. Fair allocation of water resources and sovereignty and unlimited control of Palestine's share of water resources is a precondition for the necessary water sector development to increase the water supply to the level of WHO minimum standards. Water losses need to be reduced by developing efficient networks, storage reservoirs and operational and financial systems.

Poor governmental commitment to the human right concept. Water governance refers to a range of political, social, economic and administrative systems that are in place to regulate the development and management of water resources and provision of water services at different levels of society. The ongoing occupation hinders the development of effective water governance as a prerequisite to fulfil the human right on water, but is often also used as an excuse.

The UN concept is not yet translated into specific national legal obligations and responsibilities. Although a comprehensive water law has been formulated it still needs to be enacted.

Lack of information and lack of project implementation. Many projects have been conducted in recent years to collect all the necessary information. However, still not all data are available. Most concerns are with regard to data reliability, consistency and deficiencies. Furthermore, there is a strong need to coordinate all efforts and openly publish all results. The percentage of expenditures on water and sanitation per person by developing organizations in Palestine is among the highest in the world. Many new projects are started every year in addition to those that already exist. Theoretical outcomes are documented in many project reports, but the number of projects that are implemented is very low. All implementation agencies have been hesitant in implementing costly infrastructure projects due to the additional high implementation costs caused by the Israeli occupation, but also by the low institutional commitment within the Palestinian water sector.

Low awareness of people's rights to water. In general, Palestinians are aware of their restricted water rights because they are denied by Israel, but they are not fully aware that a governmental obligation exists to equally supply sufficient water to all Palestinians. Education and empowerment, particularly of people living in remote areas could serve as a way out and a starting point to encourage a dialogue among Palestinian people towards their awareness of the right to water.

High awareness of water problems; growing awareness with regard to the possibilities of water saving. Most Palestinians are aware that water is a finite resource, often forced by the simple fact that the water supply is restricted or that water which is available is of low quality. In addition, water is a highly political issue. Discussions on the unfair allocation of water rights in the region often hinder a rather practical need-oriented approach.

Several methods and tools are applied to promote water awareness and to create an environment to support effective water policies. Due to the social and economic consequences of the Israeli occupation the effectiveness of these methods is rather limited.

Discrimination of remote areas (rural areas and refugee camps) in Palestinian water sector development. Discrimination still occurs within Palestinian society depending on the political power of the decision maker. People living in remote (rural) areas and social

groups with low economic capacity are particularly affected by the discriminating behaviour of political leadership partly caused by indefinite institution setting of the Palestinian water sector.

The funding policy of several international development agencies contributes to this discrimination since many focus on large infrastructure projects. Only a few are working on small-scale project scales, which is regularly the case in rural areas. Since the economic situation in rural areas is often very poor, the policy to only fund a project if operating and maintenance costs are covered by the water users without offering alternatives hinders the development of the rural water sector.

An increasing number of people who cannot afford water. An increasing number of people exist who cannot afford the minimum amount of water supplied. Often people with no or low access to water are affected, living in poor neighbourhoods, who must buy water from private vendors at high water prices. The free provision of a certain amount of water or the provision of water at an affordable level to serve basic needs should be obligatory.

Nonetheless, the cost recovery level needs to be increased to form the basis for sustainable economic development of the water sector, and a reduction of dependency on donors and their policies.

Institutional water sector reform still pending. Roles and responsibilities within the water sector need to be rationalized and clarified, including a separation between policy and development on the one hand, and regulation on the other. Although a comprehensive water law has been formulated it still needs to be implemented. An effective regulatory framework and regime is still missing.

Conclusion: Peace and National Commitment as Preconditions for Realizing the Human Right to Water

Contemporary Palestine is in a difficult process of state building and continues to be affected by institutional fragility. The overall fragility of the PNA mostly resembles a fragile scenario of enduring deterioration where formerly established basic state functions are slowly deteriorating. As is typical for many developing countries in such situations, relative authoritarian tendencies and high levels of corruption and political nepotisms occur and this is also true for the water sector. Although national leadership was and still is demonstrating a political will to make progress in developing the water infrastructure of a modern state, the performance and capacity of the Palestinian government remains rather weak in terms of harmonized water policy development and implementation. Bearing in mind that a rather stable national government and related institutions are a precondition for good water governance, a precondition for realizing the human right to water, it should be noted that the overall framework conditions for positive change are rather difficult due to the ongoing Israeli-Palestinian conflict.

Good water governance refers to a range of political, social, economic and administrative systems that must be in place to regulate the development and management of water resources and provision of water services at different levels of society. The ongoing occupation hinders the development of effective water governance structures as one of the most important prerequisites to fulfil the basic water needs.

Roles and responsibilities in the water sector in Palestine are still scattered and fragmented and have often led to inefficient management and uncoordinated investments in new infrastructure and capacity building, although first attempts to reform the Palestinian water sector were undertaken. The envisioned reform process of the Palestinian water sector is still pending and is strongly related to the failure of the peace process, but also the low commitment of institutional actors and related weak process ownership within the water sector.

In addition, corruption and political nepotism are also key factors. National leadership demonstrating the political will to support the reform process of the water sector still needs to be further developed and fostered. A precondition is a satisfactory performance in state building and capacity development of the governmental system itself, but this still remains rather weak in terms of policy development, implementation and law enforcement. Those changes must be initiated within the social adaptive capacity of the Palestinian society.

Donor agencies can play an important role in ensuring the human right to water. They must develop methods and means to adapt their policies according to the human right to water concept. Donor coordination with the national water authority to ensure project ownership but also among donors is an important precondition for the successful implementation of development projects, especially in Palestine where a comparatively disproportionate number of development agencies is active. The national water institutions need to increase their support of the generation and dissemination of information on aid and donor behaviour at the national level, to allow for the independent local monitoring of aid and its impact.

The realization of the human right to water for the Palestinian people has two main implications. First and foremost water resource ownership must be ensured based on a sustainable development of the resource itself. This calls for a reallocation of the water rights of the water resources to be shared with Israeli, but also Jordan, another neighbouring country. Ensuring water resource rights is important, but equally important is the development of a national water governance system and the liability and accountability of the Palestinian actors themselves.

Finally, it should be noted that a lack of water and sanitation clearly has an impact on other human rights, such as the rights to education, health and work, which form an essential basis for poverty elimination and human development. Recognizing water as a human right creates the political will to solve the water crisis, lower poverty and raise standards of health by establishing a partnership between the human rights and the water sector community

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Water as a Human Right: Towards Civil Society Globalization

ODEH AL JAYYOUSI

Background

After the Rio Earth Summit, it was observed that the implementation of the international commitments with respect to environment and water was limited. This was attributed to the fact that the breadth of the challenge was not matched by strengthening of governance systems, investment and political commitment. The notion of sustainable development was challenged as a means to reconcile the interdependence between conservation and development. The adoption of the Millennium Development Goals (MDGs) set specific targets to achieve in terms of poverty alleviation, health, education, water and environmental sustainability.

The 1992 Dublin Water Conference, Principle 4 stated that "water has an economic value in all its competing uses and should be recognized as an economic good". This was recently confirmed in the World Water Vision, which calls for full-cost pricing to encourage water conservation, to ensure more water is available to go around, and to pay for the proper operation and maintenance of infrastructure, including sewage treatment to prevent water pollution (Cosgrove & Rijsberman, 2000). Civil society movements argue that because water is a vital social need, governments should provide water free or greatly discounted to the poor. Furthermore, they see an inherent contradiction between the idea that water is a fundamental human right and social good and that potentially it could be allocated like any other commodity—only to those who can afford it.

The introduction of water as a human right brings new perspectives (and dimensions) to the notion of sustainable development. In the early perception of sustainable development, it only encompasses social, economic and ecological dimensions. This paper argues for the need to broaden the concept to include governance and human right. Governance refers, in general, to the economic, social and political relationships between a society and its government, or between an organization and its governing entity. Governance is often referred to as the 'art of steering societies and organizations'.

In this paper, governance will be adopted as the process by which stakeholders or civil society articulate their interests, influence policy decisions and voice their concerns on development models. It is also a process in which decision makers are held accountable.

A governance model usually describes a set of structures, functions and practices that define 'who does what', and 'how they do it'. Good governance will guide and, in some cases, constrain choices about business models. Together, governance and business models determine the distribution of risks and responsibility for all aspects of water supply management. Three models of water governance exist which include: the state planning model, the market model, and the community model.

In Jordan, for example, public-private participation in water management of Amman city via a limited term management contract was examined. However, municipal governments are forbidden by law to sell their infrastructure, and in many cases, they retain control over long-term strategic planning, which is characterized by features of the planning approach. In Egypt, the government planning model is practised.

There are importance differences between the planning, market and community governance models. Consumers are represented differently: as citizen-voters, customer ratepayers, or as users and community members. Accountability is structured differently in each model.

The rationale for the emergence of the notion of water as a human right stems from the need to secure water for the poor and marginalized and to urge governments to address the water agenda as a national priority as outlined in the Millennium Development Goals (MDGs). However, the MDGs addressed poverty, health, gender, education and environmental sustainability, but it overlooked that fact that these goals are interconnected and that environmental sustainability underpins other goals and all of these goals are critical for human right approach to water and environment.

There is now a growing sense that the MDGs will only be achieved with the full participation of local people, and the scaling-up of the many individual initiatives that have managed to link conservation and development successfully in one area where it is hoped that progress towards the MDGs might make great headway.

For both water resources development and biodiversity conservation to contribute fully to poverty reduction, health and the realization of MDGs, a fundamental shift is needed to more systemic and people-centred approaches that build on poor people's priorities and capabilities; that effectively engage all stakeholders in addressing the underlying policy and institutional drivers of environmental degradation; and that empower poor and vulnerable groups with the assets, rights, and entitlements they need to improve their lives through sound water/environmental management.

In a globalized world, there is a concern that water will be commercialized. When the institutions of money rule the world, it is inevitable that the interests of money will take precedence over the interests of people. Hence, the global water agenda (on how the world should be) is determined to a large extent by the global financial institutions and donor

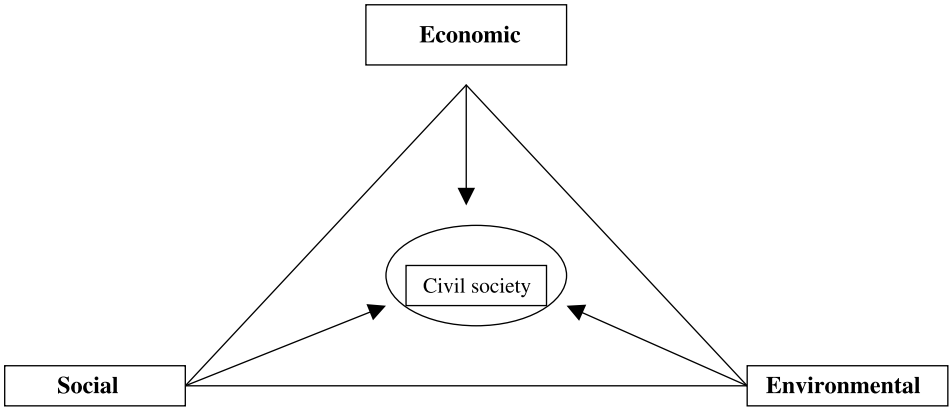

Figure 1. The role of civil society in realizing sustainable development

agencies. As a result of market globalization represented by the economic forum, social and conservation fora are emerging to present a new discourse which is referred to as civil society globalization as shown in Figure 1.

The notion of water as a human right represents the civil-society globalization (CSG) which aims to balance the market-based globalization (MBG). The CSG refers to the discourse and mission of civil society to address human rights and to inform policy decision making and enlighten the policy makers to spillover effects and externalities of policy options on the marginalized and the poor (as articulated in the World Social Forum and IUCN conservation forum), while the MBG is viewed to be driven by market or economic rationality as adopted in the IMF and World Bank policies (as promoted by the World Economic Forum). This paper argues that the adoption of the concept of water as a human right will help control the marginalization of the poor in the South and it will in turn create a balance among the three competing forces of markets, society and government.

Water as a Human Right: Rationale and Value

Access to sufficient, safe and affordable water is vital for human development. At present more than 1.2 billion people lack access to an adequate supply of water and more than 2.4 billion lack access to adequate sanitation. More than 2.4 million people die annually from water related diseases due to an absence of a qualitatively safe water supply; most of them are children (UN, 2003; WHO, 2003; Howard & Bartram, 2003; Scanlon *et al.*, 2004).

The term 'human rights' refers to those rights that have been recognized by the global community in the Universal Declaration of human rights, adopted by the United Nations (UN) member states in 1948, and in subsequent international legal instruments binding on states. The human rights approach is especially used to challenge the economic and social injustice. The consensus on human rights reflects a global moral conscience (Water Aid, 2003; IUCN, 2004). The intent of the adoption and operationalizing the notion of the human right approach to water is to put the peoples' need first regarding water use and to promote human-centred water recourses development based on a coherent framework of binding legal norms and accountability.

Although legal instruments at the international and national levels have recognized and confirmed human rights, the law is not the source of these rights. Human rights are not granted by any human authority or government, but are derived from the essential dignity and nature of humankind. The list of internationally recognized human rights covers all those rights essential for human survival, physical security and development in dignity. It is argued that there is no hierarchy of rights and all rights should be regarded as being of equal priority. Denial of one right invariably impedes the enjoyment of others, leading to the recognition by UN member states that human rights are indivisible, interdependent and interrelated (UN, 1993; Hausermann, 1997; Water Aid, 2003; IUCN, 2004; Scanlon *et al.*, 2004; UNHCHR, 2003).

The human rights approach to development is one which promotes human-centred development and recognizes the inherent dignity of every human being without distinction. From a legal perspective, the human right treaties and conventions that are contracts signed by states are legally binding and impose mutual obligations on the states.

On the other hand, the General Comment also stresses the fundamental importance of ensuring access to adequate sanitation and states' parties obligation to progressively extend safe sanitation services, particularly to rural and deprived urban areas, taking into account the needs of women and children.

The role of civil society organizations is seen in the incorporation of human rights law and principles into both policy and actions, i.e. lending policies, structural adjustment programmes or development projects. Moreover, their role is to address the needs of the most vulnerable or marginalized groups of the population in the provision of aid and the distribution and management of water and water facilities.

Convergence of Water Vision: People, Food and Nature

The Water Vision 21 recognizes that water management requires the involvement of government, civil society and the private sector, and the principle of subsidiarity must be respected (Cosgrove & Rijsberman, 2000). A framework of action for the World Water Vision was developed by the Global Water Partnership (Cosgrove & Rijsberman, 2000). However, the challenge is to operationalize the concepts and principles at the global level to get them implemented at the local level.

It is interesting to re-visit the three visions for Water 21, i.e. water for people, food and nature, in order to examine how water for the human right approach underpins the three visions as illustrated in Figure 2. In the vision for 'water for all' (or for people), human right is the core of the underlying thinking. Equity, affordability and access to water are key to this vision. Moreover, food security and securing sufficient and safe food is an evident component in the vision for 'water for food'. Efficiency, users' participation and pricing are the fundamental parts of this vision that are all correlated to the human right in the UN declaration. The challenge is how to present sufficient evidence on how the vision for 'water for nature' can be viewed as part of human rights. Conceptually, it can be argued that the concept of ecosystem services that are critical for the human livelihood and well-being which presents sound evidence on how 'water for nature' (and even clean and functioning environment) is simply a human right. All this reaffirms that human rights are interdependent and inseparable and that the nucleus for all the three visions is 'human right'. The same articulation and argument can be stated that the human right approach

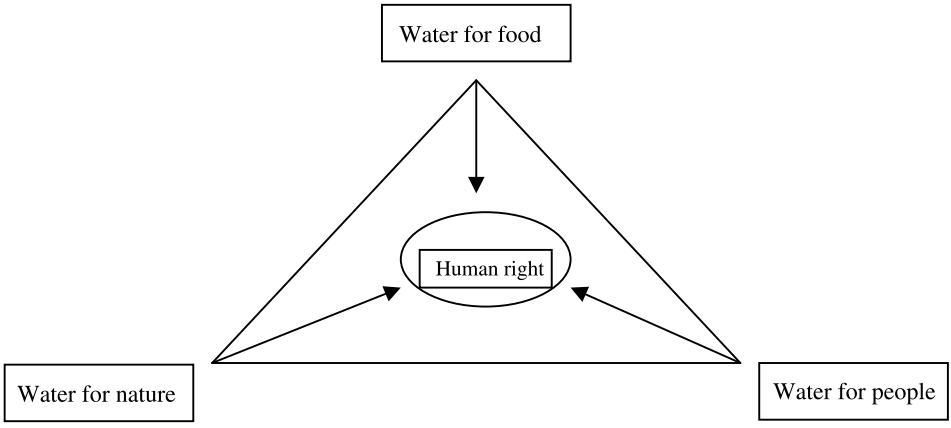

Figure 2. The role of the human right approach for water as unifying water vision

underpins all MDGs. Such synergies or 'hidden connections' are useful to illuminate a unity within diverse visions and schools of thoughts.

Reconciling the proper trade-off between the three visions (people, food and nature) requires a regional approach for addressing the concept of water, energy and food security. This in turn requires an integration of regional policies in the sectors of water, trade and energy. To assess the level of governmental commitment to the concept of water for human right, indicators are needed as a tool to set benchmarks.

Indications and an Assessment of the Human Right Approach to Water

The UN concept for water as a human right was used as a tool for analysis of the quality of water delivery systems and the human/legal dimension of water. The following indicators were devised to measure the extent of abidance of countries to the water for human right approach. Such indicators present a description of the condition of a water sector as well as the sector configuration and conditions.

Availability

With regard to physical access the Comment states that "a water supply is sufficient and continuous for personal and domestic uses, such as drinking, personal sanitation, washing of clothes, food preparation, personal and household hygiene" if it follows at least the basic access defined in the *WHO Guidelines*. It needs to be taken into account that some individuals and groups may also require additional water due to health, climate and work conditions (UN, 2002b). For example, in the case of Egypt the per capita availability of fresh water resources is assumed to decrease with time from 815 m^3 per capita to 500 m^3 per capita in 2025. While in the case of Jordan the water availability is about 120 litres per capita per day for domestic purposes.

Water Quality

The water supplied must be safe with regard to water quality for domestic use aspects as well.

The Committee refers to the *WHO Guidelines* for drinking water (WHO, 1993), which are meant to guide governments to develop national water quality standards to be sufficient to fulfill the needs of all human beings. The water quality in Egypt is characterized by a high rate of pollutants in canals and to a lesser degree in the Nile. In the case of Jordan, 50% of spring water is biologically contaminated and with high levels of salinity. In addition, surface water is not adequate for drinking.

Accessibility

With regard to the Comment, water and water facilities and services must be accessible to every human being. It identifies three overlapping dimensions of accessibility, defined as follows (UN, 2002a, 2002b):

- *Physical accessibility:*

  Water, and adequate water facilities and services, must be within safe physical reach for all sections of the population. Sufficient, safe and acceptable water must be accessible within, or in the immediate vicinity, of each household, educational institution and workplace. All water facilities and services must be of sufficient quality, culturally appropriate and sensitive to gender, life-cycle and privacy requirements. Physical security should not be threatened during access to water facilities and services.

The *WHO Guidelines* for water availability mentioned above also serve as the guiding document in assessing those criteria. In the case of Egypt, there is high rate of population increase (2%) with low efficiency of water distribution. 97% of the urban population is served with piped water. The rural poor suffer from poor maintenance of water facilities. In the case of Jordan, 100% of the urban population is served by piped water. There are no significant geographical discrepancies between rural and urban.

- *Economic accessibility:*

  Water, and water facilities and services, must be affordable for all. The direct and indirect costs and charges associated with securing water must be affordable, and must not compromise or threaten the realization of other Covenant rights.

In general, water services are considered to be affordable when they cost no more than 2% of the average family income (AWWA, 2000). In the case of Egypt, the operation and maintenance costs of municipal and sanitary systems are high. Moreover, the rural population is characterized as low-income. In the case of Jordan, domestic water prices are affordable. The water supply is not continuous (2 days a week in urban areas) and the price for bottled water is 8–10 times more than piped water.

Access to Information

The public right to have access to water data and information is critical for planning and the sound management of water resources. Information and data availability varies from country to country. Most concerns exist with regard to data accuracy, reliability,

consistency and deficiencies. In the case of Egypt, information is difficult to obtain due to low investment in the information industry. In the case of Jordan, reasonable information systems are in place and access to water data is feasible.

Water Governance and Human Right Approach

Water governance refers to a range of political, social, economic and administrative systems that are in place to regulate the development and management of water resources and provision of water services at different levels of society. Effective water governance is a prerequisite to fulfill the human right approach for water. The term 'governance' refers, in general, to the relationship (economic, social and political) between a society and its government. The term adopted for governance refers to the process by which the input by stakeholders is considered in the decision-making process and decision makers are held accountable.

With regard to the governmental commitment to the human right concept, it can be stated that there is no single legal norm in any of the countries evaluated which serves as a binding instrument for the human right on water, although national governments are obliged to fulfill international commitments on human rights. Governmental obligation to fulfill international law concerning water in general depends on political interests and economic viability.

In general, people are not aware of their right to a sufficient water supply in quality and quantity. People often simply do not know about their right. Education and empowerment could serve to help in this and act as a starting point for political engagement.

Stakeholders such as NGOs play an important role in encouraging dialogue among people towards their awareness of the right to water. In all countries a growing awareness of water as a finite resource was identified, but work still needs to be done. Often water is seen as a political issue rather than a basic need for life.

Civil society and organizations aiming to improve governance are often asked to consider adopting a governance model. A governance model is a functional description of the principles of good governance, and the allocation of responsibilities and relationships between stakeholders for tasks and practices required.

Some water utilities have become trapped in a cycle of 'three lows': low investment, low quality of service and low revenue (and/or cost recovery) levels. Water authorities that receive low levels of revenue relative to costs typically under-invest; the resulting low quality of service makes it politically difficult, in many cases, to justify raising water rates. This is particularly acute when water entities do not set water rates to recover all of their costs over the full lifecycle of infrastructure, in other words, for long-term capital expenditure on renewals, rehabilitation and replacement as well as for short-term operations and maintenance of the water supply system.

Although information on best practices in governance has increased over the past decade, it is generally acknowledged that there is no 'one size fits all' model. Governance models and business models are closely interrelated. Preferred models of good governance will guide and, in some cases, constrain choices about business models, and vice versa. Together, governance and business models determine the distribution of risks and responsibility for all aspects of water supply management.

The debate over water supply governance and how control should be shared among citizens, the state and the private sector centres around three idealized models of resource

management: the state planning model, the market model and the community model. These three stakeholder governance models also apply to public services more generally. In practice, of course, many public services have elements of more than one model.

In practice, there is a great deal of variation in the stakeholder governance models associated with different business models. There are also hybrid models: municipal services boards or commissions, delegated management contracts, and private utilities adopt elements of both the planning and market models.

Good governance is about achieving desired results, and achieving them in the right way. Organizations usually develop in-house governance models. The importance of good governance is widely accepted, yet the question of the usefulness of governance models is debated.

Whether or not a formal model is adopted, organizations will find it useful to define principles of good governance, and to articulate responsibilities of and relationships between stakeholders to serve the human needs. Despite widespread acknowledgment of the importance of governance, definitions and models of good governance vary considerably. The fine-grained structure of a governance model will, however, vary from one country to another.

Good governance is characterized by a set of ranked principles that guide decision-making processes and management practices. For example, in making recommendations on the role of governments in water supply management, four principles were devised. These include: (1) public accountability for decisions relating to the water system; (2) effective exercise of owners' oversight responsibilities; (3) competence and effectiveness in the management and operation of the system; and (4) full transparency in decision making.

Principles of good governance and the prioritization accorded to each principle vary between organizations and jurisdictions. This variation is due in part to the fact that water governance and human rights are embedded in broader frameworks of political governance.

Also implicit in different definitions of good governance are assumptions about the legitimacy of different stakeholders and decision makers, robust decision-making structures, and accepted processes of decision making. Good governance is thus to some degree dependent upon how a society interprets the practice of deliberative democracy which is a pre-requisite for applying the human right approach to water.

Specifically, there has been an emergence of relatively strong civil society discourse in water governance in the MENA region, for example, in Lebanon and Jordan. However, in many countries the voice of civil society is low or does not exist. There is a strong relationship between the notion of water as a human right and governance. This is linked to real participation of a civil society in decision making and also to access to information.

Towards a Civil Society Globalization: New Discourse

The UN concept for water as a human right is characterized as a people-centred approach to development, not recognizing the 'water rights' of an environment (or natural capital) in an equal manner. A people-centred approach is preferable to a top-down approach which was traditionally in place with water systems imposed on the people by governmental and professional sectors. It is more effective, efficient and less costly, but water is also needed

to maintain and recreate nature and the environment. The amount of water for use by people needs to be balanced with the needs of the environment.

In terms of contextualizing the notions and concepts of the natural capital, sustainability and ecosystems services in the water as a human right, it will be valuable to incorporate the concept of ecosystem services[1] as outlined in the Millennium Ecosystem

Assessment

Our natural capital represented by ecosystem services could be the new initiative that provides the link between conservation and development (as stated in MDG1 and MDG7). The dependence of human livelihoods on ecosystem services can be demonstrated to both civil society and the private sector in terms of quantified benefits and costs. Additionally, there is an increasing realization of the vulnerability of large groups of poor people to natural disasters that may be mitigated or even prevented by improved ecosystem management. Hence, the link between human security and environmental security is evident to demonstrate the need and value for broadening the concept of water as a human right to 'environment or ecosystem services as a human right'.

Civil society and knowledge-based organizations (such as IUCN) can contribute to provide evidence and action research on the value of ecosystem services. This can be achieved through improving and disseminating knowledge, empowering key actors and improving governance at national level and international policy. Specifically, the eco-dimension of water as a human right can utilize the notion of ecosystem services to achieve a number of outputs. These include: (1) assessment of the metrics of different ecosystem services, e.g. through modelling of the contribution of different forest restoration interventions to carbon sequestration and water yield, as well as the economic valuation of the results; (2) assessment of the trade-offs (and synergies) between optimizing various ecosystem services and biodiversity conservation; and (3) linking up national-level networks on ecosystem services to promote international learning.

In the MENA region during the last two decades, civil societies such as the Jordan Environment Society and the Royal Society for Conservation of Nature and many NGOs in Lebanon such as Green Line, contributed to provide the enabling environment to conduct policy analysis and to review the regulatory and governance models. These include: (1) demonstrations at both field and policy level on how ecosystem services-related interventions can contribute to climate change adaptation; (2) practical guidance on different institutional and incentive mechanisms allowing smallholders and small enterprises to benefit from ecosystem services markets; (3) standards for Green/Fair Carbon and Green/Fair Water developed in partnership with private sector companies and governments; (4) catchments restoration methods for delivering improved ecosystem services, as a direct contribution to poor people's livelihood; and (5) demonstrations of how changes in the management of dams and reservoirs can have net benefits for people as well as for biodiversity. However, the new discourse of civil society is linked to the evolution of democratic transformations in the MENA countries. The current political situation in many countries in the MENA region constrains the positive role for nurturing the new role and discourse of civil society.

In case the democratic processes in MENA regions are enhanced to ensure accountability and transparency, civil society could contribute in several ways to the realization of the right to water and water as a human right. The identified possible fields of

activity are as follows:

(1) Promoting concepts of human rights by raising awareness and informing about aspects of the right to water and ecosystem services and on how citizens can claim that right and assist others in fulfilling it.
(2) Building capacities among local groups and civil society to monitor the commitment and work of local government and therefore contributing to ensuring that an adequate policy is in place, and that the policy is implemented.
(3) Supporting local service provision by raising awareness of water and environment as a limited resource, e.g. awareness campaigns, informing and training, especially in schools for instance in the management of community water supplies and ecosystem services.
(4) Contributing to the development and promotion of international standards, benchmarks and indicators on the right to water and environment.
(5) Documentation and highlighting violations of the right to water and the environment.
(6) Advocating in international and regional forums on behalf on those who have had their right to water threatened or violated.

In many developing countries the political situation is affecting much work and engagement of civil society in water issues. The fact that several NGOs are running regional offices in different countries is seen as a great advantage in contributing to the realization of the human right concept of water.

Conclusions

Defining water as a human right leads to a broader basis for advocacy work for the water needs of human beings. Utilizing the right to water means: (1) paving the way for translating the right to water into specific national and international legal obligations and responsibilities; (2) raising attention towards water management throughout the world; (3) identification of minimum water requirements and allocations of all; (4) setting priorities for water policies centres around the water needs of humans; (5) catalyzing international agreements on water issues and, thus contributing to resolutions of watershed disputes and conflicts between different users; (6) emphasizing the governmental obligation to ensure sufficient access to water, ecosystem services and sanitation; and (7) providing a basis for lobbying towards water need on the basis of political commitments.

Through seeing the linkages in three water visions and MDGs, it was evident that all human rights are indivisible are interrelated. A lack of water and sanitation clearly has an impact on the enjoyment of other human rights, such as the rights to education, health and work, which form an essential basis for poverty elimination and human development as well. Recognizing water as a human right creates the political will to solve the water and ecological crisis, lowering poverty and raising health by establishing a partnership between the human rights and the water/ environment sector community.

The key to success in embodying and realizing water as a human right lies within country-led mechanisms to set, measure and achieve country-specific environmental sustainability targets that draw on existing development frameworks and strategies, including poverty reduction strategies, macroeconomic and sectoral policies. This integration will make it possible to forge a more coordinated response to

poverty-environment challenges, to achieve synergies between drivers' interventions across many sectors and levels of action, and to ensure that adequate domestic and external resources are being allocated and effectively targeted.

Note

1. The term 'Ecosystem Services' is used here as it is by the Millennium Assessment, i.e. to include both goods and services. The latter include, for example, carbon sequestration, water purification, the securing of water supplies, physical protection against soil erosion and natural disasters such as flooding, pollination, genetic information for agricultural, pharmaceutical and industrial use.

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Actualizing the Right to Water: An Egyptian Perspective for an Action Plan

SHADEN ABDEL-GAWAD

Egypt's Water Resources and Availability

Egypt is an arid country covering an area of approximately 1 million km^2, of which its population occupies only 5.5%. The availability of fresh water resources in the country is limited mainly to the Nile River, groundwater from both renewable and non-renewable aquifers, limited rainfalls along the northern coast and flash floods in the Sinai Peninsula. Egypt also practices the use of various types of marginal quality water, such as agricultural drainage water, treated domestic wastewater and desalinated brackish water.

Egypt receives about 98% of its fresh water from the Nile, originating outside its international borders. This is considered a major challenge for Egyptian water policy and decision makers. The average annual yield of the river is estimated at 84 BCM at Aswan, south of Egypt. However, Egypt's share from the Nile is fixed at 55.5 BCM per year by the 1959 agreement with Sudan.

Groundwater is an important source of fresh water in Egypt, both within the Nile system and in the desert. The renewable groundwater aquifer of the Nile system is recharged from excess irrigation water as well as leakages from the Nile and the distribution network. Current abstraction from the Nile aquifer is about 4.8 BCM/yr and is expected to reach 7.5 BCM/yr by the year 2017. Groundwater also exists in the non-renewable deep aquifers

in the Western Desert and Sinai. The total extraction potential of groundwater is estimated at 3.5 BCM/yr.

Rainfall is very scarce and occurs only during the winter season in the form of scattered showers with a total amount that may reach 1.5 BCM/yr. Therefore, rainfall cannot be considered a dependable source of water.

Agricultural drainage water has emerged as the most attractive type of unconventional resource in Egypt in supplementing available water resources. Indeed, reuse of agricultural drainage water has been adopted as a national policy since the late 1970s. Currently, an amount of 5 BCM/yr of drainage water in the Nile Delta is reused directly or after mixing with fresh water.

Interest in the use of treated wastewater, as a substitute for fresh water in irrigation, has accelerated since 1980. Currently, 0.7 BCM/yr of treated wastewater is being used in irrigation, of which 0.26 BCM is undergoing secondary treatment and 0.44 BCM undergoing primary treatment.

Desalination has been given low priority due, in part, to its high cost. Nevertheless, it is being used to produce and supply drinking water for some locations along the Mediterranean and Red Sea coasts.

Water Uses

The prime water consumer in Egypt is the agricultural sector, with its share exceeding 82% of the total gross demand for water. The agricultural sector contributes approximately 18% to the gross domestic product (GDP), and employs 31% of the total labour force. Municipal and industrial uses account for 15% of the total water consumption in the country, while navigation and hydropower generation are considered as non-consumptive uses. Industry and mining account for nearly 18% of the GDP and almost 14% of total employment.

The total water diverted to agriculture from all sources that includes conveyance, distribution and application losses is estimated to be about 60 BCM/yr. Municipal water demand including water supply for major urban areas and rural villages is currently in the order of 5.5 BCM/yr. Industrial water demand is estimated at 7.5 BCM/yr. A small portion of this quantity (0.8 BCM) is consumed through evaporation during industrial processes, while the rest returns back to the system in a polluted form.

Water supply and sanitation is managed by the Ministry of Housing, Utilities and New Communities (MHUNC). The Ministry of Water Resources and Irrigation (MWRI) is responsible for ensuring water of an acceptable quality for all sectors.

Challenges in the Water Sector

Sustainable development of water resources in Egypt is impeded by a number of challenges, most notably a rapid population growth, water scarcity, food security, water quality deterioration, fragmentation of water management among different institutions and cost recovery of water resources services (Abdel-Gawad *et al.*, 2004).

Egypt has reached a stage where the quantity and quality of water is imposing limits on its economic development. The most pressing challenge facing development in the country is population growth. The population has doubled in the last 40 years from 37 million in 1970 to 72 million in 2005 and is expected to reach 95 million in 2025

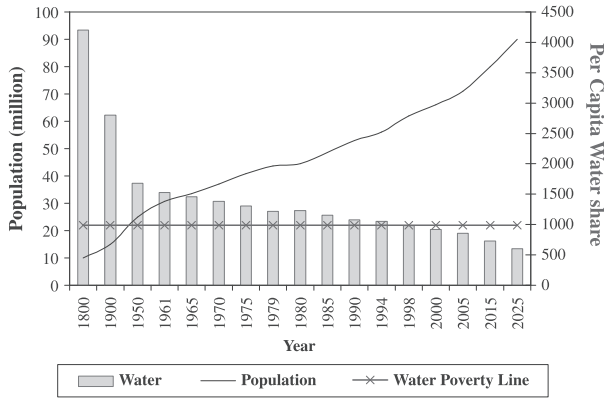

Figure 1. Population growth and per capita water share in Egypt (m^3/year)

(Figure 1), thus increasing the related water demands for public water supply and economic activities, in particular agriculture. The annual population growth rate decreased from 2.8% in the period 1976–86 to 2.1% in the period 1986–96, and has decreased further to 1.9% according to the 2004 estimate. The present per capita water share is below 1000 m^3/year and it might reach 600 m^3/capita in the year 2025, which would indicate 'water scarcity'. In addition, rapid degradation in surface and groundwater quality results in less water being available for different uses. Water quality deterioration also has various other impacts including human health hazards, loss of biodiversity and the irreversible pollution of groundwater.

The per capita cultivated land declined from 0.23 acres in 1960 to approximately 0.1 acres in 2000. This directly affects the food security at the individual, family, community and country levels. Egypt is one of the world's largest food importers, this import accounted for only 27% of the total import bill in 2003 (UNDP & INP, 2005). Egypt is increasingly producing higher value food crops (e.g. fruits and vegetables) and non-food crops (e.g. flax and cotton) and trading them to purchase basic staple grains. Figure 2 shows the self-sufficiency in major food items in 2000 (ICID, 2005). The food

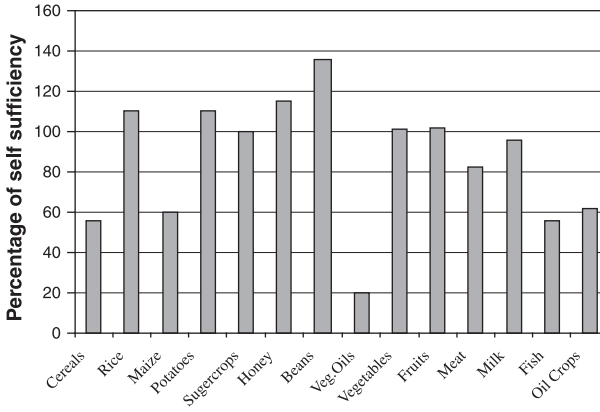

Figure 2. Sufficiency in major food items in 2000

gap for some main crops is expected to increase widely within the next two decades. Unless a very serious plan to expand land resources, rationalize the use of limited water resources and increase the use of land and water efficiency in agricultural production, food security in basic crops can never be achieved.

The weakness of financial resources and low investment profile is limiting the implementation of the required measures of the future water strategy. This is partly caused by the fact that a large portion of the finances are currently expected to come from central government.

In response to all these challenges, the government of Egypt has launched several policies that aim to have better utilization of the limited water resources and increase the efficiency of water use in all sectors. In 2000, the Ministry of Water Resources and Irrigation (MWRI) shifted its long time policy paradigm to an integrated water resources management (IWRM) paradigm to achieve sustainability in water resources utilization for present and future generations, including supply and demand management, quantity and quality management, and a focus on the integration of socio-economic and environmental aspects and on the involvement of all stakeholders in the various water management activities. There are also programmes for cost recovery, institutional reforms, laws and legislations revision, decentralization of responsibilities and privatization of various assets and services of MWRI.

The Right to Water

With water being a basic need carrying a high risk of oppression, it may very well be considered a human right. The human right to water has been explicitly recognized in several international human rights treaties and declarations, especially in the International Covenant on Economics, Social, and Cultural Rights and other international binding laws and regulations as follows: "The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses" (United Nations Economic and Social Council, 2002).

It is clear from the statement that the focus is primarily on household water, and that human rights to water for growing food are ignored, although the largest water use by far is agriculture. Indeed, the notion of a human right to water for food is more complicated than that of a right to household water.

The role of international initiatives as well as the constitutional statements supporting the human right to water is discussed in great detail by several other authors in this issue. The following few paragraphs will discuss the role of values and religion in securing the human right to water.

The Right to Water as a Component of Water Ethics

If there is a consensus on the existence of an ethical principle relating water to human rights and the needs to sustain life, as cited in Young *et al.* (1994): "... needs are no longer measured in consumption per capita per day, but in terms of health and welfare of human populations...", then a great effort is required to fully implement it. Revision of consumption patterns, the introduction of new methods to evaluate the financial efficiency of water projects, the introduction of simpler and/or cleaner technologies, fostering public participation, dissemination of information and education, are all concepts to be put to

work together to achieve the goal of universal access to safe water and adequate sanitation.

The First Lady of Egypt, Mrs Mubarak, emphasized the urgency of public participation and the necessity of raising public awareness of the subject: "The right to water is the right to life... The basic ethical rules that govern water rights are the same as those that govern human rights—they both depend primarily on duties and responsibilities" (Mubarak, 1999).

The Right to Water in Religion

Water has a central place in the practices and beliefs of many religions for two main reasons. First, water cleanses. Water washes away impurities and pollutants, it can make an object looks as good as new and wipes away any signs of previous defilement. Water not only purifies objects for ritual use, but can also make a person clean, externally or spiritually, ready to come into the presence of his/her focus of worship. Second, water is a primary building block of life. Without water there is no life, yet water has the power to destroy as well as to create. We are at the mercy of water just as we are at the mercy of our God. The significance of water manifests itself differently in different religions and beliefs but it is these two qualities of water that underlie its place in our cultures and faiths.

The harsh desert climate of the Middle East and North Africa makes water a highly valuable and precious resource. Islamic law, the Sharìah, goes into great detail on the subject of water to ensure the fair and equitable distribution of water within the community.

Water is a gift from Allah. It is one of the three things that every Muslim is entitled to: grass (pasture for cattle), water, and fire. Water should be freely available to all, and any Muslim who withholds unneeded water sins against Allah: "No one can refuse surplus water without sinning against Allah and against man". The Hadiths say that among the three people Allah will ignore on the Day of Resurrection there will be "the man who, having water in excess of his needs, refuses it to a traveler..."

There are two fundamental precepts that guide the rights to water in the Sharìah: shafa, the right of thirst, establishes the universal right for humans to quench their thirst and that of their animals; shirb, the right of irrigation, gives all users the right to water their crops. Both rules are interpreted in different ways by the various schools of Islam, and their implementation varies from region to region, from village to village, each community applying the law to suit geographical and social circumstances (De Chatel, 2002).

Allha says in the Holy Quran "By means of water we give life to everything", (Quran, 21: 30). The Prophet Mohamed also said: "Excess in the use of water is forbidden even if you have the resources of a whole river". The magic of water lies in its power to give life and cleanse the body and purify the soul.

Egyptian Water Policy and Human Rights

One of the major challenges facing the water sector in Egypt is closing the rapidly increasing gap between the limited water resources and the escalating water demands in the municipal, industrial and agricultural sectors. To this end, a series of water resources policies and guidelines have been developed. These policies were dynamic in nature to allow for changing conditions. In this respect, a series of studies and policy briefs were undertaken in preparation of national water management plans, based on extensive and

detailed assessments of the water situation, current and forecasted water demand, and investment needs, including legal and financial means needed. Major progress is being made in articulating the legal framework to regulate water quality, protect the environment and control water use.

However, recent developments with regard to water scarcity, infrastructural needs and environmental and socio-economic considerations necessitate a revision of planning and management practices. A more integrated management approach was seen as essential, one that necessitates much closer coordination among concerned government institutions and the active participation of water users in planning, operation and management (O&M). It also necessitates the enhancement of the legal basis for water allocation, conservation and protection.

To cope up with these challenges, the Ministry of Water Resources and Irrigation (MWRI) has developed a National Water Resources Plan (NWRP) with three major steps: (1) development of additional water resources and cooperation with the Nile Basin Riparian countries; (2) making better use of the existing water resources and increasing water use efficiency; and (3) protection of water quality and the environment. This national plan describes how Egypt will safeguard its water resources (quantity and quality) under the conditions of an increasing population and a fixed water availability and how it will use the resources in a sustainable and responsible way from a socio-economic and environmental point of view. The planning horizon covers a period of 20 years from 1997 up to 2017.

The plan is intended to guide both public and private actions in the future to ensure the optimum development and management of water that benefits both individuals and the society at large. It gives direction, makes choices and leads to obligations. It is based on an Integrated Water Resources Management approach, which makes this plan a real national plan and not only a plan of the MWRI. The most important aspect is the 'political will' Egypt has to implement this national plan.

The total investments needed amount to LE145 billion for the period 2003–17 (NWRP, 2005). The major shares in this investment are taken up by the Ministry of Housing, Utilities and New Communities (62%), the Ministry of Water Resources and Irrigation (32%) and other related ministries (1%). The private sector share is 5% of these investments. The total recurrent costs in the same period 2003–07 are LE41 billion. These costs include the O&M costs of the system but exclude the personnel costs. The municipalities percentage of the O&M of the drinking water and wastewater treatment plants is 70%. The MWRI will cover 12% while the private sector will cover 15%. Other related ministries of Agriculture, Health and Environment will cover 3%.

The national plan (NWRP) considers water first as a human right, and thus proposes several measures to ensure this consideration. The adopted measures also consider the culture of water use in Egypt as well as the religion (NWRP, 2005).

The plan includes measures to develop additional resources, make better use of existing resources, and measures in the field of water quality and environmental protection. These measures are listed in Box 1 and are in line with the principal elements of the UN legal definition of the human right to water, i.e. availability, quality and accessibility (Assaf *et al.*, 2004).

At this stage, it should be noted that much hard work has been devoted to developing the national plan. At the same time, many measures listed in Box 1 have been successfully developed, implemented and further improved.

Box 1. Measures of the National Water Policy

Measures to develop additional water resources

- Increased deep groundwater withdrawal in the Western Desert up to 3.5 BCM/year.
- Rainfall and flash floods harvesting and use of brackish groundwater.
- Cooperation with Nile Basin countries that may lead to additional inflow into Lake Nasser.

Measures to make better use of existing resources

- Continuation of the Irrigation Improvement Project (IIP).
- Potential increase of agricultural drainage reuse to 8.4 BCM/year by the year 2017.
- Potential increase of treated wastewater reuse to 2.5 BCM/yr by the year 2017.
- Introduction of new crop varieties such as early mature, salt tolerant seeds and the shifting of cropping patterns to less water-consuming crops.
- Replacement and rehabilitation of existing grand barrages and control structures on the Nile and main canals to increase storage capacity of the system.

Measures to protect water quality and the environment

- Stimulating cleaner technology, clean products and re-location of certain industries.
- Establishment and operational of a sustainable national water quality monitoring programme on the Nile, canals, drains and Lake Nasser.
- Coverage of open conveyance system passing through residential areas to closed conduits.
- Encouraging agriculture to use more environmentally friendly methods and agro-chemicals.
- Introduction of environmentally safe weed control methods and banning the use of chemical herbicides.
- Removal of subsidies for fertilizers and pesticides and ban of some agricultural chemicals with long lasting effects.
- Public awareness programmes about the importance of conserving Egypt's water resources in terms of quality and quantity.
- Considerable increase in treatment of municipal wastewater.

Supporting Institutional and Legislative Measures

The national plan also supports changes in the institutional and legal framework. Today's complex tasks in water management cannot be fulfilled and financed by government actors only. Competition for public finance in health care, education, transportation and telecommunication is dramatically increasing. Investment in the water sector is no exception, but will have to compete with other sectors for public funding. Thus, public–private partnerships (PPPs) have been on the agenda for several years. One reason is financial in order to share the financial burden and reduce costs to the government. The other reason is managerial, to give a broad base for water management and maximize the impact of water projects in terms of job creation and improved water services.

The role of the private sector is expanding fast. As a result, its capacity to assume responsibilities and tasks, which were traditionally the government's domain, is increasing. Two types of PPPs are considered in the Old Lands and New Lands of Egypt: stakeholders' participation in the O&M and development of the irrigation and drainage

system, and PPPs in integrated area development where investment in water infrastructure is a central factor.

Stakeholders' Participation

In order to achieve improved water management, some of the O&M responsibilities are now being transferred to the water users and beneficiaries. Farmers are encouraged to form local water user associations and water boards through which planned programmes can be implemented. This would result in reduced water-related conflicts and provide more commitment and support to the water resources management and planning at all levels (Abdel-Gawad *et al.*, 2004).

Egypt is slowly studying and implementing the policy of cost recovery from beneficiaries as a mechanism for improving water use efficiency and introducing new methods that control the irrigation network better and achieve fair water distribution (Abu Zeid & Hamdy, 2002). For example, farmers already share in the O&M costs of the field level small canals as they pay LE18 per acre per year and also through land tax as a contribution of labour cost recovery for the O&M of the system.

Public Private Partnerships in Mega Projects

The government of Egypt has embarked on ambitious programmes to increase the inhabited land from the current 5.5% to approximately 25%. The projected increase is planned through several mega projects of which the North Sinai and South Valley Development projects rank top in terms of size and goals.

In the North Sinai Development project, 70% of the land is allocated to investors and the aim is for large investors to transfer farming technology to small ones. The private sector is expected to provide 65% of the total investment needed for the whole programme, which is projected to reach LE64 billion by 2017. Similarly in the South Valley development project, a large part of the investment costs were recovered from the large investors, to whom most of the area is allocated. The government finances up to 20–25% of the total expenses by constructing the main irrigation infrastructures and the pumping station. Furthermore, the government has established two holding companies in both projects to manage, operate and maintain the irrigation infrastructure and provide services in marketing and training.

Users' Participation

Users' participation in water management is not a new concept in Egypt. On the contrary, the present policy to decentralize water management builds on a history of forms of social organization. However, formal user participation was introduced in 1987 in the Irrigation Improvement Project. Initially, water users associations (WUAs) had no legal status, but that changed with the modification of Law 12 in 1994, in which WUAs were defined as legal organizations at the Mesqa level in the command areas under improvement in Old Lands. In the Law, water users unions (WUUs) were also introduced, which are applicable only in New Lands. More than 2400 WUAs and hundreds of WUUs have been established since then.

In 1995, the first Water Board was established in Fayoum Governorate as a consultative body through which farmers could participate in decision making. To consolidate the

initial success of Water Boards, the National Water Boards Project was set up as such "to develop a Viable National Policy and Legal Framework for Participatory Water Management Improvement at Secondary Level". In 2004, the approach was scaled up to the district level through the formation of branch canal water user associations (BCWUAs). Currently, 224 BCWUAs have been established in 10 governorates covering an area of more than 650 000 acres (Water Board Project, 2005).

Legal Reform

With regard to the management (O&M) of the government-owned water management infrastructure, a modified version of the governmental Law 12 for Irrigation and Drainage was drafted to provide the basis for government intervention and action and it establishes the context and framework for operation by non-governmental entities, including water boards.

The modified law provides the possibility to delegate part of the management or to transfer complete management to water boards/associations or to specialized companies. The level at which the water boards or specialized companies could operate is at the secondary (branch) canal or above. This provision in the law is sufficient to accommodate the various conditions encountered in the irrigated areas and also allows adequate room for broadening the implementation of the concept of decentralized management and the greater role of the private sector in the future. Through this law, water boards will be allowed to raise funds to cover O&M and other service expenses, including the cost of contracting service providing companies.

Human Rights to Drinking Water and Sanitation

As stated earlier, the current population of Egypt is 72 million of which more than 44% lives in an urban environment and 56% in rural areas. Under its municipal water and wastewater programme, the government of Egypt has invested more than $24 billion in water and wastewater services development over the last 20 years (Figures 3 and 4). In terms of the provision of urban and rural areas with improved drinking water supply and sanitation, Egypt ranks among the best lower-middle-income countries in the world.

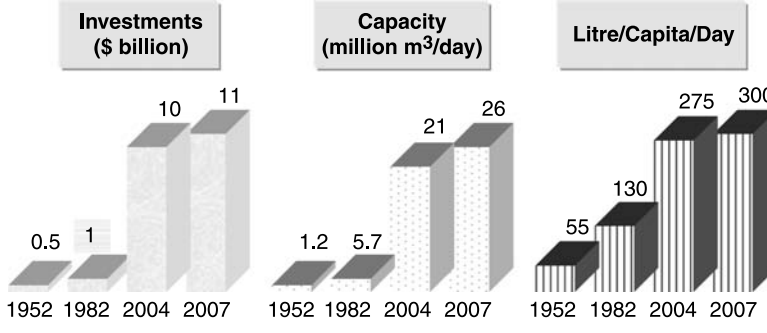

Figure 3. Drinking water service development in Egypt

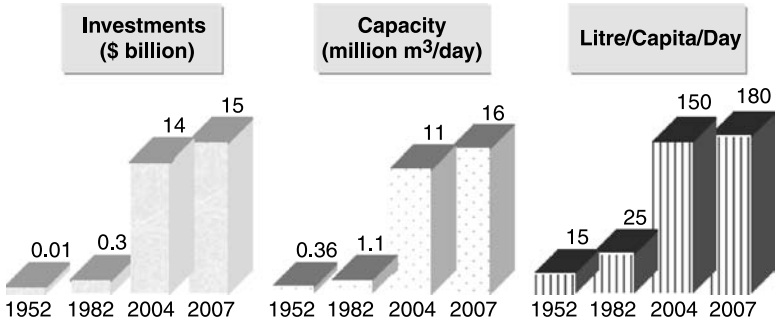

Figure 4. Wastewater service development in Egypt

Drinking Water Services

Drinking water is well supplied with a high rate of satisfaction of the demand reaching 100% in urban areas and 95% in rural areas (Figure 5). The rural population that has access to adequate drinking water has increased from 45% in 1993 to about 95% in 2004, distributed over 4617 villages. The government policy is to have full coverage of rural areas by 2007, including a further improvement of the quality of the service.

Egypt relies on three types of water sources and treatment technology for drinking water:

- large conventional surface water filtration plants drawing from the Nile or canals;
- compact filtration plants drawing from the canals; and
- groundwater pumping stations drawing from depths averaging 70 m.

The largest source of drinking water (83%) is the surface water system and only 17% is from groundwater. The water discharged from large treatment plants is generally of good quality. The water discharged by compact units is generally acceptable, although deteriorating water quality in some canals poses a growing threat, especially during the 'off' periods in the irrigation rotation. On the other hand, groundwater pumping stations may suffer from quality problems related to chemical and/or bacterial pollution.

The per capita share of service increased from 130 l/day for drinking water in 1982 to 275 l/day in 2004 (Figure 3). According to the data published by the Cabinet Information

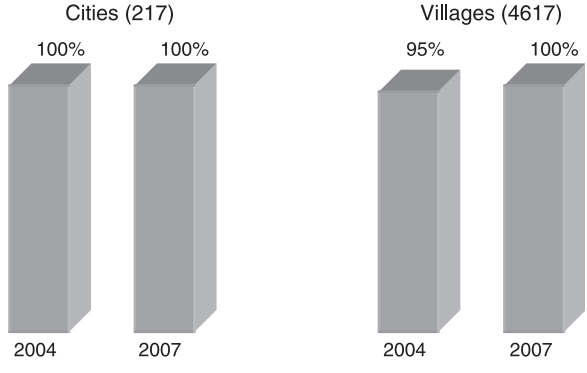

Figure 5. Drinking water service coverage in Egypt

and Decision Support Center, the total installed capacity of drinking water treatment plants is 21 million m^3/day in 2004. This figure gives an average value of 275 LCD. This represents installed capacity divided by the population and hence does not represent consumption levels, which are affected by plant operating efficiency, physical losses, number of connections, etc. Vast differences in installed LCD capacity are largely noted between and within governorates, ranging from a high of 330 LCD in Greater Cairo to 143 LCD in Sharkia (Nile Delta) to 70 LCD in Minya (Upper Egypt). Estimates are further complicated by the poor condition of most consumption meters, particularly in rural Egypt.

In rural Egypt, problems of low continuity or reliability of piped water supply can be found. For example, a survey conducted in Fayoum Governorate revealed that 46% of households complained of low water pressure, 30% of frequent water cuts and 22% of water not being available during the daytime. These problems forced villagers to conjunctive use of canal water.

However, the new plants that are being constructed and those that are planned in the near future will improve the equity in drinking water supply. The total expected capacity would reach almost 26 million m^3/day in 2007.

Unaccounted for Water (UFW) Losses

UFW losses amount to almost 34% as a national average, ranging between governorates from 15% to 65%. A significant part of the UFW consists of leakage losses in the supply system as well as the distribution system. The estimated UFW loss of 34% is considered too low by many experts since most water connections are not properly metered.

Sanitation Services

Sanitation services are less developed than those for water supply. At present, there are more than 200 wastewater treatment plants in the country. Urban coverage with improved sanitation gradually increased from 45% in 1993 to 56% in 2004. In contrast, rural sanitation coverage remains incredibly low at 4% (Figure 6). The low coverage, in combination with a sub-optimal treatment, results in serious problems of water pollution and degradation of health conditions because the majority of villages and rural areas discharge their raw domestic wastewater directly into the waterways. The discharges are

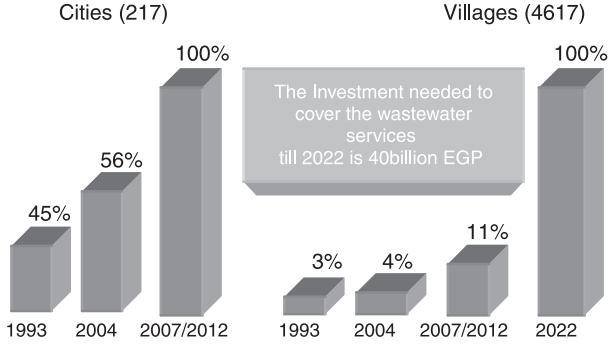

Figure 6. Wastewater service coverage in Egypt

increasing year after year due to the population growth as well as the rapid implementation of water supply networks in many villages without the parallel construction of sewage systems. Delays in achieving sufficient sanitation services are due to financial constraints.

The capacity of wastewater treatment plants has increased by 10 times in the last two decades (Figure 4). The existing capacity of 11 million m^3/day serves about 18 million people in mainly urban areas. The plan is to reach a total available capacity of 16 million m^3/day by 2007, serving all urban areas.

Adverse Impacts on Health and the Economy

The causal linkages between water supply, sanitation and health are well established. It is estimated that more than 17 000 children die (20% of all child deaths) every year in Egypt from diarrhea diseases caused by sub-standard drinking water quality, inadequate sanitation facilities and inadequate personal, food and domestic hygiene behaviour.

The total cost of environmental degradation has been estimated at LE14.5 billion/year or 4.8% of GDP, of which those due solely to water pollution and water resources degradation are estimated to be LE2.9 billion/year or 1% GDP (World Bank, 2002).

Role of NGOs in Water and Sanitation

The assistance of NGOs has been directed so far to small and poor communities situated along the escarpment of the Nile Valley. There are few case studies of the non-governmental provision of rural domestic water and sanitation. Their involvement is limited to their participation in donor-funded projects. The NGO package includes funding for materials, technical and engineering assistance and organizational development.

Financing of the Water Sector

Drinking water and wastewater services are heavily subsidized by the government. For example, in Cairo, service fees comprise only 25% and 10% of the actual costs of water supply and sanitation respectively. The inherent subsides to the O&M amounts to 2% of the total public recurrent expenditures (World Bank, 2005). Cost recovery in cities and towns are better in water supply (with Alexandria being as high as 50%) but, equally being as low as 10% in sanitation

Tariffs are set by the government, which are more or less uniform for all governorates of Egypt. Tariffs cover only a fraction of O&M costs. At present, the charge for water supply is 0.23 LE/m^3, while the combined costs for water supply and wastewater treatment amounts to 1.10 LE/m^3.

Improvement of the Water Sector

Vast amounts of work have been done over the past few years to address the problems encountered in the water and wastewater sector. This has been done not only by the Egyptian government, but also with donor inputs such as USA, Germany, The Netherlands and Denmark.

Box 2. Measures on water and wastewater

- Increase drinking water treatment capacity. This includes 59 water treatment plants that are already under construction and an additional 43 that will be constructed in the coming years.
- Install/rehabilitate a metering system to reduce UFW losses.
- Initiate public awareness campaigns to reduce wasteful use of water.
- Apply progressive tariff structure.
- Increase municipal sewerage and wastewater treatment.
- Initiate cost recovery for sanitary services.

A wide range of technical, institutional and financial approaches have been addressed using the national organizations such as NOPWASD, the Social Fund for Development as well as the international organizations like CARE. Furthermore, various implementation models have been tried out, including government units working with NGOs and universities.

Egypt is now taking a step forward towards future development by reforming the water and wastewater sector. The change concerned institutional and financial aspects. Thus, a Holding Company for Water and Wastewater and its subsidiary companies was established in 2004 by a presidential decree to develop and implement a holistic policy, which includes expansion of the service delivery, the introduction of modern technology in O&M and management and increasing the private sector participation in activities which are not core to its mission (Box 2). This institutional reform shows the high willingness of the government to significantly accelerate access to water.

Concluding Remarks

With water being a basic need carrying a high risk of oppression, it may very well be considered a human right. The introduction of water as a human right brings new perspectives and dimensions to the notion of sustainable development.

Being an arid country, water management in Egypt is of particular importance for the benefit of all Egyptians. Egypt has successfully developed a national integrated water resources management plan. Egypt's national plan represents a model in integrated planning, reflecting the roles and responsibilities of different water-related sectors and the active participation of water users in O&M. The plan looks at existing and future challenges, the available water resources and at the measures required to face these challenges to meet the expected requirements for safe drinking water, adequate sanitation and improved water resources management. Strengthening the private sector and a carefully considered reduction in government responsibilities are key elements in this plan.

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Accountability and Rights in Right-based Approaches for Local Water Governance

PETER LABAN

Accountabilities in Local Water Governance

Accountability in a Complex Decision-Making-in-Conflict-System

Management of natural resources is a long-term complex, multi-stakeholder affair in which many players at many different levels have to assume responsibilities and account for this to others. Natural resource management (and water is such a resource) can be seen as a system composed of two interacting decision-making subsystems: a 'horizontal' land/water use system and a 'vertical' human activity system. The horizontal system may be described as the complex interaction between land/water/vegetation and their users within a given geographical space and timeframe, taking into account down- and upstream effects. The vertical system may be described as a complex network composed of different levels of actors, from local households to governments. All these actors have their own roles, rights, responsibilities and sometimes conflicting interests in water resource management. These two interacting systems could be described as a decision-making-in-conflict system (Laban, 1994) that should be considered when promoting local water governance. Each level (element of the system) will interact with other levels. Through their activities actors influence and interfere with the very conditions they are taking into account when decisions are being made (Röling & Engel, 1991). The outcomes of such interactions can be either positive or negative, depending upon its impact on the sustainability of water resource management. Systems-oriented research will explore the

degree of accountability that different actors at different levels have to assume in order to sustain local water governance activities (Laban, 1994).

This paper will develop the idea of accountability in its larger sense and what this could mean in terms of water rights and accountability at the grass-roots levels of the system, such as local communities, local households and their organizations. How development practitioners in government and NGOs can be better informed on these issues and act accordingly will be discussed as well.

Accountability is used here in the wider sense of taking responsibility for one's own behaviour and actions, at the same time being able to account for the effects of such behaviours and actions to others (Laban, 1994, 2005).

Such accountability has to be defined at all levels. It is argued that accountability and responsibilities for NGOs and government duty-bearers are important, but not enough. This is especially so for water use and management, or for natural resource management in general. In this paper emphasis is given to accountability of local people for sustainable water use and management, towards themselves and their community. A later section describes possible action-research necessary to get the required information to enhance such grass-root accountability. However, of equal importance is the accountability of intermediate level organizations and their staff (NGOs and local governments) to local populations through development programmes and approaches that enable local people to take ownership, claim their rights and assume accountability for the management of their water resource base (Laban, 2005). The roles that staff of these organizations can play to enhance grass-root accountability and water rights are discussed in the third section. The paper explores how Right-based Approaches (RBA) can help practitioners to contribute to enhance local level accountability for water resource management as well as access and rights to water. An example of such approaches in the Middle East is given. The final section reflects on how this can be taken forward.

Accountability at Grass-root Levels

The importance of considering such local accountabilities stems from the unfortunate failure of a large number of development projects during the past 30 to 40 years. Although such projects may have been efficient in achieving the expected physical results in the short-term, in many cases the impact and sustainability or even effectiveness of specific projects was low. The long-term and sustainable impact of programme interventions in the water sector depends for an important part on the sense of ownership and the degree of accountability that local people take in the way water resources are managed in their community and for the activities that are needed to use and maintain that resource (Laban, 2003). In many cases, the people will not assume such accountability as they do not feel the activity and/or their results to be really theirs (ownership), being something provided temporarily by an outside institution (an NGO or a government agency) that does not meet their real priorities or longer-term interests. Many water infrastructure and service delivery projects in the past have suffered from these shortcomings. Ownership, and thus sustainable impact, is intricately related to the degree that local people can assume accountability for the actions undertaken for such management and to the possibility to claim the rights they have to water in terms of availability, quality, access and control. Local level accountability has to be seen as a long-term goal rather than a pre-requirement for a development programme or an

investment in the water sector. In many situations the degree to which people at the grass-root level are able to assume such accountability is subject to a number of pre-conditions. In essence they have to do with benefits, knowledge, rights and claim-making power.

Giving emphasis to local level accountability of individuals and community groups may well also be important for another reason. The actual discourse on rights may have unexpected negative effects, especially when informal or customary rights are involved. As in forest and tree management (Okoth-Ogendo, 1991), many different user rights may exist that are not recognized by formal laws. Current liberalization policies place the individual at the centre of development processes. Securing, for instance, formal individual rights to water, even within households, as a further extension of pricing and liberalization in the water sector may have unexpected and undesired effects that may increase the marginalization of women and other underprivileged groups (Ahlers, 2005). The complex endogenous socio-cultural relationships have to be carefully taken into consideration. If not, new policies and approaches, even RBA, may end up dismantling community protection and solidarity and their organization and control over the management of water resources (Ahlers, 2005). Enhancing internal accountability of local community groups for water resource management may then become crucial to balance formalization of individual rights and strengthen internal solidarity and external influence.

What is important here are the questions that have to be raised in the socio-economic and institutional domain to enhance ownership,[1] rights and accountability of local people for the sustainable management of their water resource base and thus to contribute to local water governance. Such research questions are discussed in the fourth section.

Accountability of Development Organizations (NGOs and Local Government)

Raising the issue of local level accountability is certainly not a call for shifting responsibilities away from the so-called duty-bearers. On the contrary, experience from many past and present development projects indicates that in too many cases people are not able (or enabled) to assume responsibilities for the results and activities undertaken by these projects. For a majority of the cases, this is due to the fact that the necessary conducive environment was not created by duty-bearers and NGOs so that important preconditions under which local people could assume accountability for their water resource use and management were not fulfilled. Both these duty-bearers and NGOs thus have a major responsibility. Right-based approaches stress the need for accountability and responsibilities of government and NGOs to their target groups (CARE-UK, 2005).

Accountability of these intermediate organizations is a critical issue that needs attention in designing and implementing development programmes for the rural or the urban poor. Local government organizations and NGOs intervening in community life should be aware of social, cultural and/or economic differentiation within a given community, for example, with regard to access and rights in water use and management. They have a responsibility to ensure that the interests, priorities and rights of women and the less privileged groups are taken into account. Concurrently NGOs, local government and civil society at large have a responsibility to advocate that policy makers, politicians and other decision makers ('duty-bearers') take full responsibility in enhancing good governance and sustainable development. These responsibilities include the creation of a conducive environment for

efficient water governance in which the local people can exercise their rights and assume accountability for water resource management within their own local settings.

The Potential Impact of Right-based Approaches

Potential and Pitfalls of RBA

The above focus on local level accountability can be considered as part of the wider frame of right-based approaches. RBA can be important to impact and sustain efficient water resource management via good governance, through empowerment, equitable access, local level accountability and end-user involvement in shared management. RBA thus may have considerable potential to make local water management more effective in the countries of the Middle East and North Africa. However, RBA is not an entirely new approach to development. With a greater emphasis on rights of local people it is the latest successor to other development approaches that have tried to capture what is really important to make development efforts meaningful for people in local communities. Where each approach gave a different focus to different aspects, all belong to a family of participatory approaches where the interests of local people are put to the fore. This has been greatly enhanced by 'Farmers first' (Chambers *et al.*, 1989) and the further development of participatory rapid appraisal (PRA) in which much of the thinking of Robert Chambers and others were translated in practical tools. It has been followed-up by, among others, innovative thinking on Low-External-Input and Sustainable Agriculture or LEISA (Reijntjes *et al.*, 1992), Farmer Participatory Research and Participatory Technology Development (PTD) (ILEIA, 1989; Van Veldhuizen *et al.*, 1997). These ideas have been given further recognition by the general acceptance of concepts as such as 'sustainable development' (Gips, 1986; World Commission on Environment and Development, 1987) and 'sustainable livelihood systems' (UK Department for International Development (DFID)). Where RBA is thought by some to be new jargon or 'old wine in a new bottle' it adds a focus on 'rights' that has had too little attention until now. Development of the interests and priorities of local people cannot often be enhanced if no explicit attention is given to the rights they have to pursue those interests and priorities, be it in terms of land, natural resource or more fundamental needs such as education, health and the future of children. This also applies to water as a key resource for the livelihood of every household. Indeed, water can be considered to be a basic human right.

Where RBA gives this focus to rights, it also encompasses and builds on the earlier mentioned schools of thought that all hope to contribute to sustainable development. Advocates of RBA will typically tie their proposals to a deeper analysis of underlying causes of poverty. RBA can be considered to be another lens for looking at development. It considers the rights and responsibilities of local users of water at the community level, as well as the responsibilities of water service providers (government or private) as an important dimension to ensure sustainability of programmes and projects in the water sector. It should give explicit attention to gender and different rights, needs and priorities of men and women (CARE-UK, 2005). In short, RBA is about empowerment, partnerships, accountability, rights and responsibilities, social exclusion and sustainability. However, in attempts to promote RBA the analysis of accountability at grass-root levels as discussed in this paper is often left out.

However, in advocating RBA a number of pitfalls have to be avoided. In most of the discourse on RBA the issue of rights is taken at a rather generic level. Do we consider rights as a general development concept or concern or do we focus on specific rights to water for specific target groups? In addition, the issues of responsibilities and accountability are often restricted to the assumed accountability of duty-bearers to their target groups. Most RBA advocates emphasize the responsibilities of government agencies and other decision makers to make sure that the local people can exercise the rights they have. In a sense this has been a reaction to a tendency to more 'results-orientated' approaches to development that over-emphasize accountability to the donor. Indeed, it has to be questioned whether project results expected by donors are always, either unintentionally or because of an inappropriate approach, in the best interest of the poor and marginalized people.

When advocating for rights to water, especially for the underprivileged sections of community society, it is necessary to be careful. Where RBA intends to provide a possible framework for social justice, this may also work against it when complex socio-cultural complexes are not carefully taken into consideration (Ahlers, 2005). Privatization processes and the promotion of formal individual rights tend to benefit the better-educated and richer households.

RBA and Local Water Governance

RBA in the water sector may well be a prerequisite for local water governance. Governance in this context is understood as "involving all actors at different levels in the entire process of management, planning, decision-making, implementation, monitoring and evaluation around integrated water resource management and water service delivery" (EMPOWERS, 2006a, p. 1). Local water governance is critical to sustainable and equitable development and management of scarce water resources in the MENA regions. Good local water governance requires:

- decentralization and empowering of end-users in local communities;
- partnerships through a wide array of stakeholders from government agencies to local community based organizations;
- overcoming social exclusion by ensuring rights and access to water to all end-users;
- ensuring accountability and promoting responsibilities at all relevant levels; and
- giving high emphasis to the institutional, policy and other modalities that will ensure sustainability.

There is growing recognition in the MENA region, also at government policy levels, that the above points are essential to arrive at more sustainable use and management of the region's water resources. If such local governance should also include the interests of women and other underprivileged groups in the local communities, it follows that using a right-based approach becomes a necessity. Making sure that these groups are involved in the planning and decision-making process may limit risks of discrimination and social exclusion. If this can be considered to be a vision for water management in the MENA region, then RBA certainly may become a relevant, appropriate and effective policy tool to increase development impact in this sector.

Accountability and Rights Analysis in RBA

Grass-roots accountability for local water management and water rights should be important issues to be dealt with in RBA. The analysis of these subjects at the community level should intrinsically be part of a RBA that takes serious the concerns and priorities of local people. Indeed, RBA is not only about rights: it also deals with responsibilities and accountability. Within the broader frameworks of sustainable community development and RBA, contextual inadequacies often prevent local people from claiming their rights, assuming responsibilities and thus assuming greater ownership in the management of water resources. The analysis of these issues can be done through the lens of local level accountability for water resource management as is further explained later in the paper.

With regard to rights to water, they can be considered as one important pre-condition for grass-root accountability and ownership for local water resource management practices. Essential rights that need to be considered are mentioned in Box 1.

RBA in Practice in the MENA Zone

There are very few case studies and examples of projects in this region where RBA is applied or genuine participatory and sustainable community approaches are put into practice. It is a fact that even though PRA has been practised in other parts of the world since the 1980s, it was only introduced in Egypt and other countries of the MENA region in the mid-1990s. Even today NGOs in most countries here use PRA as a kind of pro-forma needs assessments, primarily in an extractive way. Much of it can be explained by an institutional and development context that is heavily influenced by weak decentralization, critical lack of involvement of civil society in planning and decision-making and fragmented responsibilities among many government agencies and other players. Centralized and top-down management persists so that intermediate level government staff and end-users are usually confronted with top-down implementation of instructions, little autonomy, almost non-existent planning and intermittent communication. This is compounded by limited capacity for social interactions and an over-emphasis on trouble-shooting and complaints management. In addition, the specific needs for good quality drinking and irrigation water, and water rights of poor communities and women are largely ignored (Laban *et al.*, 2005).

Box 1. Important rights for management of water resources

• Right to accessible and transparent information • Right to assemble, voice and claim • Right to adequate water – collective community rights – individual customary rights – individual formal / legal rights	Adequate water as specified by: • Availability • Access and control • Quality • Affordability (price) • Acceptability (of technology and interventions)

Roles of NGOs and Local Government in RBA

What are the roles and responsibilities that NGOs and local government agencies have to assume (a) to ensure that local water users and their organizations can assume their responsibilities for sustainable water resource management; and (b) to make sure that water is indeed considered a human right and not in the least for those who have little or no access to power and influence: women and other underprivileged groups in local societies? To answer this question, the following three interrelated processes can be considered:

(1) Processes that sensitize staff in NGOs and government institutions on RBA and encourage them to assume accountability for the programmes that enhance rights and accountability of the local people in water resource management.
(2) Stakeholder processes that aim at empowerment of underprivileged people.
(3) Focused analysis of the reasons as to why such underprivileged groups have insufficient rights and access to water and cannot assume their own share of responsibility for water resource management.

RBA sensitization processes have been undertaken for some time by many of the bigger international non-governmental organizations (INGOs) and international development agencies (DFID, World Health Organisation), who at the same time are undertaking efforts to raise awareness on the need for RBA among government institutions. While this is important, this paper will not further elaborate on the tools and pedagogies for this. Organizations such as CARE and Save the Children are at the forefront of developing such tools, although focusing more on advocacy and influencing NGO and government staff than on analysis of rights and accountability at the local community level.

There is also a wealth of knowledge and experience on empowerment and participatory stakeholder processes, although they have been undertaken only recently in the MENA region. Many of the development approaches mentioned earlier are pursuing such processes. They are critical in order to reach particularly the underprivileged and NGOs and local government are being directly called on for them to be applied. Special mention is made here of Participatory Technology Development (PTD) and Rapid Analysis of Agricultural Knowledge Systems (RAAKS). Both build on wide experience in agricultural and rural extension and aim to empower farmers to take the driving seat towards their own development (among many others, see Van Veldhuizen *et al.*, 1997; Engel, 1997; Engel & Salomon, 1997). RAAKS as an elaborated approach for the participatory analysis of networks and actors has proven in many cases to be able to cut through sector boundaries and enhance stakeholder dialogue and concerted action as is used in the EMPOWERS programme in the Middle East. Again, such empowerment and actor processes are not the focus of this paper.

The next section will discuss further questions that are important for the third process: the analysis of the reasons why people cannot achieve their right to water and assume accountability for its management.

For all three main processes mentioned NGOs and local government agencies have key roles to play, although probably different in emphasis:

- NGOs: raising awareness on the need for and providing the tools to apply RBA.
- Local government: creating the institutional environment in which local people and especially women and other underprivileged groups can be empowered, claim their rights and assume their share of accountability.

- NGOs: facilitate stakeholder and empowerment processes between local government, community-based organizations and local water users.
- All: participate in empowerment processes through stakeholder dialogue and concerted action, such as in the participatory water planning cycle process developed by EMPOWERS.
- Initiate (NGOs) and undertake (NGOs and local government) more in-depth analysis on causes for non-achievement of formal and informal rights in water and accountability for water resource management.
- NGOs and local government: undertake advocacy activities to influence national policies that build on the results of the above.

Questions for Further Study

As mentioned above this paper focuses on the following research question: What are the reasons why people can or cannot achieve their rights to water and assume accountability for the management of water resource management systems?

The questions proposed here follow a simple analytical framework as proposed by the author in other articles (Laban, 1994, 2005). For a first approximation of why people cannot exercise their rights to water and cannot assume accountability for water resource management interventions, this framework of questions tries to uncover the immediate reasons that restrict people in this. As illustrated in Figure 1, it gives importance to:

- existing economic and other (non-material) benefits;
- appropriate awareness, knowledge, skills and capacities;
- guaranteed rights to water (quality, access & control);
- claim-making power and leadership.

Based on experience with many other development projects focusing on natural resource management (Chandy *et al.*, 1993; Gueye & Laban, 1994; Laban, 2003), it implies that ownership, and as a consequence accountability, will only be assumed by individuals or local community groups when they perceive the benefits, have access and control over resources, have the knowledge and capacities to implement them, and have the organizational strength to realize these activities as well as the claim-making-power to

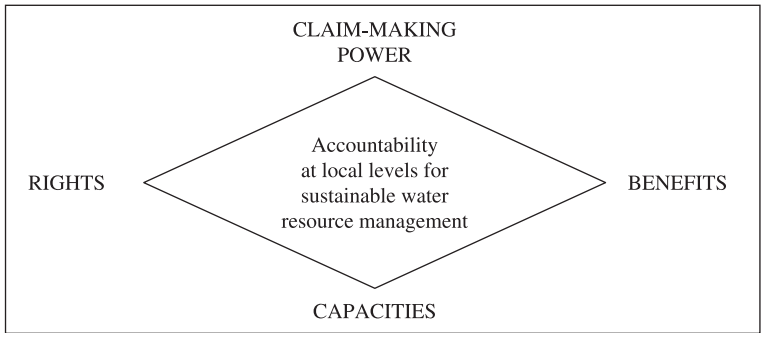

Figure 1. Pre-conditions that are necessary for local people to assume accountability for sustainable water resource management activities. *Source:* Laban (2005)

make sure that such pre-conditions can be fulfilled/maintained. The questions below will help to assess, through participatory approaches, to what extent these pre-conditions are in place or not, and how they can be fulfilled to enable local people to assume accountability, claim their rights and thus take ownership for sustainable water resource management.

The following could be considered as key questions that need to be further detailed in action research programmes. These questions have to be used with a strong emphasis on recognition of possible differences and inequalities among gender in interest, priorities, rights, access/security to water and the different degrees to which men and women can assume accountability for water resource management. Such emphasis is necessary because experience over the last 10 years has shown that gender participation does not necessarily lead to gender equality. Moreover, granting formal rights will not necessarily provide a more gender balanced water security. Extensive studies on water rights have shown that these are complex, contextually diverse and historically dynamic. Reducing access and control over water to an individual and universal defined entitlement endangers security over water rather than a safeguard for it. Furthermore, it may seriously undermine sustainable water use (Ahlers, 2005).

It has to be noted that in the above a conscious choice is made to approach social/economic differentiation through the identification of different water user categories. These are indeed categories and not necessarily organized groups. In the practice of PRA it often appears difficult to tackle such differentiation directly through poverty/wealth categories as is, for example, done in the PRA tool for wealth ranking. People in local communities will often find it difficult to classify others and themselves in such categories as this is frequently embarrassing and/or difficult to do. Poverty or wealth depends on many subtle factors that cannot easily be captured in straightforward categories.

Different levels of study and analysis can and perhaps have to be applied. For practical reasons a distinction will be made here between a 'light' and more in-depth action-research/participatory analysis. In many situations time and resources will not be available to go into deeper depth with regard to the questions above. However, this may become necessary when there is a desire to 'un-pack' deeper and underlying causes for specific underprivileged 'water user categories' being marginalized, if not socially excluded or discriminated. However, for basic planning of water resource management interventions at the community level a minimum of information is required. Answers to questions (a) to (e) (Box 2) belong to such minimum requirements. With somewhat more time and staff resources and where an emphasis is given to effective participatory planning and RBA, answers to the questions (f) to (l) are crucial. The further in-depth exploration of underlying causes to poverty of women and underprivileged groups becomes the domain of questions (m) to (o).

With regard to the tools that can be used for such participatory action-research, most of the questions for (a) to (e) and also for (f) to (k) will make use of simple PRA inspired tools. For question (e) a problem tree and ranking of problems and priorities has proven in many cases to be effective (Zakaria & Laban, 1997; Diop & Laban, 1998) while this has been further elaborated by EMPOWERS with tools for visioning and scenario building as part of a participatory water planning cycle (Moriarty *et al.*, 2005).

Tools for taking control of the issues raised under questions (f) to (k) have been explored in other work (Laban, 2003; Laban, 2005) and will be further elaborated by EMPOWERS (2006b). Most of this elaboration will be done by identifying for each local

Box 2. Questions for action research on accountability and rights in local water resource management

Basic information for planning

(a) What are the different *water user categories* in a community with regard to direct physical availability of and access to water, (in)formal rights, water quality and cultural acceptability of technology;

(b) Uncover which of these water user categories can be considered as *underprivileged* in terms of their access and rights to quality water and sanitation; such uncovering will probably also gives clues to other dimensions of social, cultural, or economic differentiation within the studied community;

(c) Question each water user category what are the actual local mechanisms in place in their community to enhance or restrict access to (quality) water to underprivileged water user categories;

(d) Question different water user categories who is currently considered to have rights to water and why? Who holds this opinion?

(e) Question (using participatory approaches) each (or at least the underprivileged) water user categories what are their direct *priorities* and what local/immediate solutions they see to achieve such priorities (possibly as part of a longer-term strategy/vision);

Light action research

(f) Question these water user categories what *benefits* (material/immaterial) they perceive from actual and proposed water resource management interventions (irrigation, drinking water, sanitation);

(g) Question these water user categories what *knowledge* and capacities they have or do not have to implement and manage actual and proposed water resource management interventions;

(h) Question these water user categories what effective formal and/or informal *rights* they have to access water resources in the community or to benefit from actual and proposed water resource management interventions;

(i) Question these water user categories how they can or cannot exercise influence (*claim-making power*) on community leaders and other influential persons/ 'institutions' in or outside their community to acquire the necessary knowledge and capacities to manage; to get a greater share of benefits; and to achieve their rights and access with regard to actual and proposed water resource management interventions; or in other words what are the power relations in their community that affect positively or negatively their share of quality water;

(j) Analyze on the basis of answers to above questions what limits these water user categories most to feel *accountable* and take *ownership* of a specific water intervention that is in their interest;

(k) Explore with different water user categories what can be done to overcome found restrictions for ownership and accountability (technological, socio-economic, institutional, legal political);

(l) Explore at institutional levels outside the community what can be done to overcome found restrictions for ownership and accountability (cultural, socio-economic, institutional, political) of the water user categories targeted;

In-depth action research

(m) Explore by more in-depth research what are the underlying causes that lead to situations as found by the answers to questions as formulated under (f) to (k);

(n) Explore through more in-depth gender analysis what differences/inequalities may exist among gender in terms of benefits, rights, knowledge and claim-making power;

(o) Explore what negative effects formalization of individual rights may have on access and security to water for women and other underprivileged groups.

context what are the issues that influence/factor the degree people have benefits, knowledge, rights and claim-making power. These issues will then be translated in a semi-structured checklist of questions to be used for triangulation in PRA style interviews with individuals and focus groups. For further more in-depth action-research for question (l) some more elaborative RBA tools have been developed by CARE, such as the 'Benefit - Harm Tool' and Causal-Responsibility-Analysis (CRA) Tool (CARE-UK, 2005). For questions (m) and (n) use can be made of available tools for gender analysis.

Conclusions

The emphasis on rights and local accountability adds a new and necessary dimension to sustainable community development and RBA. There will be no sustainable development without explicit attention to these two issues that have to do with dignity and respect and with 'water as a human right'.

The analysis of local accountability is important for:

- dealing with complex informal structures of responsibility and ownership;
- protect informal rights to water, especially when formal rights and neo-liberal pricing of water become a challenge;
- strengthen solidarity of underprivileged groups;
- upstream-downstream interaction among multiple water users;
- ensure ownership, impact and sustainability for water use and management activities beyond a (project/government) intervention.

Combining the RBA focus on local rights and accountability, as described in this paper, with empowerment, stakeholder and participatory planning processes as experimented by EMPOWERS seems to be important to advocate if one adheres to a vision where underprivileged groups in society also have a 'seat at the water table'.

Good local water governance requires:

- decentralization and empowering of end-users in local communities;
- partnerships through a wide array of stakeholders from government agencies to local community based organizations;
- overcoming social exclusion by ensuring rights and access to water to all end-users;
- ensuring accountability and promoting responsibilities at all relevant levels; and
- giving high priority to the institutional, policy and other modalities that will ensure sustainability.

This paper outlines a pragmatic way to identify and substantiate the issues that seem to be important to overcome the barriers that stand in the way of fulfilling the rights of such underprivileged groups as well as to facilitate situations where end-users in local communities can assume their accountability to good water resource management.

It is important to find and give the financial support to make happen the action-research necessary to identify above mentioned issues. The development of a large number of case studies to substantiate the relevance and impact of such approaches is urgently needed in order to be better positioned to advocate these approaches to decision makers in government and funding agencies.

Accountability and rights analysis as proposed here can serve different purposes:

- understanding the issues that may hamper people in claiming their water rights and in assuming accountability for local water resource management;
- identifying priority actions for NGO and local government agencies in their development programmes (where is action most urgent: benefits, knowledge, rights, claim-making power);
- determining the most effective focus for advocacy programmes;
- monitoring of progress made in terms of better access to water and higher levels of accountability for local water resource management;

Acknowledgement

This paper reflects some 30 years of experience of the author with projects that deal with natural resource management, from watershed management, community forestry and sustainable land use to local water management.

Note

1. It should be noted that ownership in water management practices is not necessarily the same as ownership over the water resource itself.

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Towards a Human Rights Approach to Water in Lebanon: Implementation beyond 'Reform'

KARIM MAKDISI

Introduction

The recent movement by some within the international community to recognize a human right to water resulted from the poor record by most states to guarantee minimum supplies of clean water and sanitation to their citizens, especially the marginalized. However, this movement also arose as a reaction to neo-liberal globalization that prioritizes the liberalization of water and sanitation services and the promulgation of national policies that treat water as an economic, rather than a public good (Bluemel, 2004). The relatively new body of literature on the subject of the human right to water, inspired by liberal attitudes, tends to centre on the imperative of empowering individuals to fulfill their potential as humans by having a minimum set of resources (water in this case), and invokes the putative authority of certain international human rights declarations, norms and conventions (such as the ICESCR) that seek to impose state obligations towards their citizens (Gleick, 1998; Bluemel, 2004; Klawitter & Qazzaz, 2005). Indeed, the more pragmatic advocates of a human rights-centred water policy are now seeking specific

international and national legislation to enshrine such rights in a manner that both accepts the ultimate authority of the state, rather than universal moral prescriptions imposed from above, and the efficacy of the market (World Water Forum, 2006). This problem-solving logic, or strategy, thus avoids the more radical human rights project of structural (and behavioural) change, and allows public policy officials, members of civil society and international organizations to concentrate their combined efforts on the relatively simpler, more technical task of law-creation, in the hope that long-term education, awareness and political commitment will create binding and effective policies and norms.

This paper examines what it means for Lebanon to adopt a human rights approach to water. Despite relatively ample natural water supplies, experts and government officials recognize that Lebanon is facing a water crisis and that the water sector is in urgent need of reform. Sixteen years of civil war and over two decades of Israeli occupation and attacks—most recently during the summer of 2006—led to the destruction or neglect of much of the country's water and sanitation infrastructure. Mismanagement, inefficiency and a lack of reliable data, balanced planning and capacity have exacerbated this crisis in the post-war years. It is impossible to analyze the possibilities of furthering the liberal human right to water agenda in Lebanon in purely technical terms, given the intrusion of politics on nearly every level of public policy and administration. As one former minister candidly stated, "Everything in the Lebanese water sector is down to politics" (Kunig, 1999). Rather, such analysis must be contextualized within the larger socio-economic framework and the prevailing political culture built on sectarian and patron-client considerations that together create structural imbalances and prevent meaningful human rights-based approaches from taking root. Moreover, the protracted Israeli occupation of southern Lebanon, including de facto control over important water resources such as the lower Litani and Hasbani rivers and numerous springs and underground streams for a period of over two decades, combined with Syrian hegemony over the shared waters of the Assi (Orontes) river in the northern Beqa'a region, have greatly reinforced Lebanon's official tendency to consider water within a traditional security paradigm. Such a paradigm has, in turn, led to an overly politicized water management culture built around secrecy, a lack of national planning and public participation, weak legislation and ineffective public administration, as well as generally unreliable and dated information regarding most aspects of water.

Accordingly, this paper will first provide a brief overview of Lebanon's water sector showing that despite a relative abundance of water sources a crisis is looming where demand for water is outstripping available supply, a tendency that is exacerbated by seasonal, regional and socio-economic disparities in which the poor suffer disproportionately. The paper then evaluates Lebanon's implementation of specific human rights criteria with respect to availability of a sufficient and continuous supply of water, accessibility of water to all citizens, adequate water quality, affordability, non-discrimination and availability of information. Next, it details the gap between Lebanon's political and customary acceptance of a human right to water and its failure to translate this into appropriate legal and administrative instruments. The paper goes on to analyze the main obstacles facing Lebanon as it tries to implement a human rights-based approach to water, both in terms of a lack of capacity and a lack of political will. The paper concludes by examining the reform process currently underway in Lebanon's water sector, suggesting that while the reforms address some important capacity issues such as increasing efficiency and ensuring cost recovery, they do not signal a move towards a rights based approach to water.

An Overview of Lebanon's Water Sector

A small country with an area of only 10 452 km^2 and a long, narrow coastline of 210 km, Lebanon enjoys relatively rich supplies of water resources, leading to one description of the country as "un chateau d'eau" (Kunig, 1999, p. 1). Melting snow from mountain peaks reaching a height of 3000 m recharges underground water aquifers and feeds up to 40 seasonal streams and 17 perennial rivers, the majority of which flow westwards towards the Mediterranean Sea (see Fig. 1). Three Lebanese rivers form international watercourses: the El-Kabir river, which traces the northern border with Syria; the El Assi (Orontes) river that drains the northern Beqa'a aquifers and flows northwards into Syria; and the Hasbani river which crosses Lebanon's southern border and is a tributary of the River Jordan. The Litani, which is Lebanon's largest river, criss-crossing 170 km of its territory and draining the southern Beqa'a plateau, lies entirely within Lebanese territory

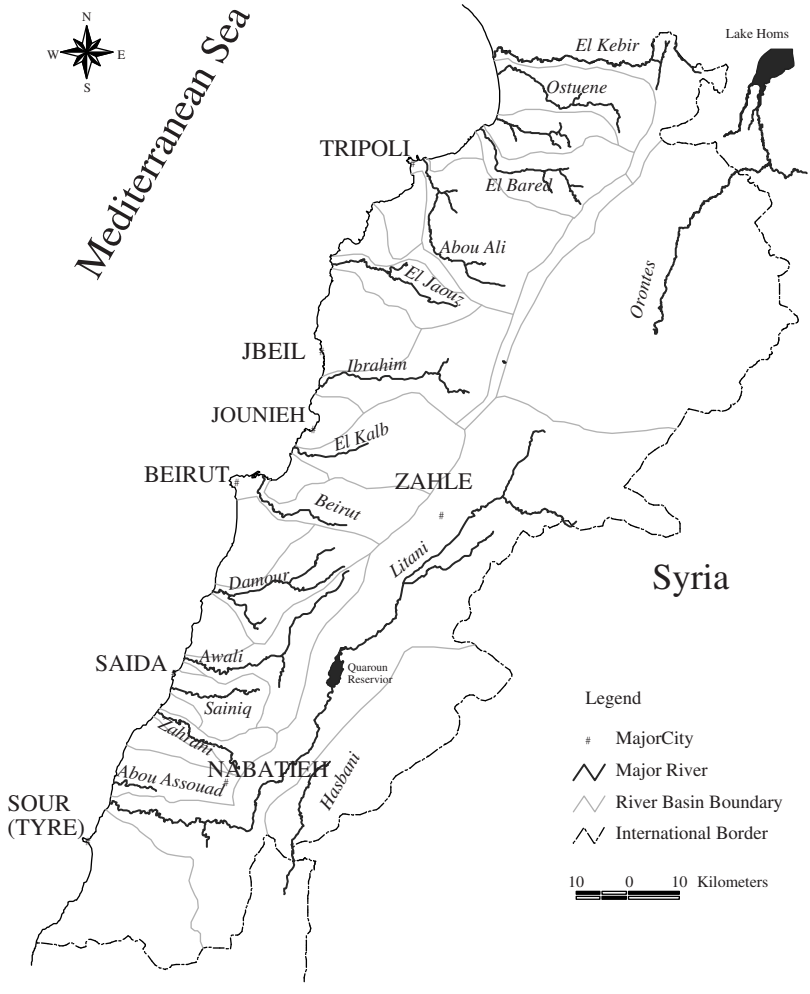

Figure 1. Major river basins of Lebanon. *Source:* El-Fadel *et al.* (2000)

despite long-standing Israeli desires to internationalize it (Naff & Matson, 1984; Majzoub, 2001; Kilgore, 2006).

Lebanon is physically divided into four main areas: (1) a narrow coastal strip averaging 2–3 km (where the majority of the population now works); (2) the Mount Lebanon mountain chain parallel to the coastline with mean elevations of 2200 m and peaks over 3000 m; (3) the Beqa'a Plateau, a 125 km land depression (7–20 km wide) at an average altitude of 900 m above sea level; and (4) the Anti-Lebanon mountain range east of the Beqa'a, which reaches elevations of 2600 m (El-Fadel *et al.*, 2000).

The Director General (DG) of the Ministry of Energy and Water (MEW), Fadi Comair, estimates that the total annual precipitation is 8600 million m^3 (MCM), with 50% of this amount lost through evapo-transpiration and a further 11% lost in surface and groundwater flows to neighbouring countries. Thus, only approximately 2700 MCM (or about 31%) of the total annual natural precipitation is potentially available for use in Lebanon under current conditions (Comair, 2005). In terms of groundwater availability, recent studies estimate that due to the prevalence of karstic limestone the quantity available for exploitation via aquifers range from 400 to 1000 MCM/year (ERM & World Bank, 1995; El-Fadel *et al.*, 2000; Comair, 2005). With regard to Lebanon's water demand (see Table 1), Comair estimates that while in 2004 the total reached 1551 MCM per year, this figure will double to 3068 MCM per year by 2030, confirming fears by many experts that Lebanon will soon face a water deficit (Al-Hajjar, 1997; Khawli, 2000; El-Fadel *et al.*, 2000; Comair, 2005). Indeed, Lebanon may already be in a water deficit situation of −690 MCM in the crucial dry season period, with this figure projected to increase to −1660 MCM by 2030, leading water experts and officials to look beyond traditional water supplies for exploitation (Jaber, 2002; Al-Hajjar, 1997; Khawli, 2000; El-Fadel *et al.*, 2001; Comair, 2005).

Irrigation accounts for approximately 58% of Lebanon's total water demand (rising to 69% during the dry season), while the industrial sector and domestic demand account for

Table 1. Water demand in Lebanon, Republic of, 2002 & projections for 2030(all figures in MCM)

Region	Irrigation	Industrial	Domestic	Total
Beirut/Mt. Lebanon:	104	76	254	434
Dry season	78	30	127	235
2030 projections	135	148	495	778
North Lebanon:	200	32	107	339
Dry season	150	13	38	216
2030 projections	387	62	208	657
South Lebanon:	212	23	76	311
Dry season	159	9	38	206
2030 projections	571	44	148	763
Northern Beqa'a:	180	9	30	219
Dry season	135	4	15	154
2030 projections	340	18	59	417
Southern Beqa'a:	204	10	34	248
Dry season	153	4	17	174
2030 projections	368	20	65	453
Country total:	900	150	501	1551
Dry season	675	60	250	985
2030 projections	1800	293	975	3068

Source: Comair (2005).

nearly 10% (6% in dry season) and 32% (25%) respectively (Comair, 2005). These figures vary according to region, with some estimates placing the agricultural share of water close to 85% in some rural areas where the majority of the population depends on farming for its livelihood (METAP, no date). Industrial water consumption is mostly drawn from underground sources with little to no water recycling practiced because water extraction costs remain low and legal restrictions are not enforced. Domestic demand for water continues to rise, with most Lebanese unaware of water conservation methods (or even the need for them) and routinely engaging in wasteful activities (cleaning pavements, etc). According to Comair, the daily water consumption in Lebanon averages around 200 litres per person per day for domestic use, while Khawli puts this figure at 70–150 l/day for rural and 200–250 l/day for urban dwellers. This is expected to rise to about 300 l/day within the next 20–25 years (El-Fadel *et al.*, 2000).

There are a number of key issues pertaining to water allocation in Lebanon that should be considered here. First, most of the rainfall occurs during the winter season (November–March), leaving the rest of the year generally dry and hot, precisely when the irrigation needs, key to the livelihood of the poorer rural communities, are at their peak. To compound this problem, to date there are very few storage facilities to allow the Lebanese to make use of the water supplies during the dry season, with the notable exception of the dam on the Qaroun Lake which harnesses 220 MCM from the Litani River. Second, Lebanon's geography means that there is a very uneven distribution of precipitation among the various regions, with the poorest areas such as the northern Beqa'a area averaging only 250 mm/year—and under serious threat from desertification—compared to between 1500 and 2000 mm/year for the Lebanese mountain range. Third, while water is a fundamental component to development in Lebanon, there has long existed a conflict, sometimes violent, between the water needs of urban centres, which today represent approximately 86% of the population, up from 67% in 1975, and rural areas where agriculture remains a major employer despite its declining contribution to GDP (UNDP, 2006). Fourth, there is a serious lack of wastewater and sewage treatment facilities, with nearly all of Lebanon's 300 million m^3 of domestic and industrial wastewater discharged directly into the surrounding areas, resulting in serious health issues as the polluted underground streams and surface water are widely used for domestic purposes (MoE, 2005). Finally, there is no definitive, reliable data for the national water sector due to lack of both capacity and political will. Many of the national water supply figures currently used are based on surveys conducted during the 1950s and 1960s, while the last official census was conducted in 1932, resulting in large variations regarding per capita projections. However, there appears to be growing consensus among the water experts on the general trends, even if not the exact figures are used.

Lebanon is regularly near the top of the UNDP's 'medium human development' index, so, in principle, its relative water abundance and development means that it should not have a problem with providing access to water and sanitation to all Lebanese. Official statistics bear this out, and show that 100% of the population had 'sustainable access' to improved water resources in the post-war years from 1990 to 2004, while 98% had similar access to sanitation by 2004 (UNDP, 2006). However, these figures are misleading given the well-known shortages and rationing that many Lebanese endure, and certainly do not shed light on the uneven regional and class distribution of resources and services. With demand for water outstripping available supply and a concurrent crisis in the wastewater sector, Lebanon recently initiated a reform process that relies on private sector

participation and includes a 10-year national strategy to meet water demand by building a series of dams and lakes to store surplus winter water, the promotion of drinking and irrigation water projects, and confrontation of wastewater and water quality problems (MEW, 1999; Comair, 2005). However, this official strategy makes no mention of plans to secure legal rights for all Lebanese to access sufficient and clean water.

Mind the Gap: Political Acceptance versus the Implementation of a Human Rights Approach to Water in Lebanon

The principle of a human rights approach to water in Lebanon is currently politically accepted, customarily guaranteed, but vaguely defined and legally unenforceable. Lebanon ratified the relevant major human rights conventions including ICESCR, ICCPR and CEDAW, as well as many soft law declarations such as Agenda 21 and the UN Millennium Declaration that refer (implicitly or explicitly) to the right to water (UNHCHR, 2005). It also recently established a Parliamentary Commission on Rules and Procedure and Human Rights to examine the potential human rights implications of legislative proposals (although water has not yet been placed on its agenda). Indeed, no Lebanese politician or policy maker would publicly deny that the right of every citizen to clean water is sacred, part of Lebanese custom, culture, religion and ultimately a state responsibility, while successive post-war Lebanese governments officially adopted the provision of basic services such as clean water and modern sewerage networks as an integral part of Lebanon's overall development strategy (Hariri, no date). However, Lebanon has not incorporated this political acceptance into its legal and administrative structure in a meaningful way.

Lebanon's main water laws remain based on the Ottoman *Mejalla* code and French Mandate laws, specifically Law 144 of 1925 (protection of surface water and groundwater) and Law 320 of 1926 (protection of catchment areas) and their various amendments. Accordingly, surface and groundwater are considered part of the 'public domain', meaning such water can only be used for the benefit of the public and may not be sold for profit, except in three cases: (1) rainwater collected by individuals; (2) natural water sources found on private lands that may be extracted as long as the output remains less than 100 m^3 and it does not come from a river or an adjacent private land; and (3) acquired rights to water among those who claimed such a right prior to the 1925 law (Mallat, 1995). There is no specific legislation with regard to the use of domestic or municipal water, and no codification of water use priorities for socio-economic purposes (i.e. domestic, agriculture and industry). However, it is important to note that Ottoman *Majalla* laws still in effect in Lebanon with regard to public domain water include the two Islamic prescriptions of *haqq al-shirb* (right for cattle to drink and land to be irrigated) and *haqq al-shafa* (right to drink water, including carrying water to one's family and garden in a small receptacle) (Mallat, 1995). Other laws regulate the issuing and duration of permits for all other water use, except in the case of drilling from wells on private lands (assuming its source is not a river) where the flow of water does not exceed 100 m^3 per day. However, legal loopholes, a lack of enforcement both during the civil war (1975–90) and the post-war period (1991-present) and the politicization of judicial activity in Lebanon have led to serious violations of the law as individuals dig deep for water they feel the state has failed to provide them.

The convoluted nature of the water governance structure in Lebanon has exacerbated the incapacity of the state to guarantee water rights. The water sector is managed by two main entities, the Ministry of Energy and Water (MEW, established by Law No. 20

in 1966) and autonomous regional Water Authorities (WAs), while in the post-war period the Council for Reconstruction and Development (CDR) became responsible for the rehabilitation of all water, wastewater and solid waste infrastructure. Both MEW and the WAs have traditionally been understaffed and lack capacity in nearly all departments. Law No. 20 granted MEW extensive responsibilities, including preparing a national water policy, implementing all water and electricity projects throughout Lebanon, applying the laws and regulations related to the protection of public water resources and their use, and managing all water and electricity concessions. The WAs, which until recently numbered 22 including the Litani River Authority in addition to 200 local committees, operated small-scale projects after MEW approval, distributed domestic and irrigation water to users, and managed the disposal of wastewater collected by municipalities in their respective areas (Jaber, 2002). Such a decentralized governance structure certainly led to inefficiency but also to a relative sense of legitimacy or ownership by regional authorities, who complained that central authorities did not provide adequate resources (Kunig, 1999). An assortment of other public bodies, such as the ministries of Public Health, Environment, Interior and Municipalities and Public Works, also have various monitoring and data-collection roles (see Table 2) in the water sector, leading to over-lapping responsibilities which make it "difficult to discern a clear authoritative system linking promulgated decrees to corresponding executing entities" (MoE, 2005, p. 13). As a result

Table 2. Key public bodies and their main functions in Lebanon's water sector

Public authority	Mandate/functions
Ministry of Energy & Water (MEW)	– Planning and formulating hydraulic resource projects to allocate water between domestic and irrigation sectors at the national level.
(Law 221/2000)	– Preparation of a National Water Master Plan. – Designing, studying, implementing and operating large water facilities and works such as dams, artificial lakes, tunnels, watercourse rectification, etc. – Monitoring and supervising the work of the four regional Water Authorities, and enhancing and evaluating their performance.
Regional Water Authorities (WA)	– Conduct studies, operate and maintain existing systems; carrying out rehabilitation work or implementing new domestic/irrigation water distribution projects. – Recommend tariffs for domestic and irrigation water services, and collecting fees from subscribers to cover their expenses. – Monitoring quality of water distributed for domestic/irrigation purposes. – Seeking financing agencies to carry out project within their jurisdiction.
Council for Development & Reconstruction	– Responsible for rehabilitation of water, wastewater and solid waste facilities in Lebanon.
Litani River Authority	– Prepares Master Plan – Implements all projects on Litani river basin for irrigation, drainage, potable water and electricity production.

Table 2. *Continued*

Public authority	Mandate/functions
	– Constructs transmission system among Lebanese hydroelectric plants, as well as transformer stations and electricity distribution systems in Lebanon.
Ministry of Environment (MoE): Law 444	– Responsible for the protection of the environment. – Conducts studies on wastewater treatment. – Permits the establishment of classified organizations.
Ministry of Public Health	– Monitors water quality (via department of Sanitary Engineering). – Sets standards for drinking water. – Proposes specifications for drinking water and wastewater networks. – Recommends action for pollution prevention. – Operates water quality equipment such as chlorinators.
Ministry of Interior & Municipalities	– Responsible for monitoring municipal works, including sewage and drainage infrastructure.
National Council and Scientific Research (NCSR)	– Conducts and coordinates scientific research. – Contains an environmental division responsible for pollution, marine biology, waste, wildlife, and nature reserves.

Source: Based on: MEW, Law 221; MoE, Law 444; El-Fadel *et al.* (2000); METAP (no date).

of such obvious governance problems, administrative reform was introduced via Laws 221 and 224 (both 2000) and 337 (2002) which restructured the water sector so that the various WAs (excluding the Litani River Authority) and smaller local water committees were replaced by the following four Regional Water Establishments (WEs):

- Greater Beirut and Mount Lebanon Water Establishment;
- North Lebanon Water Establishment;
- Beqa'a Water Establishment (covers North and South Bekaa); and
- South Lebanon Water Establishment (including Nabatiyeh region).

Accordingly, the MEW's role and powers have been reduced to creating a national water policy and master plan, as well as implementing large-scale projects that fall outside the scope of any WE, rendering MEW's 'control' being 'reduced to the minimum' (Jaber, 2002). It is the WEs, now responsible for all water and sanitation projects within their jurisdiction, that gain far greater powers with this reform which paves the way for privatization by transforming the WEs into viable commercial institutions (under the supervision of the Ministry of Finance), complete with business plans and the authority to determine their cost recovery strategies and the responsibility to balance budgets. While a more streamlined and commercially-minded water distribution network should lead to greater efficiency and increased access to public water supplies, it adds little to protect citizens' rights and thus remains controversial especially among those in the peripheral regions of Lebanon (Kunig, 1999).

Therefore, overall there is no specific national policy or law referring to a 'right to water' from a human rights perspective, while the current reform process has neglected such a perspective by limiting the consultations of the national water strategy to a select group of public officials, international donors and hand-picked civil society members involved with technical expertise rather than social concerns. However, there are two important bases from which a human rights approach could theoretically begin, namely the legal prescription of water as a 'public good' and the customary right to drinking water and grazing which could be extended to water basic irrigation functions. These rights need to be formalized legally.

Evaluating Selected UN Human Rights Criteria with Respect to Lebanon

The UN's General Comment No. 15 defines the right to water as entitling everyone to "sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use" (UN, 2002). The following section briefly analyzes Lebanon's status with regard to these criteria.

Availability of Sufficient and Continuous Water

Lebanon cannot guarantee sufficient water for agricultural and even household use for all its citizens all year round, a situation that is set to worsen over the years with water demand doubling and a water crisis imminent according to most experts. When disaggregated, the water deficit is more severe in peripheral regions, with approximately 50% of Lebanese territories prone to desertification or land degradation (Darwish, 2004). Currently, the water supply sector is simply unable to provide satisfactory services, especially to the more vulnerable segments of the population. An extensive survey conducted in the late 1990s found that only 16% of households have a 'high' degree of satisfaction regarding basic needs from the water network, with 74% 'intermediate' and the remaining 10% 'very low.' Over 21% had a 'very low' satisfaction with respect to meeting their potable water needs (MoSA & UNDP, 1998).

While there is no official information about continuity of water flow or rationing hours, it is clear that Lebanon suffers from serious domestic water shortage problems (Darwish, 2004). The availability and distribution of potable water was severely compromised during the period of the civil war. Some progress has been made in terms of rehabilitating Lebanon's 15 potable water treatment plants and increasing the average water treatment capacity by 50% (MoE, 2001), and rehabilitating primary and some secondary supply lines in the post-war years to reduce the network losses from 40% of the total to an estimated 30%. However, tertiary supply lines have been left 'nearly untouched' although they comprise over 70% of these losses and consist of mostly corroded galvanized pipes (Darwish, 2005; Yamout & Jamali, 2007). A recent study of Beirut (including its poor suburbs), where between 40–50% of the country's population now dwell, has shown that a combination of weak water utilities and water scarcity at the source leads to intermittent supply in most areas, with about 10 hours of water supply every other day as the norm, and to a lack of piped water supply for a large number of poor urban areas (El-Fadel *et al.*, 2003). The estimated 22% of Beirut's residents not connected to the public water network—mostly in its poorer southern suburbs—have thus turned to pumping water from

private wells or purchasing water from unauthorized vendors to make up for this lack of available supply.

Accessibility of Water and Water Facilities and Services

With regard to drinking water, official sources confirm that the share of Lebanon's population with a 'sustainable access to an improved water source' for drinking stands at 100% for 2004, just as it was in 1990 (UNDP, 2006). However, the Council of Development and Reconstruction (CDR) estimates that only 56.1% of Lebanese actually use the public network for drinking water (much of it non-sterilized), with as much as 31.5% relying on bottled water and 8.3% from private wells and other private sources that are not regulated in terms of quality (CDR, 2005b). In terms of domestic water supply in general, a 1998 national report states that 79% of resident households in Lebanon were connected to the public water network, with a further 6% connected to both the public network and artesian wells. Nearly 15% of such households had no access to the public networks, relying instead on private networks, artesian wells, or in some cases (5%) none at all (MoSA & UNDP, 1998). However, regional disparities skew these figures, with the most deprived regions suffering 10 times the 'severe depravation' with regard to access compared to the relatively affluent regions of Beirut. The poor rural areas (such as Akkar, Hermel, Bent-Jbail, Baalbeck and Hasbaya) and urban suburbs (such as the *dahiyeh* region of Beirut) clearly suffer disproportionately compared to the more affluent areas, having up to 20% of their dwellings unconnected to the public network.

Moreover, the country's infrastructure remains in poor condition. This could lead to further disruptions to water access, particularly in rural areas and chaotically (and illegally) built urban suburbs that are not even connected to public networks. During the war, many pipelines and reservoirs were destroyed and the hydrological metering broke down, so an estimated 45 000 artesian wells were dug throughout the country for domestic use. The result has been an alarming and unmonitored extraction of underground water via government and privately owned wells, and which are currently estimated to provide up to 40% of all water use (Darwish, 2004). According to Lebanon's national MDG report, the actual daily per capita accessibility is estimated at 60 litres, compared to a theoretical daily average of around 160 litres; this disparity is due to seepage from deteriorated networks (UNDP, 2003). With regard to wastewater networks, with the exception of a few small rural treatment plants of questionable efficiency, all domestic and industrial wastewater is dumped without treatment into the sea or inland watercourses. Most Lebanese residents thus have no access to wastewater treatment plants (MoE, 2005). Once again regional disparities are clear; while nearly 99% of Beirut and 66% Mount Lebanon households had access to public sewers, the majority of dwellings in the poorer regions of South Lebanon, Nabatieh and the Beqa'a relied mainly on septic tanks and in some cases open sewers (MoSA & UNDP, 1998).

Finally, Israel's claim to water in southern Lebanon has long exacerbated water access problems in predominately poor areas by restricting surface and underground water access to residents and repeatedly bombing water installations, pumps and pipes. Lebanon has lodged numerous complains to the UN about Israel's illegal restrictions on access to the Hasbani-Wazzani river system, even after liberation in 2000 (Lebanon, 2002). At the same time, residents of the mostly poor Hermel and Qa'a regions along the Assi river, which Lebanon shares with Syria, have long complained that their access to water was strictly

controlled by the Syrian authorities during the post-war years. In both cases, the Lebanese state has been unable to alleviate the situation.

Adequate Quality of Water

There is clear consensus among water and health experts that water quality in Lebanon remains quite poor, posing considerable risk to human health (Jurdi, 1992; Khawli, 2000; Darwish, 2005). A comprehensive national study on the quality of water conducted by UNICEF reported that 60 to 70% of all natural and piped water was contaminated by microbial or chemical agents, with a further 10% increase during the dry season (World Bank & ERM, 1995; MoE, 2005). The major culprits (see Table 4) are untreated municipal wastewater discharge, industrial effluents from the estimated 22 000 industrial establishments, improper solid waste disposal and agricultural runoff (MoE, 2001). Households directly dispose of domestic sewage into the rivers and open wells, while poorly managed solid waste landfill sites and the disposal of such waste on river banks exposes springs, streams and rivers to the infiltration of heavy metal and toxic chemicals. Drainage from agricultural lands exacerbates the situation further. Moreover, Lebanon's main industries—located along the coastal strip (cement, asbestos, refineries, tanneries, chemicals, pesticides, fertilizers) and the Beqa'a (agro-food: wineries, distilleries, sugar plants, food processing and canning)—directly discharge their waste (usually untreated) and other industrial effluents into the sea, municipal sewer networks, side drainage channels or watercourses (MoE, 2001). An increasingly widespread source of industrial pollution comes from leaky underground gasoline storage facilities and disposal of waste oils and petroleum by-products.

Although most of these problems have been known for some time, to date there is almost virtually no effective monitoring and enforcement mechanism in place. This is particularly true of municipal drinking water supplies, with the MoE estimating that 80% of public water supplies are polluted at source or during distribution through contaminated pipes despite chlorination and water treatment (MoE, 2005). This has resulted in incidents of gastro-intestinal illnesses and the spread of infectious diseases such as typhoid and hepatitis that disproportionately affect the Lebanese regions in the North and Beqa'a (MoE, 2001). It is estimated that about 260 children die every year (10% of all child deaths) from diarrhoea-related diseases associated with inadequate potable water, sanitation and hygiene, with estimates that the cost to health and quality of life is 1% of GDP, or $175 million annually (World Bank, 2005). The lack of sewage treatment facilities and heavy reliance on septic tanks in rural areas are also major threats to the rapidly deteriorating quality of groundwater and aquifers that have become so vital for the country (Jurdi *et al.*, 2001). Finally, given that many Lebanese rely on private water sources, there is a lack of monitoring of the quality of the potable water distributed by private companies and water vendors, despite recent statistics revealing microbiological contamination of 24% of the samples collected (UNDP, 2003; El-Fadel *et al.*, 2003).

Affordability of Water

Regional water authorities set and collect fixed water tariffs for domestic and agricultural use in Lebanon. Based on figures from the various water authorities in Lebanon (see Table 3), the drinking water rates in Lebanon vary significantly from region to region,

Table 3. Regional drinking water rates for $1m^3$/d in 1996 and 2002 (in Lebanese Lira)

Water Authority	1996	2002
Qobayat	100 000	165 000
Akkar	100 000	145 000
Deniye	75 000	77 000
Becharre	65 000	66 000
Zghorta	141 000	165 000
Tripoli	132 000	187 000
Koura	120 000	157 000
Batroun	130 000	165 000
Jbeil	110 100	187 000
Beirut	158 400	230 000 (2000)
Metn	127 100	242 000
Kesrouan	160 000	204 000
Ain El Delbe	110 000	165 000
Barouk	110 000	165 000
Saida	99 000	148 600
Nabeh El Tasseh	90 000	159 000
Tyr	99 000	154 100
Jabal Amel	99 000	132 100
Baalbeck-Hermel	110 000	132 000
Zahle	110 000	N/A
Chamssin	110 000	132 000

Source: ESCWA & UNDP (2002).

from a lower end of LL66 000 (about $44) and LL77 000 ($51) in Becharre and Deniye respectively to an upper range of LL 200 000–250 000 ($133–166) in the more urban areas of Beirut, Metn and Kesrouan for the year 2002 (ESCWA & UNDP, 2002). What can be derived from these figures is that prices for drinking water, on average, increased by approximately 40% during the period 1996–2002. Again, however, there is a huge discrepancy in price increases among the regions, with water tariffs remaining constant in Deniye, increasing by 20% in Zghorta and Baalbeck-Hermel, 67% in Saida, and 90% in the Metn. Irrigation water tariffs are also heavily subsidized by the government, and are paid as a flat fee without any due consideration to additional wastewater or sanitary fees. For collective irrigation projects, total costs vary between LL 10 000 ha/year and LL500 000 ha/year and distributed to water offices, municipalities, farmers' associations and ministerial committees (which also take annual subsidies from the government for network maintenance). Significantly, there exists a powerful illicit irrigation water market from informal boreholes, and many small farmers and agricultural landowners have been forced to pay prices ranging from LL600 000 to 1.5 million ha for irrigation of a short-term crop, and LL1.1 million to 2.1 million ha for irrigation of a long-term crop (ESCWA & UNDP, 2002).

While there are no national studies that show, in detail, the relationship between the cost of water and its affordability, many observe that poor households cannot seem to afford even these subsidized prices, and instead tend to either dispatch family members (typically women or children) to carry water back from public sources using gallon containers, or increase their supply via illegal means (Klawitter & Qazzaz, 2005). Moreover, while

official tariff rates (above) reveal a water cost equivalent of \$0.12–0.42/m^3 per day, in fact, most households end up paying much more given frequent and periodic water shortages, and the need to buy water from private sources where charges are extremely high (MoE, 2001; World Bank, 2005). Bottled water for drinking purposes, bought principally because residents do not trust the quality of municipal water supplies, costs from \$0.67 to \$4 per 20 litres, a total equivalent of approximately \$90 million per year (Darwish, 2005; World Bank, 2005). Accordingly, costs for 1 m^3 of water per day currently range from \$130–150 per year as measured by gauges placed in households, with similar metered flows costing \$180 per year (Darwish, 2004; Yamout & Jamali, 2006). The lack of proper water meters means that not only do all Lebanese pay the same amount for their annual subscription regardless of their income, but there is a clear lack of incentive to conserve water in order to cut down the associated costs.

Non-discrimination

The Lebanese Constitution and laws are clear that discrimination is illegal in Lebanon. Indeed, the Constitution makes clear that balanced development of the regions is one of the 'fundamental pillars of the unity' of the Lebanese State. However, there is de facto discrimination against the poorer regions located in rural areas such as Bint Jbeil, Hermel and Akkar, whose communal interests are generally not well represented among the elite in a political system where political influence, rather than legal claims, have a dominant bearing on service provision and law enforcement (Kingston, 2001; Darwish, 2005). Moreover, the nearly 400 000 officially registered Palestinian refugees, half of whom live in the 12 official camps, are discriminated against in Lebanon on all levels and essentially live in a legal vacuum with no civil or social rights and atrocious living conditions. Since refugees have no patrons among Lebanon's elite and no access to Lebanon's public services, the majority of them rely on the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) for the provision of basic services, including water supply, sanitation, and refuse disposal. UNRWA and human rights activists have long complained that "environmental health conditions are extremely bad with damp, overcrowded shelters and open drains" (UNRWA, no date). The sewerage system in the camps is poor while the camp's residents drink unreliable potable water supplied through a poor distribution network.

Information on Water Issues

Information on water resources has traditionally been extremely hard to come by, often for political reasons, and is otherwise often dated, unreliable or fragmented. It is worth noting that the MEW is one of the few Lebanese ministries that has no website. While rainfall records are more comprehensive than stream flow data, data on groundwater discharges are generally unavailable (for example, Lebanon's most recent *State of the Environment Report* based its section on groundwater on a 1970 UN report). Aquifers have not been adequately mapped, while snow cover is not metered and water flow metering from known springs ceased in 1976 (MoE, 2005). Moreover, the exact number of drilled and operating wells nationwide is unknown, data on water quality of surface and groundwater are limited, and there are no organized water sampling networks dedicated to measuring levels of nutrients, pesticides, heavy metals, etc. Even when data do exist, there is no central authority capable

of receiving, analyzing and disseminating the information to the public (MoE, 2005). Therefore, overall, the data are generally incomplete and of poor quality, and it is difficult to see how proper analysis can be made by the experts, let alone the public, without this issue being urgently addressed in the reform process of the water sector.

Major Constraints to Implementing the Human Right to Water in Lebanon

In analyzing the existing gap between Lebanon's implicit political acceptance of water as a right and its failure to implement it, four broad explanations must be considered: a lack of capacity, lack of political will, neo-liberal developmental policies and tension with regard to transboundary water resources. The first, extensively covered in the local literature and discussed in the previous sections, is a general lack of capacity and investment that inhibits access to sufficient and safe water as well as wastewater services. This stems from the following:

- lack of qualified personnel, modern equipment and efficient technology;
- over-lapping and confusing governance structure;
- poor quality of data and incomplete water surveys;
- lack of national water plans, strategies and action plans;
- poor strategies for information dissemination to the public;
- little to no effective enforcement of laws;
- lack of judicial knowledge and capacity; and
- poor water conservation programs and awareness.

The CDR asserts, for instance, that a lack of adequate investment in the domestic water supply sector so that the majority of networks and pipes are more than 30 years old, and this explains why the estimated unaccounted for water (UW) reaches up to 50% in most of the WAs (CDR, 2005b). Meanwhile, the lack of adequate investment in water treatment facilities to control both industrial and domestic discharge leads to pollution of the underground water supplies that constitute the main source of domestic water among the Lebanese, particularly the poor among them. As will be seen, the current reform process underway in Lebanon addresses this problem

The second broad explanation is a lack of requisite political will. Lebanon's political system is not based on liberal-democratic principles (as international conventions tend to assume) but sectarian and clientalist considerations. Formally, Lebanon's political system is a sectarian or 'consociational' democracy which ultimately relies on power-sharing among the country's elite and the principle of sectarian proportionality regarding political representation, civil service appointments and allocation of public funds (Seaver, 2000; Makdisi, 2004). This system has resulted in deeply entrenched patron-client relationships in which the state is weakened and members of the political elite divide resources and provide direct services to their clients (citizens) rather than establishing a viable state to citizen relationship (Kingston, 2001; Hamzeh, 2001). The system also leads to inefficiency as people with appropriate qualifications may not be appointed to public sector positions and those appointed may not be able to do the job. Moreover, there is no incentive to create a legal entitlement to sufficient and safe water as this might threaten the power of the political elite (Makhoul & Harrison, 2004).

Lebanon's political structure has also had a detrimental effect on attempts to create a national civil society movement that would naturally embody and advocate human rights

(Saab, 2005). This general trend, combined with the tendency to consider the water sector within a security paradigm, has greatly reduced the impact of public participation in influencing, let alone shaping, water policy, particularly on 'out of the box' issues such as the human right approach. There are no national NGOs working in any of the relevant areas—human rights, environment, water, poverty—that have taken up this issue, although several NGOs have worked in specific, technical areas such as providing services in irrigation water management, improving access to water and assisting in sewage treatment (Darwish, 2005).

The third broad explanation is Lebanon's economic and developmental policies. Unlike most Arab countries, Lebanon's economic development has long been built around the interests of the private sector with laissez-faire policies and minimal state interference. However, the country's periphery (in terms of regions, sects and citizens) has generally been neglected in both pre-war and post-war economic development policies (Kubursi, 1999; Ofeish, 1999). Upon independence in 1943, Amery & Kubursi argue that an 'implicit economic social contract' was constructed between the elite of the dominant sects of the period the terms of which included little to no income or profit taxes coupled with heavy public sector investment in building extensive infrastructure of trade routes, airports, ports and communication networks at the expense of promoting competing commodity-producing sectors such as agriculture (Amery & Kubursi, 1992). These policies resulted in an economic boom during the 1950s and 1960s for the relevant patrons and clients in the services or banking sectors, but it also led to the marginalization of peripheral regions, sects and citizens outside of these sectors. By the early 1970s half of the Lebanese population were living in near poverty conditions, with the top 10% richest Lebanese earning 48% of national income (Gaspar, 2004).

Such neo-liberal economic policies were resumed immediately after the long civil war, with the country's infrastructure in ruins and massive socio-economic problems to deal with, when the government opted for what a former Finance Minister called a 'spectacular reduction' in direct taxation in order to attract investment to Lebanon for the benefit of the elite and other clients of Syria (Corm, 1998; Gaspar, 2004). The result was economic recession and one of the highest public debt to GDP ratios in the world, reaching 114% in 1998 and 180% by 2002, plummeting average real wages, and high poverty rates, with one 2002 study revealing that 42% of Lebanese lived below the upper poverty line which covers basic nutritional and other basic needs (Makdisi, 2005). Inevitably, Lebanon's poor continue to bear the heaviest burden as the government attempts to emerge from the economic crisis with a regressive tax structure and high unemployment rates reaching over 20% in the poor areas of Akkar, Hermel and Tripoli (Kubursi, 1999; World Bank, 2005). It is within this context that Lebanon's current privatization programme, which includes the water and wastewater sectors, must be considered. Lebanon's Parliament ratified a privatization law (Law 228) in May 2000, establishing a Higher Council for Privatization (HCP) to set privatization policy, establish timetables for public projects to be privatized, evaluate the assets and properties of the public project, and prepare the drafts laws and decrees required to implement privatization programmes and operations (HCP, 2000). While the HCP moved swiftly to assign international expert institutions to prepare a master privatization plan and determine general principles for corporatization and privatization, it is notable that public participation and debate has been extremely limited, with little analysis carried out on the social implications of privatization. Information dissemination is further constrained by Article 6 of Law 228 which stipulates that the

members of the HCP as well as "each person who provides assistance, will respect the professional secrecy, even after completing his job, with regard to the implementation gathered when fulfilling their tasks or as a result thereof" (HCP, 2000, Article 6, p. 2).

A fourth explanation for the gap between political rhetoric and the implementation of the human right to water in Lebanon involves tension with regard to transboundary river systems. Both Israel, and, to a lesser extent, Syria, have prevented Lebanese villagers from accessing their fair share of water from transboundary river systems. Israel's thirst for the waters of southern Lebanon, and the relationship between its occupation strategy and water, have been amply recorded over many years by Lebanese and international analysts (Stork, 1983; Naff & Matson, 1984; Al-Hajjar, 1997; Majzoub, 2001). Israel's long-standing policies of targeting Lebanese water infrastructure and facilities during their frequent attacks, combined with their denial of Lebanese residents' right to access water sources, has continued even after the liberation of South Lebanon in 2000. In August 2002, for example, Lebanon started construction works on the Wazzani Water Supply Project to supply drinking water from the Wazzani springs (which feed the Hasbani River) to adjacent villages and towns, where development had been at a standstill during the occupation years and the per capita water supply was only 50 litres per day (Lebanon, 2002). Israel threatened a military response to what they claimed would be a diversion of the river, and a tense standoff required the intervention of the UN and USA to prevent a potential 'water war' (Fisk, 2002).

Moreover, Israel's war of July–August 2006 against Lebanon resulted in the massive destruction of water and sanitation systems (see Table 5) that directly affected

Table 4. Selected major environmental stresses on water resources in Lebanon

Economic activity	Source of impact	Evidence of stress
Agriculture	– Excessive use of surface and groundwater irrigation.	– Seasonal water shortages; increased soil salinity leading to reduced crop productivity.
	– Excessive application of agro-chemicals.	– Contamination of groundwater from pesticides and nitrates.
Industry	– Discharge of liquid waste. Uncontrolled disposal of solid waste.	– High contamination of rivers, coastal waters. Contamination of rivers, groundwater from leachate seepage.
Transport	– Disposal of waste oils.	– Waste oil disposal in rivers, wells and coast.
	– Disposal of ballast water.	– Oil slick and tar balls on shores.
Energy	– Hydropower.	– Intermittent drying of river beds in summer.
	– Thermal power plants discharge into coast, rivers.	– Discharge of cooling waters leads to thermal pollution of coastal waters, disturbs marine ecology and damages fish.
Human Settlement	– Uncontrolled sewage disposal and no monitoring of septic tanks.	– Bacterial contamination of ground and surface water posing serious health risk.
	– Excessive use of groundwater resources for domestic supply.	– Seawater intrusion in coastal areas.

Source: based on MoE (2001).

Table 5. Damage to Lebanon's water infrastructure during Israel's July–August 2006 war on Lebanon

Regional Water Establishments (WEs)	Damage	Assessment (preliminary)
South Lebanon Water Establishment	– Destruction of large number of containers and internal village water networks. – Destruction of many principle and secondary pumping and pipelines. – Partial or total destruction of some pumping stations and WE buildings.	$19 million
Beqa'a Water Establishment	– Partial destruction of WE facilities and internal water networks. – Partial destruction of pumping and pipe lines – Destruction of two water pumps and a main container (3000 CBM).	$1.4 million
Beirut & Mount Lebanon Water Establishment	– Damage to principle pipelines. – Damage to water networks in Beirut's southern suburbs.	$5.6 million
Litani Water Office	– Damage to large number of irrigation channels and networks. – Damage to principle pumping stations, electric generators and equipment in the generating stations.	$11.7 million

Source: Lebanon (2006).

approximately 700 000 people in South Lebanon, 150 000 in the Beqa'a Valley, and 800 000 in the Beirut's southern suburbs (UN, 2006). International humanitarian organizations such as UNICEF distributed some 2 million litres of bottled of drinking water and supported local officials and NGOs in repairing destroyed, or purchasing new, water pumps, storage tankers and trucks for transporting water from central points to outlying villages or homes. The unprecedented destruction of Lebanon's civilian infrastructure (roads, bridges, gas stations, etc.) in southern areas had crucial secondary effects which created even more restrictive conditions for water access, while the estimated 1 million unexploded cluster bomb submunitions that were widely scattered throughout vegetable and tobacco fields continue to be a major concern, not only for direct water access but the livelihood of residents who overwhelming depend on agricultural activities (UN-OCHA, 2006).

Syria too has denied many residents in the northern Beqa'a region of their fair share of the shared Assi river. While only approximately 12% of the Assi's total drainage area is located within Lebanon, it is a crucial water source for many of the predominantly poor, rural residents of the adjacent arid and semi-arid districts such as Hermel and Qa'a, which have amongst the highest levels of poverty in the country. In the midst of Syria's hegemony over Lebanon during the 1990s, Lebanon and Syria signed a treaty dealing with

the Assi which in fact severely restricted the rights of Lebanese residents such that many farmers could not effectively access enough water to develop their fields. This suggests that any human rights approach to water in Lebanon must include international components and obligations in transboundary water issues.

Reforming the Water Sector in Lebanon: Building Capacity or Creating Rights?

The prevailing wisdom among Lebanese water experts and officials is that (1) Lebanon's water sector is in desperate need of reform if it is to meet the projected water demand; and (2) such reforms must be based on harnessing available water supplies (for example, by building dams throughout the country) and applying cost recovery principles and public-private partnerships in order to lead to the long-term sustainability of the water authorities (Jaber, 2002; Comair, 2005; Yamout & Jamali, 2007). The logic is that water tariffs have traditionally been geared towards the "social rather than the commercial aspect, especially as they are fixed according to the quantity to which the user has subscribed" (UNDP & ESCWA, 2003, p. 11). Water authorities were simply not recovering enough of the costs of salaries, maintenance and equipment; and there were no independent auditors to ensure proper bookkeeping. Moreover, gauges placed to measure the water use are regularly tampered with or even removed, illegal connections to the water networks are plentiful, and many subscribers do not actually pay their dues, with one report putting collection rates at only 10% (ESCWA, 2003). Moreover, a recent MoE report assumes that charging for water will lead to increased conservation practices, with, for example, farmers over-irrigating by as much as 130–300%, and reduced demand for water in the agricultural sector which relies on traditional techniques such as flood irrigation with an application efficiency of only 50% (MoE, 2005).

As such, the government of Lebanon has enacted legislation to initiate such reforms within the context of general reform and privatization. Law 241 (amending Law 221) of August 2000 approved the creation of four main WEs only a few weeks after the passage of the privatization law itself. The government quickly appointed a board of directors for each of the WEs, but granted them a two-year 'transitional period' before expecting them to be 'fully operational' (CDR, 2005a). Meanwhile, MEW and CDR have commissioned studies from Lebanese banks and French firms in preparation for the privatization of these establishments, while the CDR has already awarded management contracts of several water authorities to the private sector. Law 401 was enacted in June 2003 to enable the privatization of service and management contracts of the Tripoli Water Authority (TWA) (CDR, 2005a), with the French Development Authority (AFD) financing this deal through two concessionary loans totalling €20 million and ultimately awarding the deal to the French company ONDEO (a branch of Suez Environment Group) with the following objectives (ESCWA, 2003):

- improvement of the TWA's financial management through enhanced efficiency in the area of operation costs (energy, maintenance and personnel);
- application of cost recovery schemes designed to recover part of ONDEA's investment;
- introduction of a financial system conforming to national accounting norms and international standards;
- training of financial personnel;

- capacity building to upgrade technical, financial and managerial skills of staff; and
- well-defined remuneration policy.

ONDEA basically assumes the responsibility for piping water from intake points to storage reservoirs, and then on to households via their water gauges. Significantly, it has to enhance customer satisfaction to those who subscribe (although this is vaguely defined), and has the authority to suspend the service to consumers refusing to subscribe or who take water illicitly (ESCWA, 2003; CDR, 2005a). Similar managements contracts have also been awarded in the Beqa'a and South Lebanon regions, with the TWA contract representing the "first direct example of public-private partnership in water service provision. As such, it will serve as a model for participation by private firms in the management of other public utilities in the future" (ESCWA, 2003, p. 58; see also CDR, 2005a). According to the CDR, ONDEO has had a positive impact on the quality of the water and wastewater service provision in Tripoli, repairing leakages along 150 km of the water network there and securing a 24-hour continuous supply to residents (CDR, 2005b). However, there is no independent assessment of ONDEO's progress yet so it is too early to assess the socio-economic impact of this reform and privatization programme, while information dissemination and public participation remains very limited.

Conclusion

This paper has argued that Lebanon does not currently meet the prevailing criteria for a human rights-based approach to water. A relatively rich natural water supply is tempered by clear regional and class disparities and access, while the country's infrastructure and capacity has been ravaged by civil war, repeated Israeli attacks, mismanagement, administrative overlaps, weak enforcement of laws and poor conservation techniques in all sectors. This paper has also asserted that adopting a human rights approach in a country like Lebanon includes a political component that should be incorporated into the current reform process and development agenda. As it stands, the reform process tackles much-needed capacity issues but not political ones. The recently promulgated 10-year action plan by MEW, for example, does not mention water rights at all, but it does make it clear that increasing the supply of water for domestic purposes and new irrigation projects by improving efficiency is indeed a priority (Majzoub, 2001). Although they are not mutually exclusive projects, it is crucial to distinguish between simply adopting policies to increase technical capacity and efficiency on the one hand, and adopting policies that establish specific rights and an appropriate system of accountability that would have to go with it.

To achieve the latter, the human rights-based approach should first be mainstreamed within the current reform process and any future national water or sustainable development plans. Second (or concurrently), a specific law should be passed by Lebanon's parliament to enshrine the right to water and establish relevant criteria and standards for Lebanon. For this, an inter-ministerial committee composed of the key concerned public authorities (e.g. MEW, CDR and ministries of Social Affairs, Health, Municipalities, etc.) should be formed to elaborate a rationale for creating such a law and to draft a decree for consideration by the Council of Ministers, which in turn would pass it on to the Parliament. The relevant parliamentary committees—the committees on human rights, water, environment, municipalities, etc.—would then deliberate on the draft,

amending it if necessary, before sending it to the general assembly for a vote. Finally, the President would need to sign such legislation before it is published in the official gazette. But who could start this process? Given the fragmented nature of Lebanese civil society, and its lack of capacity, it is incumbent upon the international community, including the various UN agencies and transnational NGOs, to pressure donor governments to make these a condition for development aid. Such a roundabout process of pressure can compensate for Lebanon's current absence of political will, and has in fact proved fairly successful in similar cases for over a decade, from the establishment of a Ministry of Environment to the recent passage of a Consumer Protection law in Lebanon. The international community would also be able to pressure Lebanon's hegemonic neighbours to comply with their international obligations with respect to the equitable sharing of transnational water resources and, in Israel's case, to the non-targeting of water infrastructure in any future attacks. In the meantime, appropriate research agendas, public debates and information dissemination must be pursued (and funded) in order to provide policy makers and civil society organizations with the appropriate information and data needed to advance this agenda.

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