THE IMPACT OF WATER AS A SECURITY ISSUE ON THE MIDDLE EAST PEACE PROCESS: 1991-1996

THESIS

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ABSTRACT

In recent years, there has been increasing realisation that resource based conflicts constitute one of the most salient threats to the survival of mankind, namely, water. In particular, the fundamental link between water and security can no longer be ignored given the indispensable role of water in the sustenance of human life as well as crucial sectors of agriculture and industry. Since the flow of water does not respect political boundaries, co-operation in the utilisation of dwindling supplies remains the most sustainable option for the future in an era of ecological interdependence.

This thesis endeavours to investigate the impact of water as a security issue on the Middle East peace process. This is done within the theoretical framework that is provided by the schools of complex interdependence and new security studies. With the demise of the cold war, and the emergence of an expanded security agenda, water is an important non-military threat especially in the Middle East region. However, even with an expanded security agenda, the case of the Middle East suggests that it remains difficult to discard the hierarchy of security issues advocated by the Realists. The ongoing debate between the schools of complex interdependence and Realism is instructive in determining whether co-operation over water issues, considered "low" politics, is attainable in the absence of resolving "high" politics concerns of territory and security.

Given its profound security implications for the Middle East region, water has been accorded a central role in both the bilateral and multilateral peace negotiations. In the context of water scarcity, and rising demographic patterns, the role of water as a facilitator of regional co-operation remains critical. However, for multilateral co-operation over water resources to become a tangible reality, it is the contention of this thesis that both "low" politics issues of water

and "high" politics concerns of territory as well as security must be addressed simultaneously.

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LIST OF ABBREVIATIONS

ARIJ	Applied Research Institute of Jerusalem
CBM	Confidence Building Measure
MCM	Million Cubic Metres
MW	Megawatts

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DEDICATED TO MY PARENTS, MR AND MRS DONALD KANIARU, WITH GRATITUDE

CHAPTER ONE

INTRODUCTION

Today in the Middle East and globally, the most compelling resource based challenge remains water security. Water, it has been pointed out, is fast becoming a resource capable of dictating politics and provoking war (Anderson, 1991). What exacerbates this dilemma further, is the fact that shortages are expected to be the norm by the end of the century. By the year 2000, projected water demands for Israel will exceed one hundred and thirty per cent of current supplies (Wolf and Ross, 1992). Likewise for Jordan, estimated water requirements are expected to outstrip present supplies by over one hundred and twenty per cent (Wolf and Ross, 1992). Increasingly, it is being realised that water is no longer a cheap resource to be squandered without noticeable consequences for the future welfare of humankind.

In the nineties, the need to co-operate over dwindling water resources has taken on a renewed sense of urgency. With the realignment of political alliances in the aftermath of the Gulf war and the cold war, and countries in the region still in the throes of drought there occurred a shift in emphasis from water conflict to water co-operation. In the fall of 1991, the Middle East peace process began in Madrid, Spain ushering in a new era of hope. The inexorable forces of regional politics aside, water was cited as a motivating factor for the first ever face to face peace talks held between Israel and the Arab states. Water has therefore been accorded a central role in the wider security agenda of both the bilateral and multilateral peace negotiations. The purpose of this thesis is to investigate the impact of water as a security issue on the Middle East peace process.

Paradigms offer a theoretical framework within which questions are asked for the conceptualisation of the world from different perspectives. This thesis is situated

in the debates offered by the schools of complex interdependence and new security studies but also acknowledges the vital role of Realism as an opposing school of thought. The thesis begins by examining the basic premises of Realism and also emerging criticisms being levelled against the paradigm. A specific challenge to Realism relates to the definition of security and the need to incorporate the different components of what has been termed the new security agenda. Having established the need for a holistic conceptualisation of security, the emerging global water crisis in select regions of the world is examined. The basic premises of complex interdependence are also instructive in determining whether mutual dependence over water resources can pave the way for regional co-operation. Conclusions are drawn about the difficulty of sidelining the hierarchy of security issues advocated by Realists and the need to integrate both Realist and complex interdependence perspectives in evaluating the role of water in the Middle East peace process.

Chapter three is a survey of efforts and obstacles towards co-operation in the Jordan River basin. The chapter begins by focusing on the political setting of the Jordan River in order to understand emerging water struggles as well as past water-related incidents on the basin. This provides an important springboard towards understanding present water disputes forming the basis of discussion in the bilateral negotiations of the peace process. This section also explores past attempts at co-operation in the Jordan River basin. It also highlights various obstacles blocking efforts towards co-operation including in this regard the limitations of international water law.

Chapter four critically discusses the diplomatic role of water in the peace process. Here water disputes in each bilateral track between Israel and Syria, Lebanon, Jordan and Palestine are evaluated. This section also examines major issues forming the basis of discussion in the multilateral negotiations. Specific emphasis, however, is placed on the Multilateral Water Resources Working Group

dealing with water-related matters. This assessment of both the bilateral and multilateral negotiations is instructive in providing insights into the central question of whether water disputes, considered "low" politics issues, can be effectively resolved ahead of the "high" politics issues of territory and security plaguing the Middle East region. The thesis argues that it will be necessary to address both water and political core issues simultaneously.

Chapter five continues the focus on the link between water and political alternatives in the Middle East region. It looks at the treaties concluded so far in the peace process as well as various water-for-peace plans in order to determine the potential for regional co-operation over water. In particular, the chapter discusses the prospects for water conflict emerging on the Jordan River basin. The Israeli-Palestinian dimension of the wider Arab-Israeli conflict is discussed with a view to clearly elucidating the position that water alone will not lead to armed conflict. Conclusions are drawn about the need to resolve political core issues first in order to conclusively determine whether increased interdependence over water leads to co-operation or ultimately renews the potential for dissension.

The contention of this thesis is that water remains a decisive factor in the future stability or otherwise of the Middle East region. Only the simultaneous resolution of water disputes and political core issues is likely to provide a lasting framework within which a regional water plan can eventually be achieved. While water remains an important non-military threat in the new security agenda, the case of the Middle East suggests that it remains difficult to discard the hierarchy of security issues suggested by the Realists. The link between water and politics remains inextricable. Water scarcity has the potential to lead either to increased political tensions or to be a spur for greater understanding and co-operation. Which of these is the most likely, the thesis will suggest, depends on those

traditional core security issues which the Realists have identified as occupying a higher position on the hierarchy.

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CHAPTER TWO

THE THEORETICAL FRAMEWORK

2.1 Introduction

This thesis is situated in the debates offered by the schools of new security studies and complex interdependence. These theories will be used to shed some light on why water is such a critical security issue in the Middle East and its important diplomatic role in the current Middle East peace process. The insights provided by Realism as an opposing school of thought will also be used to understand state behaviour and determine whether co-operation in view of competing national interests can ever take place. Indeed, this complementary role played by Realism is recognised by scholars such as Keohane and Nye, who point out that neither Realism nor complex interdependence faithfully reflects world political reality: "Quite the contrary, both it and the Realist portrait are ideal types. Most situations will fall somewhere between these two extremes. Sometimes, Realist assumptions will be accurate, but frequently complex interdependence will provide a better portrayal of reality" (Keohane and Nye, 1989:24). Neither the perspectives of Realism nor complex interdependence alone are sufficient. Both are necessary in a world that hangs precariously between the two.

2.2 Realism in International Relations

Realism, as an approach to the theory and practice of international relations remains extremely influential. Given the persistence of Realist ideas, it becomes important to study its premises and inconsistencies in order to understand the

departure points of the opposing theories of complex interdependence and new security studies.

In its most basic outline, the Realist picture begins with a pessimistic worldview in which evil is considered a permanent fixture of life (Smith, 1986). Selfishness and a perpetual lust for power define the chief characteristics of human nature (Morgenthau, 1966). It is for this reason that Realists draw a sharp distinction between politics and morality. According to Morgenthau, for example, morality plays a limited role in the deliberations of states since "political ethics is simply the ethics of doing evil" (Morgenthau, 1966:201-204).

For the Realist, the state is the most important actor in an anarchic international system that recognises no structure of authority above it. Since states exist in an anarchical world, they succeed in placing their interests as states above all other claims, whether collective, individual or cosmopolitan (Smith, 1986:219). For this reason classical Realists such as Machiaveli justify any action that guarantees the survival of the state since no good can be found outside it (Machiaveli, 1952). This state-centric approach is considered to be a hallmark of Realism.

Power is a central concept in Realist thought. In the words of E.H. Carr, "Power can be a means, an end and a vital determining factor. It serves as the currency of international politics and its most desirable possession" (cited in Smith, 1986:77). It also defines the basic essence of international politics viewed to be nothing more than the struggle for power (Morgenthau, 1966). As a result, a security dilemma tends to prevail because each actor in the anarchic international system views its interests in terms of power and fear for its security (Smith, 1986). Conflict is therefore an inevitable and inescapable feature of the international system. Since conflict is inescapable it only varies in intensity owing to such factors as the scope of national ambitions and diplomatic skill

(Morgenthau, 1966). A system characterised by a balance of power is therefore considered to be the only means of ensuring stability in the international system (Morgenthau, 1966). This preoccupation with the security of the state, dubbed "high politics", tops the list of priorities in the foreign policy agenda unlike "low politics" issues of the economy and social matters. The state is therefore accorded the privilege of being both the object and the guarantor of security for individual citizens (Jones, 1996).

For Realists, therefore, the real issues in international politics can only be understood by the rational analysis of competing interests (Smith, 1986). This is because states are assumed to be unitary rational actors who are more or less skilled at calculating the risks and advantages of different policies aimed at acquiring power during times of uncertainty (Keohane and Nye, 1975). In the words of Morgenthau, "national interest is defined in terms of power" (Morgenthau, 1966:5). This means that for the Realist the key to understanding state behaviour is the calculation of power, interest and consequences (Smith, 1986).

2.3 Critique of Realism

The critics of Realism argue that a state centric approach to international relations is becoming irrelevant. This is not to argue that the state is now an irrelevant actor of world politics but rather to highlight the emerging complex web of interdependencies and the role of important non-state actors such as multinational corporations (Viotti, 1993). The case of multinational corporations provides compelling evidence that such actors can no longer be ignored in the political arena. Besides disposing resources exceeding those of many states, they account for the production of nearly half the world's industrial output dominating crucial industries such as pharmaceuticals, chemicals and machinery (Vernon, 1995). The political clout wielded by multinational corporations

pressurises even the largest governments. For example, the support given by large firms to the North American Free Trade Agreement of 1993 and the World Trade Organisation treaty of 1994 was surely indispensable to their passage (Vernon, 1995). The position of Dupont on the Montreal Protocol designed to control the emission of the environmentally harmful chloroflourocarbons was a decisive factor in determining the position of the United States on that agreement (Vernon, 1995). This certainly underscores the importance of non-state actors in global politics.

The Realist contention that the state is the source of security for its citizens has also come under attack (Jones, 1996). The narrow politico-military definition of security accords this privilege to the state yet as Booth points out, there is a glaring gap here between political theory and reality (Booth, 1994). For many citizens the greatest threat to their liberty and physical safety remains the government under whose sovereignty they live. Arms purchased in the name of defence are a case in point. A US government report estimates that the number of land mines increases by five hundred thousand to one million every year (Ghali, 1995). Despite these killer weapons hardly offering any significant advantage in times of war, they seriously endanger the physical safety of many innocent citizens, indiscriminately killing thousands each year. In Angola, for example, one in every four hundred and seventy people is an amputee making it the country with the highest number of amputees per capita in the world (Meldrum, 1995). The case of Rwanda further highlights this paradox. In 1994, a state-sponsored genocide immersed the country into a blood bath that resulted in the senseless killing of at least half a million Tutsis. Even today, for ordinary Tutsis the national government and not a neighbouring state remains the greatest threat to their safety and well being. These cases clearly illustrate that the state, far from being a guarantor of security, remains one of the greatest threats to individual security. Sovereignty continues to be used as a means to

sanctify acts of butchery and mass murder against innocent citizens in many parts of the globe.

It is this kind of paradox that has led to a growing dissatisfaction with the traditional approach to security defined strictly in military terms with the state as its primary object. According to emerging scholarly opinion, such an approach no longer reflects the reality of the threats affecting humanity. Increasingly, the threats that matter are no longer confined to national boundaries, such as the Ebola virus in Zaire or the mad cow disease in the United Kingdom. The emerging environmental crisis defies traditional military logic of deliberately mobilising and targeting resources towards the attainment of predetermined objectives (Maddock, 1996). For example, war and threats of war are no longer viable options for Norway to persuade the United Kingdom to control acid rain deposits affecting Norwegian lakes and rivers (Maddock, 1996:168). To the 1.4 million recently displaced people in China to make way for the Three Gorges Dam on the Yangtze River, poverty remains the greatest threat to their survival, not a neighbouring army (Topping, 1995). It is therefore argued that the concept of security must be conceptualised in vertical levels (the security of individuals, related groups, States) and horizontal dimensions encompassing a wider agenda of political, environmental, societal, gender and economic issues if it is to be considered comprehensive (Vale, 1996:56).

Until recently, questions relating to security were considered irrelevant in international relations for the simple reason that security was considered to be synonymous with defence. This traditional approach to security reflected cold war thinking with its emphasis on military and nuclear armament as the only means of ensuring national security (Buzan etal, 1998). With the growing acknowledgement that human security is as vital as national security, there has been a shift in emphasis to individual human beings as referent objects of security. The implications of this shift have been profound for the state whose

primary task is considered to be the provision rather than the maintenance of security (Van Aardt, 1993). Providing security, rather than maintaining it implies two essential things, namely, the necessity of intra and inter-state political settlements as well as co-operative planning, rather than intimidating behaviour (Van Aardt, 1993:90). National security can no longer be guaranteed unilaterally, but only in collaboration with other states hence the emergence of common security (Honwana, 1996).

Buzan, in his influential pioneering work People, States and Fear defines security as being, "the pursuit of freedom from threat" (1991:18-19). Five dimensions of security are identified, namely, military, political, economic, societal and environmental (Buzan, 1991:19). Military security involves the two level interplay of the state's offensive and defensive capacities and states' perceptions of each other's intentions (Buzan, 1991:19). Traditionally, such threats have been accorded the highest priority given their potential to wreck havoc in all other sectors. The defensive and offensive weaponry acquired by the United States and former USSR provides a good example. By 1989, it was estimated that these two countries had some fifty-five thousand, five hundred warheads between them, ninety-eight per cent of the world total having a combined power of one million, two hundred thousand Hiroshima-type bombs (Ekins, 1992).

In practice, the ability of a state to defend itself against internal and external threats constitutes the most fundamental aspect of the military agenda (Buzan etal., 1998). However, the military agenda is also facing serious challenges. For example, with technological advancements and the emergence of nuclear weapons, no state can adequately defend its citizens. This is because nuclear weapons travel at unprecedented speed and their effects do not respect political boundaries. Military force is also declining in relevance as a tool of statecraft, for in an all out nuclear war, there can be no victor. In addition, environmental threats have arisen as a product of an uncontrolled arms race. In the Nuclear

Reservation site in Washington, at least three hundred and forty-six gallons of nuclear waste have seeped into the ground since the 1940s (Perkovitch, 1985). This has not only endangered the lives of private citizens, but also contributed to a waste of cultivatable farmland (Perkovitch, 1985).

Political threats constitute the second of Buzan's security dimensions. They are usually aimed at the organising stability of the state since its nationality, identity and organising ideology form the normal target of such threats (Buzan, 1991:119). These threats typically involve either giving or denying legitimacy or recognition (Buzan etal; 1998). In South Africa, the organising ideology of apartheid was rigorously defended through the use of force and a systematic policy of destabilisation. The case of India and Pakistan provides another good example. The existing conflict between the two countries primarily revolves around competing ideas and mutually exclusive legitimising principles of the state (Buzan etal; 1998). While Pakistan emphasises religious exclusivity, India being a continent-wide state is more tolerant of different ethnic and religious backgrounds (Buzan etal; 1998).

Economic security, on the other hand, provides the resources, finances and markets that create the potential for all other security dimensions to be realised (Buzan, 1991). Buzan argues that the idea of economic security "is located squarely in the unresolved and highly political debates about international political economy concerning the nature of the relationship between the political structure of anarchy and the economic structure of the market" (1991:230). A number of issues therefore dominate the economic agenda. They include: the relationship of the economy to state mobilisation, questions relating to security of supply arising from economic interdependencies and finally, the growing inequalities in the economic capabilities of states (Buzan etal; 1998). Economic growth also brings with it a whole host of security challenges. Environmentally, rapid industrialisation leads to the depletion of natural resources such as

agricultural land and fishing grounds (Archarya, 1996). In Taiwan, for example, large-scale industrialisation has resulted in an unprecedented scale of pollution rendering at least twenty per cent of the country's farmland useless (Broad, 1990). Poverty also remains an important global challenge. In Africa, Latin America and some parts of Asia, the last decade has been marred by economic despair as evidenced in the following statistics. According to the World debt tables of 1989 to 1990, the per capita Gross National Product of sub-Saharan nations stood at three hundred and sixty-five US dollars while per capita debt averaged three hundred and thirty-four US dollars, a debt ratio of ninety-one per cent (Wacieni, 1996). With an increasingly widening gap between the North and South, millions continue to live in abject poverty. The provision of economic security however, remains an indispensable prerequisite for ensuring adequate levels of social security and welfare for citizens.

Identity remains the key to societal security. Societal security entails the sustainability within acceptable conditions for the evolution of traditional patterns of language, culture and religious and ethnic identity and custom (Buzan, 1991:19). With the demise of the cold war, ethnicity has emerged as a major security issue leading to intra state conflict. In the former Soviet Union, for example, at least one hundred and sixty border disputes have been identified (Garnett, 1996). This means that an ethnic time bomb is set to explode in the near future. Already, it is estimated that ethnic violence has claimed at least ten million lives since the Second World War (Garnett, 1996). Migration also constitutes another important aspect of the societal security agenda. The influx of people into an area may be considered a direct threat to existing linguistic and cultural patterns (Buzan etal., 1998). A good example is the Canadian fear of Americanisation. Changes in identity constituting varying levels of societal threats include secession or regional integration such as the European Union (Buzan etal; 1998).

Environmental security concerns the maintenance of the local as well as the planetary biosphere as the essential support upon which all other human enterprises depend (Buzan, 1991:19-20). In June 1988, for example, a meeting of scientists and policy makers in Toronto acknowledged that continued alteration of the global atmosphere threatens global security and its catastrophic effects are comparable only to a global nuclear war (Rowlands, 1992). Human activities remain a great threat to the environment seriously eroding its capacity to sustain human, animal and plant life. It is estimated that more than forty per cent of the world's original six million square miles of tropical forests continue to disappear at the rate of thirty to thirty-seven thousand square miles per year (Ekins, 1992). This results in at least six million hectares of land becoming desert each year putting at stake the livelihood of billions of people around the globe (Ekins, 1992). Moreover, such activities have transboundary consequences that could lead to desert encroachment and acid rain pollution in another country. Global climatic changes resulting such as the ozone layer and global warming have dire consequences for the world as a whole regardless of the individual country's contribution to the crisis. Bangladesh, for example, is particularly prone to the effects of global warming owing to its densely populated low-lying coastal lands. This despite the fact that its own contribution to the green house effect has been virtually nil (Walker, 1990). In general, its breadth in scope complicates the environmental security agenda for it also includes food problems, ecological disruptions, and civil strife including war-related environmental damage (Buzan et al; 1998).

This examination of the five dimensions of security is a clear indicator that security is now considered to be a holistic phenomenon. The state and the military sector are no longer considered to be the focal points of emphasis in the emerging security discourse. Critics, however, argue that such an expanded security agenda risks becoming too broad and unmanageable. They contend that it increasingly blurs the distinction between individual and state security.

Therefore, it becomes difficult to establish what the genuine threats really are since in most cases some can be directly attributed to a government's neglect of its responsibilities (Van Aardt, 1996). In response, Booth argues that such criticisms being levelled against an expanded security agenda fail to take into consideration the fact that the essence of the political process involves making choices between competing demands (Booth, 1994). A narrow security agenda defined essentially in military terms leaves security advice confined to a small clique of defence specialists (Booth, 1994). This can be detrimental, especially in a nuclear age, for military logic usually dictates that the means justifies the end. Therefore, in the event of a crisis such as the Cuban missile crisis such weapons could easily be used with catastrophic consequences for the rest of the world. What must be made clear is that the traditional approach to security is not obsolete but simply declining in relevance especially following emerging new challenges.

2.4 Water Security: An Emerging Global Crisis

The case of water provides a compelling case for the adoption of a more holistic conception of security. Water resources are not confined within boundaries. In a very direct and immediate sense the well being and hence security of individuals relies on a plentiful, constant, predictable and clean supply of water. This requires the co-operation of states, rather than states acting alone to secure their national citizens.

At least fifty countries have more than three quarters of their land in international river basins, two hundred and fourteen river basins are multinational, while thirteen are shared by five or more countries, and almost forty per cent of humanity lives in an international river basin (Cairncross, 1994:43). These statistics take ominous proportions if consideration is given to the fact that in every shared international basin there is a possibility for conflict

owing to competing national interests. Three main factors determine the conflict potential of any basin, namely, the importance of water to each actor, relative defensive or projectable military power and position in relation to other actors (upstream or downstream) (Frey, 1993:61). In particular, upstream diversions through dam construction, irrigation projects or denial of access clearly illustrate the link between politics and security (Hudson, 1996). Accordingly, a security dilemma usually prevails since one actor's attempts to solve its own water problems ultimately contributes to the economic or food insecurity of another (Hudson, 1996). The problems of scarce water resources are further compounded by increases in population growth. The world's population is expected to rise from 5.3 billion in 1990 to 6.2 billion in the year 2000, and to 8.5 billion in the year 2025 (Solomon, 1996:1). These increases in population ultimately mean that majority of countries will not be able to meet increasing water demands in various sectors such as agriculture and industry. Agricultural activities, for example, account for eighty to ninety per cent of all water used in developing countries (Biswas, 1993).

Several regions of the world are characterised by acute water dilemmas. They include the Nile River basin, the Mekong River Basin, the Tigris and Euphrates River system and the Ganges River. The Nile River basin is the longest system in the world and drains approximately ten per cent of Africa (Anderson, 1988). It extends over the territories of Egypt, Sudan, Ethiopia, Kenya, Tanzania, Uganda, Rwanda, Burundi and Zaire (Caponera, 1996). The case of Egypt is considered specifically because of the life and death implications the Nile River has for the country. Egypt's position on this basin is also particularly critical because it is the last downstream state (Starr, 1991).

Many commentators have argued that the national security of Egypt is a question of water (see for example Ghali cited in Starr, 1991:21). By the year 2010, the country will be experiencing a severe water deficit requiring at least five billion

cubic metres every year (Starr, 1993). In thirty-one nations more than thirty-three per cent of water resources are shared, the most vulnerable according to this criterion being Egypt where the ratio is ninety-seven per cent (Maddock, 1996:175). In addition, approximately eighty-six percent of Egypt's water is from the Nile basin (Maddock, 1996). This has serious implications for food security since its predominantly agrarian based economy thrives largely on flood irrigation. Demands for water, however, continue to rocket with Egypt's population gaining an additional one million people every ten months and expected to reach seventy-five million by the year 2000 (Starr, 1991:21). The country is also estimated to be importing approximately fifty per cent of its food, straining its economy even further (Starr, 1993).

Unfortunately, Egypt is located downstream and has to contend with the potential water diversions of at least eight upstream governments such as Ethiopia, Sudan, Uganda and Kenya. Each of these countries is experiencing rapid population growth rates with significant implications for water usage (Caponera, 1996). It is estimated that these upstream states will require an additional ten billion cubic metres of water by the next two decades (Starr, 1993). According to Ghali, this dilemma is made worse by the fact that each Nile country expects different benefits from the control and management of water resources (cited in Starr, 1993:1266). This represents a marked difference in attitudes amongst upstream and downstream countries sharing the same international river (Starr, 1993). Countries like Sudan have already embarked on building several dams to tap this vital resource. A recent development in this connection is the building of the Jonglei canal to divert water from Bahr-el-Jebel to the White Nile (Anderson, 1988). The relatively unknown, but extremely pre-eminent country on the basin, Ethiopia, has also set up new development plans to exploit the Blue Nile. The Tana Beles irrigation system is a good example of efforts geared towards actualising its intentions to exploit the Blue Nile (Starr and Stoll, 1988). Given that at least eighty-two per cent of the Nile is derived

from Ethiopia, future development plans will have significant implications for Egypt.

However, Egypt has little influence over the actual planning and execution of such development schemes (Starr and Stoll, 1988). The related problems of drought caused by unreliable rainfall makes it even more difficult to arrive at an equitable water allocation system. In view of the crucial importance of the Nile in Egypt, President Sadat once remarked that "...tampering with the rights of a nation to water is tampering with its life and a decision to go to war on this score is indisputable in the international community" (Sadat cited in Wolf, 1994:31). This case clearly underscores the crucial link between water and security.

A similar case is that of the Mekong River, the third longest in Asia, which has its source in the plateaus of Tibet and encompasses a region of seven hundred and ninety-five thousand square kilometres (Cambodia Times, April 1996; Giang, 1998). It stretches through parts of China and Myanmar, one third of Thailand, the whole of Laos and Cambodia, and one fifth of Vietnam (Giang, 1998). The Mekong River is critically important as a means of communication and for the economy of the six nations it travels through. In Vietnam, for example, the Mekong Delta accounts for some forty per cent of agricultural production in the country with rice and fisheries products contributing approximately twenty-seven per cent of the GDP (Giang, 1998). It is also an important means of livelihood for millions of people residing in the delta region. The Mekong plays a direct role in the lives of 3.6 million Laotians, 19.2 million Vietnamese and twenty-two million Thais, all of whom live and work in its basin (Cambodia Times, April 1996). Given the immense importance of the Mekong basin in the region, the lower co-basin states set up the Mekong Committee in 1957 (Caponera, 1996). Its main task includes co-ordinating and supervising the planning and investigation of water resources development projects (Caponera, 1996:104). As a result of the committee's efforts, the "Joint Declaration of Principles for the

Utilisation of the Waters of the Lower Mekong Basin" was signed on the 31st of January 1975 (Caponera, 1996).

However, in recent years a number of latent conflicts appear to be emerging in the basin. In what amounts to a total disregard of the declaration, Thailand has begun unilaterally transferring Mekong waters into the Chao Phya Basin, wholly situated there (Caponera, 1996). Similarly, China has constructed a series of dams on the river without giving prior notification to the downstream riparians (Caponera, 1996). Vietnam and Laos have been greatly affected by these developments. This is because increased abstractions upstream not only lead to lower river flows, but also increase the levels of salt water intrusion (Giang, 1998). In Vietnam, approximately two million hectares of land have been reduced to wasteland following marked increases in salinity levels (Giang, 1998). This has raised serious concerns regarding the food security of the country. In previous decades, Vietnam imported food with an annual average volume of seven hundred thousand to eight hundred thousand tonnes of rice (Giang, 1998). However, with the Mekong waters Vietnam now not only produces enough food to meet domestic demand, but is also a leading exporter of rice. Laos, another downstream state has also witnessed marked decreases in water flow during the dry season (Caponera, 1996). Moreover, the delta provides a habitat to flora and fauna that could easily be irreversibly damaged by water mismanagement. This case further illustrates the ecological interdependence in a river basin and the urgent need to co-operate in the utilisation of waters in international basins. The "Agreement on Co-operation for the Sustainable Development of the Mekong River Basin" signed on the 5th of April 1995 hopes to avert such latent conflicts in future (Caponera, 1996).

The Euphrates basin covers an area of four hundred and forty-four thousand square kilometres and is divided between three riparian states: Turkey (twenty-eight per cent), Syria (seventeen per cent) and Iraq (forty per cent) (Anderson,

1988). Although none of the riparians faces an imminent water shortage, certain irrigation and hydroelectric projects have the potential to drastically diminish the flow of this river (Starr and Stoll, 1988). This is likely to exacerbate already existing tensions between the three states. Indeed in 1974, Iraq and Syria came to the brink of war with Turkey over marked reductions in the Euphrates River flows. This was as a result of the building of the Ath-Thawarah dam (Anderson, 1991). Once again, in 1990 Syria and Iraq expressed alarm over their water security. During this occasion, Turkey lowered an eighty-seven tonne concrete plug into the diversion channel beneath the Ataturk dam, effectively stopping the flow of the Euphrates River (Anderson, 1991). To further exacerbate the water dilemma, Turkey has embarked on the Grand Anatolia Project (GAP) comprising thirty-three dams (Anderson, 1988). It is expected to provide irrigation waters for at least seven hundred thousand hectares of land and will require ten thousand MCM of water annually (Starr and Stoll, 1988). This project will cut Syria's share by about forty per cent and that of Iraq by approximately eighty per cent (Naff, cited in Starr and Stoll, 1988). This development signals a potentially explosive water conflict on this basin in future.

The Ganges River originates in the People's Republic of China passing through Nepal and India and forming the boundary between India and Bangladesh (Westing, 1986). Rapid industrialisation and population growth is greatly straining the capacity of this water resource. At present, a thirty-year-old dispute rages regarding the water allocation of this river (Caponera, 1996; Westing, 1986). It has primarily revolved around the construction of the Farakka water diversion dam by India (Westing, 1986). India continues to draw large amounts of water unilaterally from this resource. The agricultural sector of Bangladesh has been greatly affected by this development (Westing, 1986). Consequently, a number of Bangladeshi communities have been forced to immigrate to India. (Hudson, 1996). This has led to highly politicised clashes between these immigrants and local Indian populations (Hudson, 1996). This

case clearly illustrates the potency of resource capture by a dominant country. According to Hudson, this leads to ecological marginalisation because "weaker groups, denied access to resources, migrate to ecologically fragile regions that subsequently become ecologically degraded" (1996:9).

Elsewhere in the Middle East, this trend towards water shortage replicates itself. In the 1980s, a US government intelligence service estimated that armed conflict over dwindling water supplies could break out in at least ten places, the majority of which were in the Middle East (Starr, 1993). Water security, states Starr, "will soon rank with defence in the war rooms of defence ministries" (1993:1267). In the case of Libya, demand is more than thirty per cent in excess of sustainable supply since current withdrawals exceed sustainable demand by over three hundred and seventy per cent (Maddock, 1996). Algeria, Israel, the West Bank, Gaza, Jordan, Tunisia and Yemen are facing a "water barrier" requiring accelerated efforts, investments, regulations and controls just to keep apace with spiralling populations (Starr, 1991:17). Many countries in the Middle East are also unable to meet the minimum sustenance level of the United Nations estimated to be about one thousand cubic metres for healthy living (Frey, 1993). It becomes clear judging from the crises of water shortage, overpopulation and food insecurity that the regions of the Middle East, Africa, and South Asia are wrestling with the very problem of human survival and hence the case for an expanded concept of security could not be stronger.

2.5 Complex Interdependence

What light do these examples highlighting the ways in which water scarcity is experienced as a common security threat, across national boundaries, incapable of being secured adequately by a single state acting in its own interest, shed on the debate between Realists and their critics? The proponents of complex interdependence point to three major aspects as their point of departure from

Realist thought. Firstly, unlike the Realists, complex interdependence theorists recognise the importance of non-state actors "which act as transmission belts making government policies in various countries more sensitive to one another" (Kegley, 1993:31). Secondly, in an era of global interdependence, it is argued that a foreign policy agenda must be diverse and not dominated by national security issues (Kegley, 1993). Thirdly, military force is also viewed as an increasingly irrelevant instrument of foreign policy and these theorists are more interested in the question of how order can be created in an anarchic international system (Kegley, 1993).

In its simplest form, interdependence emphasises the links and interconnectedness of units in the system. In other words, the world system is viewed as characterised by mutual or reciprocated dependence (Mansbach, 1994; Keohane and Nye, 1989). It is necessary to distinguish between two crucial components of interdependence, namely, sensitivity and vulnerability. Sensitivity refers to the speed with which changes in one part of the world affect other parts of the world and the magnitude of those effects (Mansbach, 1994; Keohane and Nye, 1989). Vulnerability, on the other hand, refers to the alternatives actors have in seeking to limit the effects of change (Mansbach, 1994; Keohane and Nye, 1989). In an era of global interdependence, states are increasingly sensitive to economic developments in other countries. The stock market "crash" of 1987 when the New York Stock Exchange Dow Jones average dropped by five hundred points is a good example. The effects of this event affected the economies of Tokyo, London and HongKong (Russet, 1989). A state is vulnerable to the effects of an oil spill because even after cleaning up its environment, the effects of the damage may still be experienced in other sectors such as tourism and fishing. In an interdependent world it becomes very costly to exercise independence. Does this suggest that interdependence leads to greater co-operation, peace and stability? Is the tendency of self seeking actors

towards conflict diminished? In order to shed light on these questions, it becomes important to examine the characteristics of an interdependent world.

Keohane and Nye in their influential work Power and Interdependence highlight three main features of an interdependent world. Firstly, there are multiple channels of communication--interstate, governmental and transnational (Keohane and Nye, 1989). Secondly, there is also a conspicuous absence of hierarchy amongst issues on the foreign policy agenda (Keohane and Nye, 1989). Finally, there is a diminished use of military force as a dominant means of exercising influence in international politics (Keohane and Nye, 1989). The success of states in an interdependent world depends on their power, bargaining skill and the existence of favourable international regimes (Keohane and Nye, 1989). Regimes, according to Krasner, exist when there are "implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations" (Krasner, cited in Haftendorn, 1991:9). Regimes mitigate disorder through the application of rules, thereby facilitating the development of co-operative interdependent relations (Garnett, 1992). The concept of power in this paradigm is particularly interesting. Power, according to Keohane and Nye, "derives from patterns of asymmetrical interdependence between actors in the issue areas in which they are involved with each other" (Keohane and Nye, 1989:31). They also point out the connection between power and asymmetrical vulnerability since an actor's power will vary depending on the issue under consideration (Keohane and Nye, 1989).

In the case of the Middle East, can it be said that interdependence over shared water resources has the potential to lead to the development of co-operative regimes? Unilateral development in tightly controlled water systems such as those of the Middle East is likely to be extremely expensive if based on technology and a likely flash point for conflict should a neighbour's water supply

be tampered with (Wolf, 1995). Moreover, rising population and water demands make co-operation the only viable option. Co-operation requires that the "actions of separate (but interdependent) individuals and organisations which are not in pre-existent harmony be brought into conformity through a process of policy co-ordination" (Haftendorn, 1991:9). In the current Middle East peace negotiations, water according to Munther Haddadin, a Jordanian delegate, "seems to be leading the peace talks" (cited in Wolf, 1994:37). In 1991 with countries in the Middle East still in the throes of drought, water was mentioned as an important motivating factor for the first ever face to face peace talks held in Madrid (Wolf, 1994; see also chapter four). It has also been cited as a substantial issue of mutual concern and hence the creation of a Water Resources Working Group to discuss potential solutions and possible alternatives for joint water management projects in future (Wolf, 1995; see also chapter 4.4.1). This Water Resources Working Group has been, "a vehicle for venting past grievances, presenting various views of the future, and, perhaps most important, allowing for personal 'de-demonisation' and confidence building on which the future region at peace can be built" (Wolf, 1995:147). In the bilateral negotiations, water played an important role leading to the signing of the Treaty of Peace between Israel and Jordan in 1994 (see also chapters 4.4 and 5.2.1). Besides opening up a new era of co-operation over water resources, it also facilitates a process of normalisation in the relations between the two countries after a record of forty-six years of hostility. In the words of Naff and Matson, "...water as an impulsion to conflict carries its own corollary, being as well an impetus toward co-operation" (Naff and Matson, 1984:3).

In contrast to this optimistic picture critics argue that interdependence leads to conflict. Drawing heavily from the Realist school of thought, this view sees interdependence as merely a dominance-dependence relation with the dependent party vulnerable to the choices of the dominant state (Russett, 1989). Sovereignty and interdependence are not compatible, hence the frustration and

anger generated in the dependent state easily leads to conflict (Russett, 1989). The case of conflict between Namibia and Botswana over the utilisation of waters from the Okavango delta is a good example. Namibia's decision to go ahead in the construction of a one billion dollar pipeline to facilitate the flow of at least twenty million cubic metres annually has intensified tensions between the two states (Rake, 1997). Since this action threatens to turn large portions of Botswana territory into Kalahari dust, Botswana is actually considering the use of military force as the only viable option left to it. It has since embarked on an intense rearmament programme constructing a two billion dollar air base at Molepolole and purchasing conventional weaponry from Britain and Canada at the cost of forty-nine million US dollars (Rake, 1997). This shows that interdependence can also lead to conflict. Botswana, being a downstream state, is sensitive to any actions taken by Namibia which manipulate the mutual water resource. It is also vulnerable for no alternatives exist to this vital water source. While not ignoring the critics of complex interdependence, this thesis will seek to integrate the mutually reinforcing role of both Realist and complex interdependence perspectives in order to evaluate the important role water is playing in the current peace negotiations.

2.6 Conclusion

Realism is an approach to the study of International Relations that focuses solely on the state as the most important actor and emphasises the link between power and national interest as the only way to understand state behaviour. In an anarchic international system, the state, in an unending struggle and quest for power, carefully weighs every action and its consequences. It is however made clear that in the event of conflicting interests, a state's national interests take precedence over all else. To the Realist, the link between water and politics is inevitable. A zero sum game tends to prevail as each upstream state strives to attain its own development plans at the expense of other downstream states.

This leads to a security dilemma since an actor's attempt to solve its own water problems heightens the food and economic insecurity of another. The Realist therefore views the notion of mutual dependence propagated by complex interdependence theorists with great suspicion. Sovereignty and interdependence are simply incompatible and a state will always focus on enhancing its own survival before being concerned with the plight of another state.

Complex interdependence on the other hand, argues that the international state system can more accurately be characterised as one of mutual reliance amongst states. In this system, decisions taken by a given actor have security implications for other states. Co-operative regimes are therefore considered to be the optimal means of attaining a state's goals. In contrast to the Realists, complex interdependence theorists conceptualise power and national interests arising therefrom in a different light. They acknowledge the vital importance of power as a crucial bargaining chip, but argue that the perception of shared interests and power inequalities amongst states has the potential to propel them to co-operate. In the Middle East, for example, water is crucial to the survival of all the states concerned. Because actions taken by one state can impact another negatively by diminishing the quantity and quality of water available, complex interdependence theorists highlight this mutual dependence as sufficient justification to co-operate. Only co-operation leads to a win-win situation for all the states concerned. They therefore do not view the zero sum situations predicted by the Realists as being inevitable. Water scarcity is recognised not just as a source of tension, but also as a vehicle of avoiding conflict arising from competing demands. Therefore, the central difference between the two theories becomes the different perceptions of power, national interest and its impact on the interactions of the states concerned. For the Realist, conflict is inevitable in a world in which a state's national interests take precedence over all else. But for

the complex interdependence theorists, co-operation is the key to mitigating that very disordered and complicated world depicted by the Realists.

In the case of the Middle East, these two theories converge in their concern regarding two central questions: can water disputes, considered "low politics" issues, be resolved ahead of the "high politics" issues of territory and security? If they can, will water ultimately provide the framework through which these contentious issues can be resolved and lead to the building of a common future for the region? As suggested by theorists of new security studies, water is an important non-military security threat especially in the Middle East. However, this thesis will seek to demonstrate that even within the new security agenda, it is still difficult to discard the hierarchy of priority security issues suggested by the Realists. It will therefore be argued that only a simultaneous approach addressing both "high" and "low" politics issues can ultimately provide a lasting framework in which regional co-operation over water can be realised.

CHAPTER THREE

THE HISTORY OF EFFORTS AND OBSTACLES TOWARDS CO-OPERATION IN THE JORDAN RIVER

3.1 Introduction

Water, said the French poet, Antoine de Saint-Exupery is not necessary to life, but rather life itself. In a region of water scarcity, water remains an invaluable commodity which countries are prepared to fight to the last breath for. Since the earliest origins of civilisation, the history of the Middle East has been punctuated by struggles for access to and control over, water resources. But the Jordan River still remains by far the most critical flash point of the future; a dilemma exacerbated by the fact that the co-riparians--Israel, Syria, Jordan and the West Bank are currently using between ninety-five per cent and more than a hundred per cent of their annual fresh water supply (Wolf and Ross, 1992). Yet, the choice between conflict or co-operation remains critical for as one observer succinctly put it "either equity in the share of waters or die" (Genckaya, cited in Caponera, 1993:629). It is against this background, that this chapter addresses three fundamental aspects: Firstly, a brief description of the Jordan River's political setting will be given. Secondly, an attempt will be made to critically examine the history of water conflict and co-operation in the basin. Finally, the obstacles towards achieving this co-operation will be assessed.

3.2 The Political Setting of the Jordan River

The Jordan River watershed drains an area of eighteen thousand, three hundred square kilometres in four countries: Lebanon, Syria, Israel and Jordan (Wolf and Ross, 1992). It begins in three head water rivers: the Hasbani, which has its

source in Syria with a small section of its watershed in Lebanon, the Dan located entirely within Israeli territory and the Banias flowing into Israel from springs in the north near Syria (Taubenblatt, 1988). In Israel, these three rivers converge and become the upper Jordan River which then flows south into the Sea of Galilee or Lake Tiberias (Taubenblatt, 1988). Lake Tiberias is the only natural reservoir in the basin (Lowi, 1995a). The western and eastern shores of the lake are located in Israel while the north-eastern shore is in the Syrian Golan Heights (Lowi, 1995a). The Yarmuk, the largest of the four main tributaries, rises in Syria and flows south and then east into the lower Jordan River (Lowi, 1995a). The Yarmuk triangle forms at the point where the lower Jordan River empties into the Sea of Galilee. The Yarmuk River forms the boundary between Jordan and Syria and in its lower reaches between Israel and Jordan (Lowi, 1995a). Therefore, in the case of the Yarmuk River, Syria is an upper riparian to Israel. On the Jordan River, Syria and Lebanon are upper riparians to Israel and Israel is an upper riparian to Jordan (Taubenblatt, 1988).

The climate of the Jordan River Basin can generally be described as being semi arid. The river flows through the transition zone from the Mediterranean sub tropical climate of Lebanon and the Galilee region in the north to the arid conditions of the Negev Desert and the Rift Valley to the south (Wolf and Ross, 1992:922). The rainfall patterns are variable and unreliable with a general decrease from north to south and from west to east (Wolf and Ross, 1992; Drezon Tepler, 1994).

There are three principal aquifer systems located to the west of the Jordan. The north-east basin recharges in the northern West Bank with an annual yield of one hundred and forty MCM per year, the Yarkon-Tanninim recharges in the West Bank with an annual recharge rate of three hundred and thirty-five MCM per year and the eastern basin with a recharge rate of one hundred and twenty-five MCM (Wolf and Ross, 1992:925). Ground water resources in the region

supply more than fifty per cent of the available fresh water supply in Jordan, Israel and the West Bank (Libiszewski, 1995).

However, in comparison to other river basins in the world, the Jordan River is essentially a tiny stream. Its total natural discharge averages one thousand five hundred cubic metres, approximately fifty times less than the Rhine's, sixty-five times less than the Nile's and four hundred times less than the Mississippi's discharge (Libiszweski, 1995). The Rhine and Rhone of Europe, in comparison, drain areas of one hundred and forty-five thousand square kilometres and ninety-six thousand square kilometres (Libiszweski, 1995). What remains paradoxical, however, is that the emotions this tiny stream evokes are one hundred per cent more passionate. Owing to its strategic geopolitical position, the Jordan River has been described as "having witnessed more severe international conflict over water than any other river system in the Middle East and remains by far the most likely flash point for the future" (Wolf and Ross, 1992:920).

3.3 The History of Water Conflict and Co-operation in the Jordan River Basin

Water represents, as Drezon-Tepler explains, "one facet of the multidimensional conflict between Israel and the Arab states" (1994:281). Therefore, scarce water resources have been a source of conflict and occasional co-operation in a politically volatile region that historically has witnessed five wars (Fairinelli, 1997). In assessing the history of water conflict and co-operation, certain important questions emerge: Has water been a catalyst for conflict on the Jordan River basin? Do the riparians view water as a strategic target and goal? What are the links between past events on the basin and the current hydrological flashpoints? While acknowledging that historical events rarely occur in a political

vacuum, only forces directly related to water conflict and co-operation are discussed here.

3.3.1 Past Water Conflicts on the Jordan River Basin

The first Arab-Israeli war of 1948 provides a crucial starting point for this discussion. Its aftermath marked the beginning of a series of unilateral socio-economic development programmes by states in the region. As Wolf and Ross (1992) point out, great demographic changes resulting from the war made the initiation of such programmes imperative. For example, the Israeli-Jewish population rose from six hundred and fifty thousand in 1948 to approximately 1.62million in 1952 (Wolf and Ross, 1992). Jordan's population increased by approximately eighty per cent to 1.85 million following the unprecedented immigration of four hundred and fifty thousand Palestinian refugees (Wolf and Ross, 1992).

Given the vital role of water in sustaining the crucial sectors of agriculture and industry, Israel in 1951 promptly announced its "All Israel Plan". This plan marked the first out-of-basin transfer for the watershed (Wolf, 1994). It entailed draining the Huleh Lake and swamps, diverting the Jordan River's northern section and the construction of a carrier to the coastal plain and Negev Desert (Wolf, 1994). Parallel to this announcement, Jordan made public its intention to tap the Yarmuk waters in order to irrigate the East Ghor region situated in the Jordan Valley (Wolf and Ross, 1992).

Israel responded by closing the gates of an existing dam south of Lake Kinneret and draining the Huleh swamps (Wolf, 1994). However, since this latter action failed to take into consideration existing political boundaries and cease-fire lines, it provoked a series of border skirmishes between Israel and Syria (Hosh and Isaac, 1992). While such blatant Israeli action did infringe upon Syria's

demilitarised zone, the Israeli Foreign Minister, Moshe Sharrett, expressly declared that, "Our soldiers are in the north defending the Jordan water sources so that water may be brought to the farmers of the Negev" (Sharrett cited in Wolf, 1994:20).

In July 1953, Israel began construction of its National Water Carrier at Gesher B'not Ya'akov situated to the north of Lake Kinneret in the demilitarised zone (Wolf and Ross, 1992). Syria, on this occasion, made a formal objection to the Security Council on the 16th of October 1953 (Reguer, 1994). Syria based her charge on the fact that such action infringed on the rights of Arabs living there to exercise their normal activities. Besides not being able to irrigate their lands with the Jordan waters, Israel was also reported to be conducting military operations there (Reguer, 1994). This attempt by the Jewish state of Israel to exert greater control over existing water resources was viewed with contempt by the Arab states and created a great rift of hatred and mistrust (Hosh and Isaac, 1992). Syria deployed its forces at the border and opened artillery fire on the engineering and construction sites (Wolf and Ross, 1992).

Water constituted an important cause of the 1967 Arab-Israeli war (Cooley, 1984). By 1964, Israel had nearly completed its National Water Carrier project and actual diversions from the Jordan River to the Negev Desert were imminent (Wolf and Ross, 1992). However, this development strengthened long-held Arab convictions that the project represented Israel's aggressive expansionist interests, which threatened the existence of the Arabs as a nation (Lowi, 1995:133b). President Nasser of Egypt convened the First Arab Summit to discuss a joint strategy on water (Wolf, 1994). This controversy over water was especially unique. The Arab states appeared unconcerned about specific quantities, but were interested in sabotaging Israel's economic development ultimately denying its right to exist (Reguer, 1994; Lowi, 1995b). Three distinct alternatives were recognised at this meeting: to complain to the United Nations,

to divert the upper Jordan tributaries into Arab states or to go to war (Wolf and Ross, 1992). Additionally, the Palestinian Liberation Organisation was established as an independent entity to facilitate the eventual liberation of Palestine (Wolf and Ross, 1992). The decision to embark upon the construction of a head water diversion project in Lebanon and Syria prevailed. By 1965, the Arab states had begun to take practical steps to translate this envisioned project into a tangible reality.

Given that such hostile action directly infringed upon Israel's sovereign rights and ultimately threatened vital water resources, it resorted to war. In March and May of 1965, July 1966 and April 1967, the Israeli army and airforce attacked the diversion works in Syria (Wolf and Ross, 1992). These events led to a series of chain reactions that culminated in the outbreak of the June 1967 Arab-Israeli war (Prof. Nadav Safram, cited in Cooley, 1984:16). Six days later, Israel emerged victor successfully conquering the Golan Heights from Syria, the West Bank from Jordan and the Gaza and Sinai Peninsula from Egypt (Wolf and Ross, 1992).

The 1967 war had great implications for the Jordan River's political setting. Lowi (1995a) points out that the outcome of this war greatly improved Israel's strategic position on the basin. Following the acquisition of the Golan Heights, it now had access to the head waters of the Banias tributary in the north and the entire eastern shore of Lake Tiberias (Lowi, 1995a). The acquisition of the West Bank not only provided riparian access to the entire length of the Jordan River, but it also over lay three major ground water sources (Lowi, 1995a). The Hasbani, the only section of the Jordan River outside Israel's control has since been acquired since a portion of it lies in the self proclaimed "security zone" in southern Lebanon (Lowi, 1995a). As a result, approximately twenty-five to thirty per cent of Israel's water now comes from the West Bank and another fifteen to twenty per cent is from the Golan Heights (Amery, 1997).

April and May of 1969 saw a crisis on Jordan's East Ghor canal. The Palestinian Liberation Organisation began terrorist attacks against Jewish settlements in the West Bank. At the same time, the natural base flow of the Jordan River fell by six hundred and eighty-six millimetres (Wolf and Ross, 1992). This renewed suspicion on the part of Israel that Jordan was overdiverting the Yarmuk waters while at the same time implicitly sanctioning terrorist activity by the Palestinian Liberation Organisation. Two Israeli raids in June and August of the same year destroyed the East Ghor canal, Jordan's most important irrigation project (Wolf and Ross, 1992). Timely mediation efforts by the United States persuaded Israel to allow Jordan to repair the canal and renewed assurances that the fall in the Jordan's discharge was directly attributable to natural causes (Wolf, 1994). In exchange, Jordan promised to take stern measures against terrorist activity by the Palestinian Liberation Organisation.

In 1979, water conflict again erupted between Jordan and Israel. With Jordan experiencing severe drought, a request was made via American mediation for Israel to service the intakes of the crucial East Ghor canal (Wolf and Ross, 1992). While this request was acceded to, Jordan accused Israel of removing the rocks so that more water could flow downstream (Wolf and Ross, 1992). As a result, Jordan mobilised and deployed its forces at the border. In response, Israel promptly mobilised its own forces and war was averted only by America's timely mediation efforts (Wolf and Ross, 1992).

In 1982, however, Israel mounted another operation against the Palestinian Liberation Organisation in Lebanon. Although this mission had clearly defined political and military objectives, several scholars argue that it was also linked to a hydraulic imperative (Wolf and Ross, 1992). During this mission, the militia is reported to have protected the Jordan headwaters by closing some of the wells and preventing the digging of others. As a result, some or all of the thirty-five

MCM allocated to Lebanon in the Johnston plan now flows into Israel (Wolf and Ross, 1992:943).

The Litani River flows entirely within Lebanon and has a natural flow of seven hundred MCM per year (Soffer, 1994). Historically, the lower section of this river has always provided attractive possibilities for diversion. In fact, Israel's Cotton plan of 1954 attempted to include the Litani River as part of the Jordan River watershed (Wolf and Ross, 1992; Soffer, 1994). Even though the Israelis are reportedly not drawing any water from the Litani, the security zone still retained by Israel includes Taibeth, the most likely diversion point (Wolf and Ross, 1992). According to Lebanese water engineers, an Israeli downstream diversion would cost the Litani at least 3.5 billion cubic metres of water and turn much of southern Lebanon into a desert (Cooley, 1984).

3.3.2 Past Co-operation Plans on the Jordan River Basin

From the earliest times, water has always played a fundamental role in the history of the Middle East. Water needs were considered in the planning of the Jewish state and concurrently by the Arab states as a means to paralyse its economic development (Drezon-Tepler, 1994). Since water was considered a scarce commodity, both sides commissioned studies to make recommendations on how it could be equitably distributed. By the 1930s, increasing populations and the competing nationalism of both the Jews and Arabs led to the intensification of water politics (Wolf and Ross, 1992).

Interpreted by some as supporting Arab claims that existing water resources were inadequate to support an emerging Jewish state, the Ionides plan of 1939 estimated irrigable land and available water in the Jordan valley. It suggested conservation measures and proposed diverting the Yarmuk canal down the east side of the valley (Drezon-Tepler, 1994). In stark contrast, the Lowdermilk plan

of 1944 reinforced Jewish arguments that existing water resources could support both Jewish and Arab populations. This plan called for the diversion of the Jordan and Yarmuk Rivers for hydroelectric generation, envisioned the irrigation of the Negev, the usage of the Litani River and the building of a canal in the Mediterranean Sea to replenish the Dead Sea (Drezon-Tepler, 1994; Hosh and Isaac, 1992; Wolf and Ross, 1992). Since the Jewish population unanimously supported this plan, the Hays plan of 1948 basically sought to implement the proposals outlined in the Lowdermilk plan. It called for half of the Yarmuk River water to be diverted into Lake Tiberias and suggested the diversion of the Litani waters into Israel to meet future development needs (Hosh and Isaac, 1992).

Soon after the 1948 war, the new state of Israel in continuation of these earlier efforts, began to prepare practical plans for the utilisation of the area's water resources. A seven-year plan was approved in 1953. It entailed diverting the Jordan River water southwards towards the Negev desert and establishing a unified and comprehensive water network that would encompass the whole of Israel (Hosh and Isaac, 1992). The MacDonald Plan of 1951 was considered to be a complement to the Ionides plan since it advocated that all water developed would remain in the Jordan Valley (Wishart, 1990). The Arab states were also uneasy with the suggestion that water be stored in Lake Tiberias wholly within Israeli territory (Hosh and Isaac, 1992). The subsequent Bunger plan called for a dam at Maqarin on the Yarmuk River with a storage capacity of four hundred and eighty MCM and a diversion dam at Addassiyah which would direct gravity flow along the East Ghor of the Jordan Valley (Wolf and Ross, 1992:931). The water obtained would alleviate the Palestinian refugee problem by opening land for irrigation and also provide hydroelectric power for Syria and Jordan (Wolf and Ross, 1992; Hosh and Isaac, 1992). Although Jordan and Syria agreed to share the Yarmuk, Israel protested against this plan arguing that its riparian rights remained unrecognised (Wolf and Ross, 1992).

Since at this point the countries in the region could not agree on a co-operative plan they embarked on various unilateral development plans. These plans often overlapped and intensified conflict amongst the riparian states. Amidst this tense background Eric Johnston, a special envoy of President Eisenhower, was sent to mediate existing differences and come up with a regional basin-wide co-operation plan. The Johnston plan was an attempt to combine the Lowdermilk-Hays and the MacDonald-Bunger plans (Hosh and Isaac, 1992). The Johnston plan is considered to be the most important because it represented the first united joint development scheme of the entire Jordan River basin presented to Israel and the Arab states (Taubenblatt, 1988). In addition, while this plan was never ratified it has had considerable influence in providing guidelines regarding the equitable utilisation of the Jordan's waters. For example, in the current Middle East peace negotiations a number of riparians such as Jordan and Palestine still referred to this plan as a basis to justify their claims about present inequities in water distribution (see chapter four). It is therefore important to study this plan in detail for it provides insights into the emerging struggles on the Jordan River basin. The Johnston plan, however, only dealt with surface water distribution and the omission of ground water resources would later prove to be an important oversight (Wolf, 1994).

This plan was negotiated over a two year period (October 1953-October 1955). It provided for the development of surface water resources in the Jordan valley basin, with the objective of achieving an "equitable distribution" of water between Israel and its neighbouring Arab states (Taubenblatt, 1988). The principal components of the Johnston plan were as follows:

- **Storage**

A dam was to be built on the Yarmuk River at Maqarin, one hundred and twenty-six metres high with a storage capacity of three hundred MCM

(Taubenblatt, 1988). It was to have two central purposes: to provide water for irrigation and hydroelectricity.

- **Distribution**

There was to be a dam on the Yarmuk to facilitate diversion into the East Ghor canal (Jordan's most important irrigation project) and, if necessary to divert excess flood waters into the Sea of Galilee for later delivery to Jordan through a feeder canal. There was also to be a siphon or other structure across the Jordan for conveying water from the East Ghor to the west (Taubenblatt, 1988).

- **Division**

The principal adopted for the division of waters was to ensure that the Arab states would receive enough water to meet the needs of all their lands that could be feasibly irrigated (Taubenblatt, 1988). The allocations were to be derived as follows: To Jordan: the residual water from the Yarmuk River (estimated at three hundred and seventy-seven MCM after allocation of twenty-five MCM to Israel and ninety MCM to Syria); two hundred and forty-three MCM from Wadis and wells, and one hundred MCM from the Jordan River/Sea of Galilee. To Syria: ninety MCM from the Upper Yarmuk, twenty MCM from the Banias, and twenty-two MCM from the Upper Jordan. To Lebanon: thirty-five MCM from the Hasbani. To Israel: The residual water from the Jordan River and twenty-five MCM from the Yarmuk for the Adasiye. The total quantity of water allocated to Israel was estimated to be three hundred and sixty- three MCM after allocations to Syria and Jordan (Taubenblatt, 1988:42-44).

Israel, however, responded with the Cotton plan of 1954. It differed from the Johnston plan in four ways: First, it called for Israel to use one third of the flow of the Litani River from southern Lebanon. Second, Israel would use Jordan River water along the Mediterranean coast and in the Negev. Third, fifty per cent of the water to be developed would go to Israel instead of the thirty-three per cent earlier allotted to Israel in the Johnston plan. Finally, the Cotton plan would cost approximately four hundred and seventy million US dollars, in comparison to the Johnston plan which would cost only one hundred and twenty-one million US dollars (Wishart, 1990).

In 1954, the Arab League comprising of Lebanon, Jordan, Syria and Egypt also rejected the Johnston plan. The Johnston plan was fraught with several problems. Caponera (1993) elaborates upon two main reasons for its failure. Firstly, one serious omission was that political boundaries were not taken into consideration. As Hosh and Isaac (1992) eloquently argue, the neglect of political boundaries led to the design of impractical water schemes since Arab water stations such as dams, hydroelectric plants and water reserves were taken to exist outside Arab boundaries. For example, a principal idea of the Johnston plan was the storage of Yarmuk waters (arising in Syria) in Lake Tiberias, which is exclusively within Israel's jurisdiction (Hosh and Isaac, 1992).

This plan also implied indirect co-operation with Israel, a state that was at the time unrecognised by the Arab states. For the Arab states, Israel had no apparent legitimacy and withholding recognition was part and parcel of the political conflict (Lowi, 1995b:106). Therefore, the Arab states found it intolerable to implicitly grant Israel de facto rights over Arab water resources in the region especially if their own security and survival was threatened in the long-term (Hosh and Isaac, 1992; Caponera, 1993; Lowi, 1995b). The following statement clearly illustrates the attitude of the Arab states towards this plan:

> What interest do the Arabs have in making it possible and easier for Israel to build up her future when they believe that the state has been founded at the expense of the Arabs, and when they believe that the stronger it grows and the more population it has the greater the danger it will be to the Arabs themselves? (Reguer, 1994:57).

What is more, the Arab states did not need a comprehensive water development program that directly involved Israel to achieve their immediate development goals (Wishart, 1990).

In 1954, the Arab League Technical Committee comprising of Lebanon, Syria, Jordan and Egypt drew up the Arab plan. The Arab plan differed from the Johnston plan in two aspects: first, the Arabs called for the construction of a much higher dam at Maqarin than earlier recommended in the Johnston plan. In addition, only twenty per cent of the water was to be allocated to Israel in contrast to the thirty-three per cent envisioned in the Johnston plan (Wishart, 1990). Johnston worked tirelessly through 1955 to reconcile the reservations of both sides into a unified plan. Even though these states had not met face to face for the negotiations, Israel agreed to give up its demand that the Litani be included and the Arabs agreed to allow out-of-basin transfer so long as neither side controlled the share of the other (Wolf, 1994). This proposed unified plan granted four hundred MCM per year to Israel, seven hundred and twenty MCM per year to Jordan, one hundred and thirty-two MCM to Syria and thirty-five MCM per year to Lebanon (Wolf, 1994). Although the technical committees from both sides accepted this plan, it was never formally ratified. However, both sides to date have generally adhered to its technical details and allocations.

Despite the fact that the Johnston plan failed to achieve basin-wide co-operation, it was a laudable effort. In general, the political climate in the Middle East during the 1950s was not conducive to any sort of settlement between the Jews and the Arabs (Wishart, 1990). The plans in general fell under two categories:

the first category of plans permitted out-of-basin transfers. Israel's plans fell into this category since it followed the principle that water should be made available where it could best serve the interest of national development (Wishart, 1990). However the second category which fits the Arab state's plans forbids out-of-basin transfers. The Arab states adhere to the Ottoman civil code, which holds that, "a joint owner of a private stream may not divert his share of the water from such a river onto other land not enjoying a right of taking water" (Wishart, 1990:537). This marked contrast in approach in addition to deeply entrenched hostilities made it extremely difficult to come up with a united basin-wide plan during this period. The experience of the Johnston mission, argues Lowi, "elucidates the fact that profound geopolitical and security-related concerns, emanating from historical circumstance and character of relations in the basin, often dominate the seemingly technical issue of allocating water resources" (1995b:105).

The late 1970s and 1980s opened up a new era of co-operation over water resources. Beginning in 1976 to 1981, negotiations began over the proposed Maqarin dam project. This project was envisioned as a mutual endeavour between Jordan and Syria to jointly exploit the Yarmuk waters for agricultural and hydroelectric purposes (Lowi, 1995a). As eventually formulated, the Maqarin dam project was to include:

- A one hundred and seventy metre high dam with a total storage capacity of four hundred MCM;
- A diversion of the Wadi Raggad (in Syria) into the Maqarin reservoir;
- Extension of the East Ghor main canal by 14.5 kilometres;
- Electric-generating facilities of twenty MW at the Maqarin Dam, and two MW at the King Talal Dam;
- Construction of new irrigation systems estimated to cover about ten thousand hectares;

- Conversion of existing gravity irrigation in the Jordan valley to sprinkler irrigation (Taubenblatt, 1988:48).

The project received considerable bilateral and multilateral support. In particular, the United States perceived regional water development as an important springboard towards achieving regional peace since the projects would require multilateral co-operation in the use of water resources (Lowi, 1995b:172). Accordingly, the Carter administration pledged a nine million USAID development loan in addition to ten million US dollars, which had previously been allocated (Wolf and Ross, 1992:941). In the 1979/80 fiscal year, the US Congress further pledged additional support of one hundred and fifty million US dollars over three years (Wolf and Ross, 1992; Taubenblatt, 1988).

Nevertheless, this project raised certain riparian questions. Since Israel is a downstream riparian to Jordan on the Yarmuk River, the availability of water for the Yarmuk triangle and the West Bank needed to be addressed (Taubenblatt, 1988:48). This is because impounding the Yarmuk water would have decreased the availability of water downstream. Jordan therefore had to reach an agreement with Israel on water allocations. Israel also demanded a larger share of water allocation from twenty-three MCM per year to forty MCM per year, as well as an additional one hundred and forty MCM per year for the West Bank (Wolf and Ross, 1992:941). This increase reflected a stark contrast to the Johnston plan allocations, which allotted Israel twenty-five MCM per year and seventy MCM per year to the West Bank (Wolf and Ross, 1992; Taubenblatt, 1988). In addition, Jordan had to negotiate with Syria since water that would be stored behind the dam originated in the upper reaches of the Yarmuk River in Syria and because one side of the dam would be built on Syrian territory (Taubenblatt, 1988:48). Strained Israeli-Syrian relations proved to be another formidable obstacle. Syria adamantly opposed any form of co-operation with Israel especially if such a scheme was located within the reach of Israel's artillery

(Lowi, 1995b). Eventually, Jordan's inability to reach an agreement with Syria led to the indefinite postponement of the plan. This attempt at water development revealed the issues at the heart of the wider inter-state conflict between the countries concerned, namely, control over land, and by extension water resources as well as issues of recognition and legitimacy of control (Lowi, 1995b:172; see also chapter 5.2.4).

Progress, however, was being made on the side of Israel and Egypt. The culmination of this effort was the signing of the Camp David accords--the first between Israel and an Arab country (Wolf, 1994). In 1979, President Anwar Sadat of Egypt proposed that a pipeline be built to transport the Nile waters to the Negev (Wolf, 1994; see also chapter 5.2.3). However, with the assassination of President Sadat in 1981, the plan never materialised.

3.3.3 Present Conflicts on the Jordan River Basin

With past attempts to co-operate over the waters of the Jordan River having failed a number of flash points remain on the basin. This section gives an overview of the disputes and latent conflicts yet to be resolved on the basin. This provides a background to some of the water issues forming the basis of discussion in the current bilateral negotiations of the Middle East peace process discussed at length in the following chapter.

- **The Mediterranean-Dead Sea canal (1953-present)**

Israel originally proposed this plan during the 1953 Johnston negotiations as an element of its seven-year plan (Drezon Tepler, 1994). The Mediterranean Dead Sea canal project is envisioned to be a salt water canal linking the Mediterranean Sea near Gaza with the saline Dead Sea (Cooley, 1984). However, this project causes Jordan great concern. Should the level of the Dead Sea rise, Jordan's

current industries and planned agricultural areas at sea level will experience high levels of sea water intrusion (Cooley, 1984).

- **The Maqarin Dam Project (1953-present)**

The idea to build this dam was first raised in 1952 by the United Nations Agency for Arab Refugees. Besides providing a solution to refugee problems, the dam was expected to provide vital water for hydroelectric and irrigation purposes (Drezon-Tepler, 1994; Wolf, 1994). However, the dam was never built. Two obstacles at the time included: Israel's demand for an increased allotment of water and Syria's strained relations with Jordan. What is more, Syria had no real incentive for the project to take place since it is generously endowed with additional waters from the Euphrates River (Lowi, 1995a). Syria was also adamantly opposed to any form of technical co-operation no matter how urgent that would strengthen the "enemy" Israel (Lowi, 1995b).

Recently, Jordan and Syria agreed to construct a unity dam further below the Yarmuk River at Mukeiba (Wolf and Ross, 1992). Israel's nonchalant attitude towards this project has had significant funding implications since the World Bank can only finance such projects with the assent of all the riparians (Anderson, 1991). Despite the fact that the Yarmuk River contributes only three per cent of Israel's national water supply, it is argued that any project on this river could seriously threaten available water supplies (Starr, 1991; Caponera, 1993). However, for Jordan, building a dam on the Yarmuk River remains critical given the dire need for water storage facilities.

Israeli Occupation of the West Bank (1967-present)

Following the 1967 Arab-Israeli war, Israel gained riparian access to three aquifer systems situated in the West Bank (Lowi, 1995a). The most important

politically is the Yarkon-Taninim aquifer which supplies at least one third of Israel's fresh water supply (Fairinelli, 1997). These aquifer systems in the West Bank area are currently being over-exploited given increasing Jewish settlements in the area estimated to have over seventy thousand people (Wolf and Ross, 1992). Through Military Order 291, water resources in the West Bank and Gaza strip have been nationalised, further intensifying tensions between Israel and the Palestinians (Salmi, 1997). Palestinian water consumption has been seriously restricted with limits being placed on the amount of water withdrawn from existing Arab wells (Fairinelli, 1997). By maintaining the water level as it existed in 1967, Palestinian water consumption has effectively been frozen for this does not take population growth into consideration (Wolf and Ross, 1992; Cooley, 1984; Benvenisti and Gvirtzman, 1993; Caponera, 1993).

A serious bone of contention between Israel and the Palestinians remains the disproportionate allotment of water. For example, while Israel consumes over ninety per cent of the water abstracted from the West Bank to irrigate Jewish settlements, over seventy Palestinian villages do not have access to this water supply (Anderson, 1991). Water remains a critical factor in the eventual resolution of the Palestinian question given Israel's determination to maintain its own settlers water privileges and legal/institutional control over the water sector (Elmusa, 1995).

- **Israeli Occupation of Syria's Golan Heights (1967-present)**

In 1967, Israel captured the Golan Heights from Syria. The Golan Heights is of immense strategic significance to Israel. In terms of military security, occupation of the Golan Heights is critical to the defence of the state of Israel. This is because Syrian presence in northern Israel is suppressed and a possible Syrian attack is also deterred since the Golan Heights provide an outpost close to Damascus (Fairinelli, 1997). Two important tributaries of the Jordan River, the

Banias and the Dan originate from the Golan Heights and are important to the water security of Israel (Fairinelli, 1997). To date, two central issues of contention remain: the question of sovereignty over the Golan Heights and the legal ownership of the Banias tributary once considered to be under Syrian ownership (Libiszewski, 1995; Kilot, 1994).

3.4 Obstacles to Water Co-operation in the Jordan River Basin

Water politics in any international river basin is complicated by two factors, namely, that water flow does not respect political boundaries and that increasing interdependence means that one country's agricultural and industrial development becomes the legitimate concern of the other owing to resultant problems of pollution and siltation exported downstream (El-Ashry, 1993; Lowi, 1995a). Obstacles include the lack of a basin-wide authority and the implications of a strong nationalistic stance on integrated water management.

- **The Lack of a Basin-Wide Authority**

Wolf (1994) argues that the lack of a basin-wide authority remains the single impediment to regional co-operation over water resources. States are often unwilling to forfeit their own unilateral development plans for the sake of the interests of all riparians. This is especially the case when the water resources in question are not of equal importance to the states concerned. In the case of the Jordan River, for example, only Israel and Jordan are solely dependent on the water resource (Lowi, 1995a; Anderson, 1991). A basin-wide accord also challenges the privileged position of upstream states in a given river basin. For example, in the case of the Jordan River such an accord would challenge Israel's superior riparian position, its sovereignty over Lake Tiberias and ultimately its control over the rich ground water reserves in the West Bank (Lowi, 1995a).

Consequently, a zero sum situation prevails since the co-riparians regard one another as adversaries, not friends (Hudson, 1996). The disproportionate allocation of water becomes a central bone of contention. For example, in the Jordan River basin, Israel, according to 1991 figures, consumes one thousand, six hundred and fifty-five MCM of both surface and ground water (Hosh and Isaac, 1992). However, of this amount nine hundred and fifty MCM originates in neighbouring Arab states, the Golan Heights and the West Bank (Hosh and Isaac, 1992). This clearly indicates that Israel's water budget is met at the expense of other riparian states sharing the same water resources.

International water law offers certain principles on which regional water co-operation can be based. A commonly accepted principle is that of equitable utilisation. It permits the utilisation of a river's waters to the extent that it does not cause any "appreciable harm" to other riparian states (Kilot, 1994). The goal of equitable utilisation is to find a proper balance between the protection of existing uses and the initiation of new uses (Benvenisti and Gvirtzman, 1993). It is best expressed in the Helsinki rules of 1966, which provide a list of factors to be considered in determining rightful water allocations. Chapter two, article four stresses that, "each basin state is entitled to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin" (Kilot, 1994:277). Relevant factors to be considered, according to the Helsinki rules, and of significance to the Middle East water conflict include:

- The geography of the basin including in particular the extent of the drainage area in the territory of each basin state;
- The hydrology of the basin, including in particular the contribution of water by each basin state;
- The climate affecting the basin;
- The past utilisation of the waters of the basin, including in particular existing utilisation;
- The economic and social needs of each basin state;

- The availability of other resources;
- The avoidance of unnecessary waste in the utilisation of waters of the basin;
- The practicability of compensation to one or more of the co-basin states as a means of adjusting conflicts among uses and;
- The degree to which the needs of a basin state may be satisfied, without causing substantial injury to a co-basin state (Kilot, 1994:278).

However, even with such elaborate rules certain challenges emerge in their application especially in the case of the Jordan-Yarmuk River basin. Firstly, the question of equitable utilisation cannot be adequately addressed in isolation from existing ground water resources also shared by the riparians-- Jordan, Israel and Palestine (Isaac, 1994). There are also outstanding legal questions concerning the ownership of the Mountain aquifer between Israel and Palestine (Libiszewski, 1995). Similarly, the question of the rightful owner of the Banias, a tributary of the Jordan River remains to be resolved. Initially, this tributary was located in Syrian territory only as part of a temporary arrangement between the mandate powers of Britain and France (Kilot, 1994). These problems are further complicated by the fact that historically this particular basin has been elusive to any form of Arab-Israel co-operation.

Another issue that arises is the level of development that should be permitted. The Helsinki rules point to the economic and social needs of each basin state, but do not take into consideration the uneven development between the different states (Benvenisti and Gvirtzman, 1993). Israel, for example, consumes five times as much water per capita than its less industrialised and intensively farmed neighbours (Myers, 1989). It is also extremely difficult to apply the principle of equitable utilisation in a basin with such varied demand and supply patterns (Kilot, 1994). In the Jordan River basin, for example, only Israel and Jordan are solely dependent on this resource. Syria and Lebanon are generously endowed with additional water resources. The Helsinki rules also do not specify

the procedures for sharing international waters between non-state entities. They are therefore inapplicable to the Israeli-Palestinian water dilemma between a sovereign state on the one hand and a people in search of statehood on the other (Kilot, 1994; Libiszewski, 1995).

Although the Jordan River basin is well suited to integrated water management, past attempts have been victim to either Arab-Israeli or Syrian-Jordanian enmity. This suggests that the link between water and politics is difficult to sever. In particular, the water issue in this case is a manifestation of the wider inter-state political conflict, which persists within a particular context of non-recognition (Lowi, 1995b:113). This means that the water dispute cannot be resolved outside the context of prevailing relations in the basin also part and parcel of wider political conflict (Lowi, 1995b:113).

- **Implications of Nationalism on Water Management**

Falkenmark (1990) suggests that there is an urgent need to strike a balance between notions of sovereignty and responsibility to neighbours. Middle Eastern politicians tend to have a strong nationalistic stance over the use of their rivers (Hellier, 1990). For example, while Turkey claims to attach great importance to the needs of friendly neighbouring countries with regard to the Euphrates River, it also constantly stresses that it is unprepared to bargain over its sovereign rights (Hellier, 1990). In the 1990 election, Israel's Likud party passionately stirred nationalistic sentiments by using water to support its core arguments for retaining the West Bank as suggested by the following statement:

> Judea and Samaria boast forty per cent of Israel's available water resources, and water is our life. It makes no sense to place it in the hands of those whose intentions towards us might not always be the kindest (Darwish and Bullock, 1993:43).

But as Munther Haddadin clearly states, "It is essential that notions of sovereignty be suitably adapted for the purposes of equitable pacific resolution of conflicts over natural resources" (1995:73).

Strong nationalistic attitudes usually have serious implications for integrated water management. Successful water management depends on the acquisition, verification and analysis of data (Kolars, 1994). In the case of the Middle East, however, "such data regarding stream flow, precipitation, evapotranspiration, water removals, return flow, salinity and a host of other variables are notoriously scarce, incomplete and open to question" (Kolars, 1994:88). In situations of water scarcity, and an absence of trust amongst a basin's population growth, "water is treated as a national security issue with the consequence that information needed to make co-operation a reality is considered to be highly confidential" (Naff, 1997:21). States, therefore, view data as knowledge and by extension power (Kolars, 1994). To each side water data becomes a means to justify its own politically motivated claims making it difficult to determine the exact amount of water in question (Drezon-Tepler, 1994). Unfortunately, the inaccuracy and inadequacy of water data ultimately contributes to the failure of water schemes. In the Johnston plan, for example, the idea of diverting and storing Yarmuk waters in Lake Tiberias was both technically and scientifically unviable given the high rates of evaporation and salinity in this lake (Hosh and Isaac, 1992).

However, an important link exists between information and conflict. The exchange of information amongst states can either lead to the flaring up of tensions or to their abatement. The case of Israel and Jordan provides a good example. In 1984, an attempt to fully utilise available water in the Jordan River system inspired hostile exchanges between Israel and Jordan over withdrawals from the Yarmuk River (Naff, 1997:23). Jordan accused Israel of withdrawing one hundred MCM per year from the Yarmuk instead of the seventeen to twenty-

five MCM per year earlier suggested in the Johnston plan (Naff, 1997). Israel, while denying the charge also claimed that Jordanian withdrawals had reduced its pumping capacity by twenty per cent (Naff, 1997). Both charges and counter-charges were false and only timely American mediation prevented a military confrontation. Clearly collective water data management would have averted this crisis.

Internal water agencies are often nationalised making joint water management very difficult. This is because water development is considered to be a national security issue. In Israel, for example, the water law of 1959 vested the state with ownership of all water resources and established a water commission for their supervision under the Ministry of Agriculture (Drezon-Tepler, 1994). Agriculture in this region is closely wrapped up with expressions of nationalism and both Arab and Hebrew ideologies are rife with slogans of "making the desert bloom" and "nations rooted in the land" (Wolf and Ross, 1992:953; Drezon-Tepler, 1994). However, this intense ideological connotation presents further obstacles to joint water management. Agriculture, and by extension water, becomes intertwined with defence and defence imperatives (Lowi, 1993:123). As Frey and Naff write, "Israeli agriculture is not merely an ordinary economic sector. It is linked to the crucial matter of settlements, and settlements are linked to defence and security" (cited in Wolf and Ross, 1992:953). "Emotional charge" always enters the water debate when it is suggested that water allocation to the agricultural sector be transferred to the domestic sector (Wolf and Ross, 1992:951). The case of Israel demonstrates that internal water agencies are often resistant to any changes in water policy that could ultimately lead to integrated water management. There is a need, argues Brooks (1996), to shift the emphasis from "supply management" (building dams, storage reservoirs) to "demand management". Only then can water policy in the region be drawn according to the boundaries of a watershed rather than within those of a specific nation as is the case presently. Given that the Middle East region is

characterised by some of the most sophisticated water agencies in the world, regional water management would certainly be a more efficient approach. (Wolf and Ross, 1992; Brooks, 1996). For example, sixty per cent of the world's desalination capacity is located in the Persian Gulf (Starr, 1993). Therefore, water agencies in the Middle East could collectively undertake joint research programmes and other activities that could be an important springboard towards facilitating regional co-operation.

3.5 Conclusion

The waters of the Middle East have been a focus of both occasional conflict and co-operation. The competition for access to and control over water resources has been a characteristic feature of the Middle East region. Water has often been considered by states in the region as being pivotal to the attainment of various socio-economic development plans. Water development is therefore perceived in the context of security and survival of the state. In such circumstances, the Jordan River has been the source of bitter contention. Within the context of conflictual political relations, any attempt by a state to augment its own water resources is viewed as a potential security threat. Israel's National Water Carrier project is a case in point. Following its completion, the Arab states embarked upon the construction of a head water diversion project aimed not only at sabotaging Israel's economic development, but also denying its right to exist. Similarly, the Arab states have historically been opposed to extra-basin transfers of water, which in their view enhanced the economic and political capabilities of the "enemy" Israel.

Unfortunately, in this environment of deep mistrust and hatred, any form of co-operation over water resources has remained elusive. Plans to co-operate over the Jordan River have always been victim to the wider inter-state political conflicts in the region. The Johnston plan of 1955 is a case in point. Even

though the Arab states would have benefited from the water allocations, they refused to endorse any plan that would suggest implicit recognition of the state of Israel. The issue of non-recognition was in part a central feature in rendering the solution to the riparian water dispute as embodied in the Johnston plan unfeasible (Lowi, 1995b). A later attempt, the Maqarin dam project also failed owing to existing Syrian-Jordanian as well as Israeli-Syrian enmity. Besides Syria having no real incentive for this project to take place, it also made it crystal clear that there would be no participation in a project that would strengthen the "enemy" Israel. This suggests that political conflicts often block attempts to achieve regional co-operation over water resources.

With past attempts at co-operation having failed, a number of latent conflicts remain on the Jordan River basin. In the aftermath of the Arab-Israeli war of 1967, the inequitable distribution of West Bank water resources remains a central bone of contention between Israel and the Palestinians. Likewise in the case of Syria, questions pertaining to sovereignty over the Golan Heights as well as the legal ownership of the Banias tributary remain to be resolved. While integrated water management remains a promising avenue for resolving such disputes, a number of obstacles remain. In particular, the lack of a basin-wide authority remains the most formidable obstacle. In most cases, riparian states are often unwilling to forfeit their own unilateral development plans in the interest of other states dependent on the same water resources. Furthermore, when the water resources in question are not of equal importance to the states concerned, it becomes very difficult to establish a basin-wide regime. Additionally, the strong nationalistic stance adopted by Middle East governments means that water data necessary for any co-operative scheme remains notoriously scarce. While international water law offers certain principles on which regional co-operation can be based, it is still difficult to apply them in their absolute form to the Jordan River Basin. Specifically, issues relating to the legal

ownership of contested water resources and the precise definition of what constitutes equitable distribution need to be addressed.

The water issue persists as part and parcel of the wider inter-state political conflicts. Past attempts at attaining co-operation over the Jordan River suggest that it is impossible to de-link water disputes from political core issues influencing the environment in which states in the region interact. The next chapter explores this argument further in order to determine the role and impact of water in the current peace negotiations.

CHAPTER FOUR

THE ROLE OF WATER DIPLOMACY IN THE MIDDLE EAST PEACE PROCESS: 1991-1996

4.1 Introduction

The Middle East region is facing an acute water crisis. In most countries in the region, demand for water resources exceeds at least ninety per cent of the renewable supply, the only exceptions being Lebanon and Turkey (Wolf, 1995:141). All the countries riparian to the Jordan River demonstrate this trend for Israel, Syria, Jordan and the West Bank are currently using between ninety-five per cent and one hundred per cent of their annual water supply (Wolf and Ross, 1992). The need to co-operate over dwindling water supplies has taken on a renewed sense of urgency. Increasingly, it is being realised that in the present era of ecological interdependence, unilateral exploitation of water resources characteristic of previous decades can no longer be a sustainable option for the future.

In the nineties, several events have contributed to the shift in emphasis from water conflict to water co-operation. The first of these events can be attributed to natural occurrences. Three years of below average rainfall between 1989 and 1991 as well as related problems of drought convinced decision-makers in the region of the urgent need to restructure their water management practices (Shuval, 1992; Wolf, 1994). Water conservation measures embarked upon included rationing of water supplies and cutbacks to agriculture sectors by as much as thirty per cent (Wolf, 1994). In addition, the disintegration of the former Soviet Union and the Gulf war had profound implications for the region as a whole. Specifically, there emerged a realignment of political alliances in the Middle East with previously radical states such as Syria joining forces with the

United States and other moderate states in the region (Baker, 1996). This development availed previously hostile countries in the region the distinct opportunity to reassess their attitudes towards the state of Israel and enter into negotiations about the future of the Middle East region.

On the 30th of October 1991, a historic conference held in Madrid, Spain ushered in a new era of hope in the Middle East region. The conference made possible the first ever face to face peace talks between the Arabs and the Israelis (Wolf, 1994). At this conference, the Madrid framework was adopted as an official guideline for the peace talks. It consists of two parallel sets of negotiations conducted simultaneously, namely, bilateral and multilateral. They both deal with political disputes and embrace a wider agenda of issues of mutual interest to all concerned parties such as refugees, water, economic development, environmental degradation and arms control (Israel Foreign Ministry, 1997).

What follows is a critical assessment of the central role of water in both the bilateral and multilateral negotiations of the peace process. Can water disputes, considered to be "low politics" issues, be effectively addressed ahead of "high politics" issues of territorial security and nationalism considered by the Realists to take precedence in the hierarchy of international relations? It will be argued that while water remains a fundamental security issue in the Middle East region, riparian water disputes can only be effectively addressed once more complex political issues are resolved.

4.2 The Madrid Framework

The politics of the Middle East were defined, for several decades, by the zero sum game characteristic of the cold war. The Middle East peace process now appears to be the key to a comprehensive and lasting peace in the region. Today's negotiations are being conducted within the Madrid framework as

outlined in the invitation letter to the inaugurating conference by the co-sponsors, namely, the United States of America and Russia (Israel Foreign Ministry 1997). Essentially, there are two sets of parallel negotiations taking place simultaneously. This recognises the fact that water issues can not be resolved in isolation from political differences amongst the core parties (Wolf, 1995). It also takes into consideration the outstanding differences manifest in each different set of negotiations, namely, Israel-Syria, Israel-Lebanon, Israel-Jordan and Israel-Palestine (Libiszewski, 1995).

The objective of the bilateral talks is to resolve past conflicts on the basis of United Nations security resolutions 242 and 338 passed in the aftermath of the 1967 and 1973 Arab-Israeli wars (Israel Foreign Ministry, 1997). In both resolutions there is a call to Israel to vacate occupied territories, implement cease-fire terms and enter into negotiations to resolve outstanding differences amicably (Sinai and Pollack, 1976). The guiding principle embodied in these resolutions and adopted as the basis for the bilateral negotiations is the exchange of land by Israel for peace (Baker, 1996).

The multilateral talks, on the other hand, focus primarily on five central issues of mutual concern to the countries in the region. They include water resources, refugees, environmental degradation, arms control and economic development (Israel Foreign Ministry, 1992). The basic rationale behind these talks is the realisation that these issues constitute common problems for the countries concerned. Since they do not respect political boundaries, they can only be resolved through collaboration and not confrontation.

The two sets of negotiations are meant to mutually reinforce each other. James Baker, former US Secretary of State, and architect of the Madrid framework described the relationship between the two tracks as follows:

> Only bilateral talks can effectively address and one-day resolve the basic issues of a lasting and comprehensive peace between Israel and its neighbours. But it is true that those bilateral negotiations do not take place in a vacuum, and the condition of the region at large will affect them. In short, the multilateral talks are intended as a complement to the bilateral negotiations: each can and will buttress the other (Wolf, 1995:143).

Or as Joel Peters describes it,

> Whereas the bilaterals would deal with the problems inherited from the past, the multilaterals would focus on the future of the Middle East (Wolf, 1995:ibid).

4.3 The Bilateral Track of the Middle East Peace Process

In the bilateral track of the peace process, Israel negotiates individually with each of its neighbours, namely, Jordan, Syria, and Lebanon. This was an essential precondition to ensuring the participation of the Jewish state of Israel, which did not want to find itself alone against several opponents (Libiszewski, 1995). It is also indicative of the uniqueness of each set of negotiations and hence corresponds to the differing interests between the concerned parties (Wolf, 1995). An important development over the years has been the emergence of the Israeli-Palestinian conflict as an independent dimension of its own (Libiszewski, 1995). This has been as a direct consequence of the progressive disintegration of the once homogenous entity of the "Arab world" (Libiszewski, 1995).

4.3.1 The Water Dispute in the Israel-Jordan Bilateral Negotiations

The dispute between the two countries has predominantly revolved around the utilisation and respective water allocations of the Jordan and Yarmuk waters (Libiszewski, 1995; Lowi, 1995b). This dispute has always been at the very heart of the Arab-Israeli conflict. The present water dispute between the two

countries dates back all the way to the 1940s when both countries embarked on unilateral development programmes to exploit these water resources (Wolf and Ross, 1992; see also chapter 3.2.1). Attempts to reconcile the gross inequities in the allocation of these waters as embodied in the Johnston plan of 1955 failed (Drezon-Tepler, 1994). The Arab states at the time made it clear that they would not co-operate in a regional water-sharing scheme that would strengthen their "enemy" Israel (Sinai and Pollack, 1976; see also chapter 3.2.2).

The outcome of the 1967 Arab-Israeli war had profound implications for the Jordan River basin. In many ways, this marked the beginning of hostilities between Israel and Jordan. Following this war, Israel soon established itself as the superior riparian state having almost full control over the entire length of the Jordan River basin (Lowi, 1995a; see also chapter 3.2.1). As a result, at least three major issues constitute the central basis of contention between Israel and Jordan. The first major issue of great concern to Jordan has been that of uneven allocation of the Jordan River's waters. Its disadvantaged geographic position and lack of military power have contributed to the asymmetrical water allocations in the basin (Haddadin, 1995). Since the 1960s, Israel has virtually dominated the headwaters of the Jordan River to the detriment of Jordan, a downstream state (Libiszewski, 1995). This is in stark contrast to the Johnston plan, a basin-wide co-operation plan, which allocated at least fifty-six per cent of the Jordan's water to the country (Kilot, 1994:201).

The Yarmuk River forms the second of Jordan's concerns. Following the 1967 Arab-Israeli war, Israel became a co-riparian on this river occupying twenty per cent (about twelve kilometres) of the northern bank of the Yarmuk River as opposed to ten per cent (about six kilometres) before the war (Lowi, 1995b:149). This proximity to Jordan's most important fresh water resource means that Israel is in a position to consistently interfere albeit at a local level with the King Abdullah canal (Anderson, 1991). This constitutes Jordan's most

important irrigation project (Anderson, 1991). On several occasions, Israel has conducted raids on Jordanian water facilities as a punitive measure against Jordan for the constant infiltration of Palestinian fedayeen from the Kingdom into Israeli territory (Libiszewski, 1995; see also chapter 3.2.2). Until recently, Israel has constantly vetoed the joint Jordanian-Syrian dam at Maqarin. This project was envisioned as a mutual endeavour to jointly exploit the Yarmuk waters for agricultural and hydroelectric purposes (see chapter 3.2.2). Should this project be completed in the future, Jordan stands to gain an additional one hundred and thirty-five million cubic metres of water (Kilot, 1994:221). To further exacerbate the water dilemma surrounding the Yarmuk, Israel has since the 1970s diverted greater amounts of Yarmuk water into Lake Tiberias (Libiszewski, 1995). Lowi points out that these extractions rose to at least one hundred MCM in the mid 1980s (1995b:181). Unfortunately such diversions have had dire consequences for Jordan. Its water quota has remained restricted to between one hundred and twenty to one hundred and thirty MCM yearly, approximately three times less than the amount allocated in the Johnston plan of 1955(Libiszewski, 1995). Jordan considers these actions by Israel a direct threat and violation of its national interests.

Ground water resources constitute the last source of contention between the two countries. These ground water resources are located in the Araba valley that extends south of the Dead Sea to the Gulf of Aqaba on both sides of the international boundary (Libiszewski, 1995; Lowi, 1995b). This region is extremely arid and relies solely on the water obtained from these ground water resources common to Israel and Jordan (Libiszewski, 1995). The water is used to irrigate land on both sides of the border between Israel and Jordan. Since there are no agreements co-ordinating activities, pumping the ground water is subject to intense competition (Lowi, 1995b). However, the water dispute in this case is partly connected to territorial concerns relating to land acquired by Israel in the aftermath of the first Arab-Israeli war of 1948 (Libiszewski, 1995).

What becomes clear from this historical background is that the Israel-Jordan dispute displays all the characteristics of a zero sum game. It is clearly an issue of inequity in resource distribution. Owing to glaring differences in the power ratio between the two countries, Israel is in a better position to manipulate existing water resources to its own advantage. It can on this basis be termed a genuine water dispute.

It is important to examine the present water demand and supply patterns. This is necessary to determine the position both states found themselves at the commencement of the Middle East peace process in 1991. Only then will it be possible to assess water's critical role in facilitating co-operation between the two countries. In this case, it will be argued that since the water dispute depicts typical zero sum characteristics, it is easily resolvable irrespective of existing political differences.

The Jordan River constitutes the single most important source of water in both countries. It supplies approximately sixty per cent of Israel's water and seventy-five per cent of Jordan's (Anderson, 1991). Since the Jordan River is the only surface water source for both countries, it plays a critical role in long-term urban development as well as in irrigated agriculture (Wolf and Ross, 1992). According to various estimates, Israel has a renewable annual water budget of one thousand, eight hundred MCM while Jordan's total annual budget is eight hundred and seventy MCM (Wolf and Ross, 1992:925-6). Table 4.1 illustrates the current water availability and use in each country of the Jordan River basin (Km^3 per year).

Table 4.1: Current Water Availability in the Jordan River basin (Km^3 Per Year)

	Israel	Jordan	Lebanon	Syria
Internal renewable surface water	2.20	1.70	5.60	53.70
River flows from other countries	0.50	0.40	0.60	29.90
Renewable water resources	2.70	2.10	6.20	81.60
Annual water withdrawals	1.85	0.45	0.75	3.34

Source: World Resources, 1996:307

The inequitable distribution of waters on the Jordan River basin is clearly illustrated by the above table. In particular, Jordan and Israel are particularly disadvantaged riparians for they are solely dependent on this source. There are hardly any significant amounts of river flows from other countries. However, Lebanon and Syria remain relatively minor consumers of this water resource, relying instead on the Litani and Euphrates Rivers (Wolf and Ross, 1992).

This dilemma is further worsened by high population growth rates in the region. Table 4.2 below illustrates the expected demographic increases in the region.

Table 4.2: Population in the Countries of the Jordan River Basin (millions people).

Year	Israel	Jordan	Lebanon	Syria
1950	1.26	1.24	1.44	3.50
1995	5.63	5.44	3.01	14.66
2025	7.81	12.04	4.42	33.51

Source: World Resources, 1996:191

In addition to natural increases in population, massive immigration into the region is expected. Israel's population will increase by approximately twenty-five

per cent in the next decade. This is because of the unprecedented immigration of at least one million additional Soviet immigrants (Wolf and Ross, 1992). Likewise, Jordan is struggling to absorb at least three hundred thousand Palestinians expelled from Kuwait in the wake of the Gulf war (Wolf and Ross, 1992). This development increased water demand on the Jordan River by approximately seven to ten per cent (Kilot, 1994).

These great population increases will have profound implications for water usage in the region. Since water security like food security is a matter of survival, intense competition over diminishing water supplies could easily lead to conflict. As Solomon succinctly puts it "increasing population growth rates, within the context of dwindling fresh water resources, raises the prospect of competition for and armed conflict over shared water resources" (1996:1). Indeed, conflict over water resources has already occurred in the Jordan River itself. It should be remembered that attempts by Syria and Jordan to divert the headwaters of the Jordan River was one of the reasons why Israel went to war in 1967 (Hudson, 1996, see also chapter 3.2.1). Elsewhere in the region, relations between Turkey, Syria and Iraq remain greatly strained over the use of the Euphrates waters (see chapter 2.4). This makes it imperative for the peoples of the Middle East to seek solutions to the water problem and fully comprehend the critical link between water and security in the region. Unilateral exploitation of diminishing water supplies simply will not do. As Ekins points out, "...The health of a shared resource enriches both communities and threatens neither. Its abuse damages both" (cited in Hudson, 1996:7). By implication, therefore, co-operation is in everybody's interest. If that is the case, it is worthwhile to examine the role of water in the peace negotiations between Israel and Jordan.

4.3.2 Water in the Israel-Jordan Peace Negotiations

Observers point out that Jordan is being pushed to the peace talks because of water (Wolf, 1994). On the 14th of September 1993, Jordan and Israel signed a Common Agenda to define the priorities of its bilateral negotiations (Israel Foreign Ministry, 1997). It is interesting to note that article three of part B is devoted to addressing water and water-related matters as one of the four major components to be dealt with (see appendix I). This clearly put the water issue in line with other security concerns.

Jordan joined the peace process in 1991. At the time, its population was slightly below four million people and its renewable water resources amounted to seven hundred and fifty MCM per year (Haddadin, 1995).[1] However, this translates to an annual per capita share close to one hundred and ninety cubic metres and a per capita income of approximately one thousand US dollars (Haddadin, 1995). But as Haddadin points out, a country with virtually no contributions from rainfed agriculture would, in comparison, require about two thousand, one hundred cubic metres and a per capita income of at least three thousand US dollars to be comfortable in the population-water resources equation (Haddadin, 1995). These statistics reveal that Jordan is experiencing an acute water shortage. Jordan entered the peace process with water requirements close to one thousand, two hundred cubic metres and a per capita income approximately fifteen per cent less than the estimated one thousand US dollars (Haddadin, 1995).

Jordan also entered the peace negotiations seriously disadvantaged in comparison to Israel. One central factor that consistently overshadowed the negotiations from the start was a difference in the power ratios. Owing to

[1] Munther Haddadin is Chief Negotiator on Water, Energy and Environment for the Hashemite Kingdom of Jordan.

Israel's undisputed military superiority, Jordan is simply not in a position to ignore the preferences of Israel (Lowi, 1995a). The differences in the power equation further manifest themselves in the uneven water allocations between the two parties. For example, while Jordan's per capita water availability satisfied only 15.8 per cent of its need, Israel's access to water, on the other hand, satisfied approximately 52.5 per cent of its per capita requirement with municipal consumption double that of Jordan's (Haddadin, 1995:23).

What were the strategic goals for Jordan in the peace process? One central Jordanian demand from the very onset was a redistribution of existing regional water resources (Libiszewski, 1995). Aside from this central goal it also wanted to:

- curtail Israel's use of the Yarmuk water to the allocations accepted by the Arab Technical Committee in 1955 set at twenty-five MCM per year (Haddadin, 1995; Wolf and Ross, 1992);
- secure additional water, over and above the irrigation requirements of the East Jordan valley, for use in municipal and industrial purposes (Haddadin, 1995:24);
- ensure the recognition of Palestinian water rights and protecting the water quality in the Jordan River (Haddadin, 1995:24).

As a basis for its argument, Jordan fundamentally adhered to the principles of the Arab Technical Committee with regard to water allocations. It also advocated two crucial principles, namely, that of avoidance of appreciable harm and the obligation to notify and exchange water data (Haddadin, 1995:24). Israel, on the other hand, refused to endorse the water allocations as stipulated by the Johnston plan arguing that the political circumstances had changed drastically since 1955 and that this plan was rejected by the Arab states at the time (Libiszewski, 1995; see also chapter 3.2.2).

What was the outcome of the negotiations? Did Jordan succeed in having its strategic concerns addressed? On the whole, it can be said that the negotiations between the two countries were successful. Some important outcomes of the negotiations included the following:

- Israel's share of the Yarmuk waters was set at twenty-five MCM per year and the rest of the flow at Addasiyya was allocated to Jordan;
- In recognition of the present era of ecological interdependence, both Israel and Jordan agreed not to pollute the waters of the Yarmuk. Israel will also desalinate the saline springs now being diverted to the river and deliver approximately ten MCM of water thus desalinated to Jordan;
- The two parties agreed to co-operate in the building of water storage facilities in order to store winter floods for the benefit of Jordan;
- Israel also agreed to supply Jordan with twenty MCM of water from Lake Tiberias during the summer months in exchange for a similar amount being pumped by Jordan from the Yarmuk River in the winter months. In effect, Jordan was allowed to use Lake Tiberias, completely under Israeli territory for the storage of limited quantities of water;
- Finally, an agreement was reached to facilitate the reciprocal treatment and maintenance of water systems that serve one party but are located in the territory of the other (Haddadin, 1995:24; see also chapter 5.2.1).

The central contention in the Israel-Jordan water dispute was that of inequitable water allocations. The historical background to the dispute revealed it to be a zero sum competition game: if Israel obtains more water from existing water resources, Jordan is left with less and vice versa (Kilot, 1994). The difference in power ratios means that Israel, owing to its superior military strength, has been in a position to attain its water goals by destroying any water installations by its

neighbours that it considered a threat, ultimately transforming its position on the basin from downstream to upstream (Frey, 1993). In June 1967, for example, Israeli military intervention stopped the construction of the Mukeiba dam on the Yarmuk River (Lowi, 1995b).

Despite these inequities and tensions, the bilateral Israel-Jordan water dispute was the least fraught in the region since it was the only case in which water did not commingle with other highly politicised territorial issues (Libiszewski, 1995). Historically, the Israel-Jordan relationship has been the least tense in comparison with that between Israel and the other Arab states (Libiszewski, 1995). In the earlier negotiations between the two countries during the 1950's, Jordan's sovereignty extended over the East Bank and the West Bank of the Jordan River (Wolf, 1994). This situation was later reversed by two main factors. Firstly, in the aftermath of the 1967 Arab-Israeli war, Israel captured the West Bank from Jordan. Secondly, the Palestinian Liberation Organisation was formed as an independent entity to "carry the banner of Arab Palestine and to mobilise the Palestinians themselves for the eventual liberation of Palestine" (Wolf and Ross, 1992:935). Later, in 1974 it was decreed that the Palestinian Liberation Organisation was "the sole legitimate representative of the Palestinian people" (Haddadin, 1995:23). In effect this transferred responsibility for the occupied West Bank to the Palestinian Liberation Organisation.

In 1988, Jordan severed its administrative and legal ties with the West Bank thus leaving the Palestinian Liberation Organisation the sole responsibility to negotiate Israel's eventual withdrawal from the West Bank (Libiszewski, 1995). This was a very important development because from that time on no politicised territorial disputes remained between the two countries. This meant that the water dispute could be addressed and resolved independently from any other strategic concerns.

4.3.3 The Water Dispute in the Israel-Syria and Israel-Lebanon Bilateral Negotiations

It is difficult, President Assad of Syria once said, "to distinguish between the security of Lebanon in the wider sense of the word, and the security of Syria" (President Assad, June 25 1975 cited in Sinai and Pollack, 1976:148). Almost twenty-three years later, in 1998, the implications of this statement continue to influence the direction of talks between the three states. For as one observer succinctly puts it, "although Lebanon is a sovereign country, Syria enjoys a great deal of influence in Lebanon. I cannot envisage peace made with Syria without provisions for an agreement between Israel and Lebanon" (Abajian, 1995). From these statements, it becomes clear that these two sets of negotiations are similar in a number of ways.

In both cases the central issues of contention are territorial and security matters, namely, the question of sovereignty over the Golan Heights in the case of Syria and for Lebanon the Israeli withdrawal from southern Lebanon (Libiszewski, 1995). Secondly, Lebanon remains central to both Syria and Israel. Both countries have stationed troops in southern Lebanon for security reasons and appear over the years to have been competing for greater influence in Lebanon (Sinai and Pollack, 1976; Libiszewski, 1995). The water dispute in these cases can therefore only be understood and eventually resolved in the context of these primarily security-oriented concerns.

The Israel-Syria bilateral negotiations have been the most challenging and politically complex so far. Historically, the relations between the two states have been particularly hostile with Syria ranking as the most extremist of the Arab states. In particular, Syria as the cradle of Arab nationalism has always considered itself as being, "in the vanguard of the Arab states against Zionism" (Ascher, 1976:120). The land of Palestine was once considered to be part of

"Southern Syria". Therefore, the establishment of the Jewish state of Israel was considered to be a betrayal of the Arab goal that the Arab Middle East must remain under Arab hegemony (Sinai and Pollack, 1976:113). Belligerent statements such as the following have shaped its foreign policy towards Israel:

> ...The Zionist presence threatens all the Arab countries and the national existence of the Arab nation. Therefore, all the Arabs must make available all their resources and seek a formula for Arab action enabling our people to ward off the danger surrounding them and liberate their land" (Sinai and Pollack, 1976:124).

Later, on the question of Israel, President Assad remarked the following:

> We are ready to live in peace with Israel in exchange for total withdrawal from all Arab lands but we will not recognise her. Never. (Sinai and Pollack, 1976:147).

As a result, since the 1948 Arab-Israeli war, Syria has proclaimed an official policy of abstaining from taking any step that would imply acquiescence to the state of Israel (Ascher, 1976). As Lowi explains, "recognition of what was perceived as an illegitimate political entity was equivalent to forsaking the struggle to regain Palestine and accepting the *status quo* in the aftermath of the 1948-49 War; in other words a repudiation of one of the most important 'binding agents' of the 'Arab nation' in the modern period" (1995b:106). To date, Israeli-Syrian relations have been overshadowed by bloody wars, an unrelenting arms race and Syria's persistent support of radical groups opposed to the peace process (Libiszewski, 1995).

Water conflicts have also been an important historical feature between the two countries. Between 1951 and 1953, a series of border skirmishes almost escalated into actual military conflict when Israel began construction of its National Water Carrier at Gesher B'not Ya'akov, north of the Sea of Galilee in the demilitarised zone between the two countries (Wolf, 1994:20; see also chapter 3.2.1). Syria argued that the project constituted a violation of international law and was prejudicial to the security and interests of the Arab states (Sinai and

Pollack, 1976:115). In 1955, Syria played a leading role in influencing the Arab states in the region to reject the Johnston plan. Although Syria would have benefited from the Johnston plan, it refused to participate in a regional project that included the state of Israel (Drezon-Tepler, 1994). For Syria, the most powerful of the Arab states, "the larger Arab-Israeli conflict took precedence over any material benefit that could possibly accrue as a result of co-operation with the enemy" (Lowi, 1995b:113). Once again in 1964, Syria formulated and implemented a water project to divert the headwaters of the Jordan River away from Israel (see chapter 3.2.1). This project would have cut the installed capacity of Israel's water carrier by at least thirty-five per cent (Fairinelli, 1997). Since Israel considered this hostile measure a violation and direct threat to its national interests it declared war against the Arab states in 1967 (see chapter 3.2.1). Another attempt at regional water co-operation organised in 1991 by the government of Turkey and sponsored by the non profit Washington-based Global Water Summit Initiative failed owing to Syria's objections to Israel's participation (Drezon-Tepler, 1994).

Given these circumstances, negotiations between the two countries have only taken place since the fall of 1995 (Wolf, 1995). The basis of negotiations between the two countries is the premise of an exchange of the Golan Heights for peace (Wolf, 1996). Israel captured the Golan Heights from Syria in the aftermath of the Arab-Israeli war in 1967. Discussions between the two countries have therefore focused on defining questions related to how much of the Golan is to be conceded and for what peace (Wolf, 1996). On the surface this appears to be a very reasonable request, but the question that arises is what the stakes for Israel really are.

The Golan Heights is an area of two hundred and fifty thousand acres located to the north of Israel with a population of approximately sixteen thousand Druze and thirteen thousand, five hundred Jews (Wolf and Ross, 1992; Sinai and

Pollack, 1976). Essentially the Golan Heights is critical to Israel for security reasons and perhaps most importantly for reasons related to strategic water resources in the area. Militarily, the Golan Heights is a military stronghold for Israeli forces since it provides Israel with a buffer zone to deter any surprise attacks (Heymont, 1976). Despite the military significance of the area, several prominent Israeli scholars and politicians have cited water as the central reason why Israel should refuse to accede to repeated Syrian demands for withdrawal. Shimon Peres and Ehud Barak of the Labour Party have persistently argued that "while land is negotiable, water is not" (cited in Libiszewski, 1995:42-44). Likewise Schiff, an authoritative security analyst, categorises traditional security requirements as belonging to the operational sphere, while the need to protect water is classified as a strategic need clearly highlighting the fundamental importance of water in his arguments (Schiff, cited in Libiszewski, 1995:42-44; Amery, 1997).

It is therefore hardly surprising that the water factor has had a decisive influence in the direction of the talks. For example, the question of the precise location of the Israel-Syrian border has been thorny simply because access to water resources differs depending on whether one focuses on the pre-1967 borders or the present boundaries between the two states (Wolf, 1996). The Syrian position has been an insistence on the return to the borders of June 5 1967, while the Israelis insist on the borders of 1923 (Wolf, 1996). In the boundaries prior to the Arab-Israeli war of 1967, the Banias, a critical tributary of the Jordan River, was under Syrian ownership. At present, however, Israel has full access to the Golan and the Banias (Kilot, 1994). Therefore, as Wolf rightly argues, "the question is related to water since the areas in question cross the Jordan River in one section and represent parts of the shores of Lake Tiberias in another" (Wolf, 1996). This would make it possible for the Syrians to obstruct Israeli diversions or demand water rights to Lake Tiberias currently located wholly in Israeli territory (Wolf, 1996).

What makes this water dispute very complex is the fact that the water resources in contention are not of equal importance to the parties concerned. For Israel, the Golan Heights represents approximately fifty per cent of the supply feeding the upper Jordan River and Lake Tiberias (Libiszewski, 1995). However, for Syria the water quantities from this source are highly insignificant given that it is crossed by far more important river systems such as the Tigris and Euphrates (Anderson, 1991). In this sense, it cannot be said to be a genuine water dispute depicting typical zero sum characteristics. This is further evidence that the water dispute in this case largely persists as part of a security dilemma. Similarly, agreement or otherwise to the water dispute is likely to have great impact on the Israeli-Palestinian negotiations. This clearly indicates just how interrelated the water disputes are amongst the riparians. Should an agreement be reached between Israel and Syria, the Palestinians can expect a significantly reduced share of water from the Jordan River basin. This would therefore mean that they would in turn demand from Israel a greater share of water allocation from the Mountain aquifer system that is currently a major bone of contention between both sides (Elmusa, 1996). "Whatever the scenario", says Elmusa, a researcher at the Institute for Palestine studies, "Palestinian demands in the basin clearly depend not just on Israel's stance, but on Syria's as well, assuming Syria regains the Golan Heights" (Elmusa, 1996). Therefore, in the long-term, it seems that the only solution is for the riparians to work towards a comprehensive water-sharing allocation plan.

Besides these politically oriented obstacles, the format of the negotiations between the two countries remains to be agreed upon. While Israel insists on high level official representation, Syria on the other hand argues that the Chiefs of Staff in both countries can negotiate effectively (Margo, 1995). In addition, Syria has insisted on the presence of a third party during the negotiations. Following the loss of the Soviet Union's political patronage, Syria is eager to have

the United States play a prominent role in the negotiations in order to receive aid once a peace agreement is reached (Margo, 1995).

Should Israel trade the Golan Heights for a word of honour from Syria for peace? Are there any guarantees that this will be the key to long lasting peace between two hostile countries? These questions continue to plague the negotiations between the two countries. Since every negotiation involves an element of compromise between both sides, it appears that Syria has set a price far too low for itself but immensely costly for the state of Israel. Ehud Barak, Chairman of the Labour Party, clearly states Israel's position:

> We do not seek--and we will not accept a peace with Syria that is merely non-belligerency. A true settlement must safeguard all our vital interests, from early warning, to economic co-operation to full diplomatic relations and the formal recognition of Israel's right to exist. Promises and pleas for trust will not do; the test must be actions, the implementation of agreed upon terms within specific timetables. Security and peace are critical to Israel's life (1998:62).

Given these circumstances, no substantial progress appears to have been made in this set of bilateral negotiations. The water dispute remains linked to wider political concerns, which must be resolved before any form of basin-wide co-operation can be reached. As one observer puts it, "at the end of the day, agreement between Syria and Israel hinges upon three key elements: peace, territory and security (Israel Foreign Ministry, 1996). For Syria, the true interpretation of Resolution 242 on which the current bilateral negotiations are based remains:

> ...Return of all territories captured in June 1967 and the return of the rights of the Palestinians. Syria will accept nothing less...The Israeli authorities would do well to be reminded that we view Palestine not only as an inseparable part of the Arab nation, but also as part of Southern Syria (President Assad, cited in Sinai and Pollack, 1976:127).

As in the Syrian case, the water question in the bilateral peace negotiations between Israel and Lebanon can only be understood as an integral part of primarily security-oriented concerns. A thorny issue between both sides remains Israeli occupation of southern Lebanon. The negotiations have been stalled since 1994 and currently there is no contact between the two sides (Wolf, 1996). From the onset, these negotiations have been stymied by Syria's immense influence over Lebanese decision-making processes and policies (Wolf, 1996; Libiszewski, 1995). It has been argued that any progress in this track remains solely dependent on progress being made in the Israel-Syria negotiations (Wolf, 1996).

As a confidence building measure (CBM), Israel has clarified that its primary interest for occupation of the northern border is for security reasons only and has no claims on either land or other resources (Israel Foreign Ministry, 1997). The position is well articulated by Ehud Barak, Chairman of the Labour Party, who states that, "We accept the principle of 'land for peace', but only as a part of a comprehensive agreement with a responsible authority, capable of enforcing its will and preventing terrorism attacks against Galilee" (1998:62). On this basis, a recent bulletin from the Israel Foreign Ministry (1997) has suggested a settlement proposal based on the following principles:

- The deployment of a Lebanese army north of the security zone for a period of six months to prevent terrorist attacks against Israel.
- Israel must be convinced that all terrorist groups such as the Hezbollah currently operating within Lebanon have been disbanded.
- Finally, the government of Israel must receive guarantees that any Lebanese personnel and citizens residing in the security zone do not receive any form of reprisal.

If these conditions are fulfilled, the state of Israel will in a period of three months be prepared to sign a peace agreement with Lebanon.

Over several years, however, speculation has been rife that Israel's occupation of southern Lebanon is associated with its interest in Lebanon's Litani River. The Litani River is a stream flowing entirely within Lebanon and has no connection to the Jordan River system (Soffer, 1994). Historically, Israeli interest in this water resource dates back to the earliest plans to found the Jewish State. It is interesting to note that all past water-sharing schemes such as the Cotton plan of 1954, during the Johnston negotiations, attempted to include the Litani River (see chapter 3.2.2). With the Israeli invasion of 1982, the lower reaches of the Litani River fell under Israel's control renewing fears that projects to divert this river southwards would be put into practice (Soffer, 1994). Given that Israel's intensive agricultural practices require at least one hundred thousand cubic metres of water annually, Cooley suggests that capturing the Litani may assist in alleviating Israel's present water deficit (Cooley, 1984).

However, to date evidence to support such claims is uncertain. Soffer (1994) points out that Israeli invasions were largely motivated by attempts to deter attacks by the Palestinian Liberation Organisation. Likewise, Kilot suggests that Israel's interest in southern Lebanon is based on what he terms the "security imperative" and not the "water imperative" (Kilot, 1994:199). Israel does not control the Litani zone since these areas are currently under the authority of United Nations peace keeping forces (Soffer, 1994; Kilot, 1994). Attempts by Israel to pacify the villagers in this region by supplying piped water is further evidence that its occupation is linked to security reasons (Kilot, 1994). The flow of the Litani River has significantly diminished over the years to no more than one hundred and twenty-five MCM further diluting Israeli interest (Libiszewski, 1995). The water dispute in this case, therefore, seems to carry less weight than other primarily security-oriented concerns. In this environment of deep mistrust and persistent political differences, water is perceived as a potential political weapon rather than as a spur to co-operation (Libiszewski, 1995).

4.3.4 Water as an Integral Aspect of the Israeli-Palestinian Conflict.

With the occupation of the West Bank after 1967 and the formation of the Palestinian Liberation Organisation, water was officially placed on the agenda of the wider conflict between the two sides (Libiszewski, 1995). There are two water sources of importance to the two sides, namely, the Jordan River and the ground water resources in the West Bank (Isaac, 1994). The Jordan River is a significant international basin and its riparians include Jordan, Israel, Palestine and to a lesser extent Syria and Lebanon (Wolf, 1994). Ground water resources are considered to be of fundamental importance since the main aquifer systems are not only located in the West Bank, but also recharged there (ARIJ, 1996; see also chapter 3.2). According to Palestinian sources, at least ninety per cent of the flow of the western aquifer and one hundred per cent of the north-eastern basin are fed by rainfall in the West Bank (Libiszewski, 1995).

At the core of the water dispute between the parties is the question of uneven water allocations. At present, Israel is in full control of the Jordan River headwaters. Through its control of southern Lebanon, Israel is able to limit Lebanese access to the Hasbani. It is also in control of the Banias located in the Golan Heights (Lowi, 1995). As a result, Palestinians are estimated to be utilising less than 0.5 per cent of the Jordan's waters (Isaac, 1994).

This uneven water allocation is even more apparent on the West Bank. Table 4.3 below shows that Israel is currently meeting at least 25.3 per cent of its water needs by exploiting aquifer systems located in the West Bank (Isaac, 1994).

Table 4.3: Control of West Bank Aquifers: Various Estimates.

BASIN	PALESTINIAN ALLOCATION*			ISRAELI	ALLOCATION*		TOTAL	CAPACITY*	
	Z&I	S	W	Z&I	S	W	Z&I	S	W
Western	25	27	20	310	323	300	335	350	320
N-eastern	30	25	20	110	106	120	140	131	140
Eastern	60	58	50	65	35	75	125	151	125
Total	115	110	90	485	463	495	600	632	585

* (MCM)

Sources: Zaroor and Isaac, 1991; Shuval, 1993; Wolf, 1993 cited in Isaac, 1994.

To effectively exploit these water resources to its own advantage, Israel has imposed stringent measures restricting Palestinian use. Examples of such measures include the following:

- Permission for well drilling must be obtained from military authorities. To date only twenty-three such permits have been granted, three being allocated to agricultural use (Isaac, 1994). Besides this, the Palestinians are only allowed to drill shallow wells of about sixty to one hundred and forty metres yet Mekorot, the Israeli water contractor, prefers to drill wells to the depth of at least three to four hundred metres in order to tap better quality water (Libiszewski, 1995, Isaac, 1994). This is clearly motivated by Israeli fears that any uncontrolled ground water development by the Palestinians directly threatens Israeli wells (Libiszewski, 1995).
- In addition, rigorous water quotas are imposed on the Palestinians with heavy penalties imposed for excess pumping (Isaac, 1994). Extortionate rates are charged for Palestinian water supply. Whereas Jewish settlers pay only $0.40 for domestic consumption and a highly subsidised agricultural rate of $0.16, the Palestinians, in comparison, pay a standard rate of $1.20 for their piped water (Isaac, 1994). At least twenty-six per cent of West Bank households do not have access to piped water (Isaac, 1994).
- The water dilemma has been complicated by the fact that Israel has built several Jewish settlements in the occupied territories. It is estimated that

about one hundred and forty thousand Israeli settlers live on the West Bank, about three to four thousand in the Gaza Strip and another one hundred and sixty-five thousand in East Jerusalem (Libiszewski, 1995; Hosh and Isaac, 1996). This has obvious implications for water usage. For example, in the water deficit area of the Gaza Strip, approximately eighteen Jewish settlements consume at least 3.3 MCM of water annually with approximately ninety-two per cent going to the agricultural sector (Kilot, 1994). Jewish settlers are consistently favoured in water allocations at the expense of the local population. In the Gaza area, for example, the per capita ratio use between the two communities shows disproportionate levels of 12:1 or more (Libiszewski, 1995). This clearly indicates the fundamental link between land and water resources in the Israeli-Palestinian conflict (see also chapter 5.2.4).

The Palestinians are unable to use water resources in accordance with their growing economic and social needs. In the agricultural sector, for example, only six per cent of Palestinian land is rain fed yet agriculture contributes about twenty-three to twenty-nine per cent of its GDP (Isaac, 1994). In fact, Palestinian agricultural water consumption has remained at the 1968 level in absolute terms not taking into consideration population growth (Libiszewski, 1995; Benvenisti and Gvirtzman, 1993). This is in stark contrast to the Israeli case where agriculture accounts for seventy to eighty per cent of water consumption, but contributes only six per cent of the country's GDP (Isaac, 1994). In the West Bank alone, Jewish settlers irrigate at least seventy per cent of their land (Isaac, 1994). Agriculture provides employment for at least 26.3 per cent of the Palestinian population in comparison to only 3.5 per cent in the Israeli case (Isaac, 1994). This uneven water allocation is likely to have severe implications for the economy and urban development of a potentially independent Palestinian entity. Table 4.4 below clearly illustrates the disparity in

water allocations and contribution to GDP between the agricultural sectors of Israel and Palestine.

Table 4.4: Agriculture and Water Allocations in Israel and Palestine.

	ISRAEL	PALESTINE
Contribution to GDP by agricultural sector %	6	26-29
% of total agricultural employment	3.5	26.3
Cultivated land that is irrigated %	47	6
Total water consumption (MCM/Y)	1700	225
Agricultural water use (% of total consumption)	75	62
Total water use for irrigation (MCM/Y)	1275	140
Population millions 1990	4.5596	2.0375

Source: Isaac, 1994

Population increases are likely to intensify the water dilemma. The case of the Gaza Strip is a good example. This region has a high population density rate of at least one thousand, seven hundred and thirty people per square kilometre (Kilot, 1994). The current water deficit is estimated to be forty MCM yet by the year 2000 demand will rocket to at least two hundred to two hundred and fifty MCM (Kilot, 1994:245). Table 4.5 below shows the estimated projections for population growth in Israel and Palestine.

Table 4.5: Projections of Population Growth for Israel and Palestine.

YEAR	ISRAEL	GAZA	WEST BANK	PALESTINE
1990	4,559,000	711,000	1,326,000	2,037,500
2000	6,023,000	1,162,000	2,289,100	3,451,000
2010	6,695,200	1,639,900	3,317,000	4,776,900
2020	7,457,200	2,203,900	4,015,600	6,219,500

Source: ARIJ, 1996

As the table shows, population growth rates are going to rocket in the coming years. Obviously, this will have great implications for the water demand in both

Israel and Palestine. It is therefore crucial that a solution to the water dispute be found. In particular, there is a need to correct the gross inequity in water allocation for the Palestinians whose present share is restricted to just twenty per cent of the renewable ground waters of the West Bank (Kilot, 1994).

As can be expected, the water issue has played a prominent role in the ongoing peace negotiations between the two parties. The Palestinians have defined their water rights as follows:

- Acknowledgement of Palestinian water rights on the Jordan River basin. In the Johnston plan, the West Ghor canal was proposed to supply at least one hundred and fifty MCM to the West Bank;
- A demand for full compensation to the Palestinian people for illegitimate practices of the state of Israel and foregone income for the last twenty-seven years;
- Storage and fishing rights in Lake Tiberias, given their status as a full riparian to the Jordan River;
- Equitable water rights in the western and north-eastern basins both of which are recharged almost entirely in the West Bank;
- Full sovereignty over the eastern aquifer water resources, located entirely in the West Bank and therefore not a shared resource;
- Rights of access to the Mediterranean for fishing, port development and international trade. The Palestinians consider the Dead Sea as an important natural resource and tourist area (ARIJ, 1996).

What has made the bilateral negotiations particularly complex is the fact that in this case the water dispute is largely determined by political circumstances (Libiszewski, 1995). This situation therefore differs from a typical water dispute in an international basin which is usually determined by such factors as the power ratio between the riparians and the geographical proximity to the water resource in question (Libiszewski, 1995; Haddadin, 1995; Lowi, 1995b). A major

contributing factor to the circumstances of this bilateral track is the fact that the competing parties in question are not two sovereign states (Libiszewski, 1995; Isaac, 1994). On the contrary, this dispute is between a sovereign state (whose sovereignty is itself subject to question) on the one hand, and a people in search of statehood on the other. The water dispute is therefore embedded in the struggle over land and national identity (Libiszewski, 1995).

Several issues remain to be resolved in the Israeli-Palestinian water dilemma. One particularly sensitive issue relates to the future of Jewish settlements in the occupied areas. It raises questions of what sources of water and according to what standards they would be supplied in the event of the emergence of an independent Palestinian entity (Libiszewski, 1995). The question of water rights is also very delicate given that it relates to the sensitive issue of the potential definitive borders of a future Palestinian state (Libiszewski, 1995). In particular, the pumping sites of the most politically important Mountain aquifer are found on both sides of the border between Israel and Palestine (Libiszewski, 1995; Wolf and Ross, 1992; Benvenisti and Gvirtzman, 1993; Elmusa, 1995). Therefore resolving this issue raises the additional problems of control and ownership. The future status of East Jerusalem is also related to the water dispute. Should it become an independent entity or be added to either Israel or Palestine, the change in demographic patterns will lead to different water demands regarding specific water quotas (Libiszewski, 1995). The Palestinian refugee question is directly connected to water concerns. Assuming an autonomous Palestine would strive to absorb and settle the 2.2 million Palestinians currently registered as refugees, this would have profound impact on regional water demands as a whole (Wolf and Ross, 1992:921). In the final analysis, finding a solution to the water dispute has a direct impact on the political and territorial issues in question. This clearly demonstrates that the Israeli-Palestinian water dilemma is more than just a simple demand for the redistribution and reallocation of water resources (Libiszewski, 1995; Isaac, 1994).

4.4 The Multilateral Negotiations

The multilateral negotiations deal with a much broader spectrum of concerns. In particular, five main issues constitute the basis of its agenda, namely, water, refugees, arms control, economic development and environmental degradation. This is in recognition of the dual role of these issues as both potential sources of conflict and co-operation. The goals of the multilateral track are twofold: to find solutions for key regional problems while serving as a confidence building measure to promote the development of normalised relations among the nations of the Middle East (Israel Foreign Ministry, 1992). Decisions are reached by consensus only, therefore ensuring a level of egalitarianism as well as giving the veto right to each party (Wolf, 1995).

The multilateral track of the peace process began on the 28th and 29th of January 1992 in Moscow (Israel Foreign Ministry, 1997). In total at least thirty-six parties are currently participating in the various Working Groups which have been established (Israel Foreign Ministry, 1992). Participants are not restricted to the protagonists of the conflict but include potential donor countries such as the United States of America, the European Union, Japan and others. This is in addition to other states from North Africa and the Middle East (Libiszewski, 1995).

The Environment Working Group endeavours to enhance the ability of regional parties to deal with problems such as desertification, pollution, and environmental management (Israel Foreign Ministry, 1997). A significant achievement of this group has been the endorsement of the Baharain Environmental Code of Conduct for the Middle East, setting norms and policies in order to prevent environmental damage in neighbouring states (Israel Foreign Ministry, 1997).

The Arms Control and Regional Security Working Group essentially focuses on regional security concerns and is attempting to reach consensus on arms control matters. A significant development in this Working Group has been the creation of a regional security conflict prevention centre for crisis management, prevention and resolution (Israel Foreign Ministry, 1997).

The Refugee Working Group has been dealing with the very sensitive issue of refugee status in the region. Some of the issues being dealt with include the following: family reunification, training and job creation, public health, and child welfare. In a meeting held in Egypt in 1994, Israel agreed to grant at least two thousand reunification requests annually, thus according permanent status to a record six thousand persons who had initially entered the territory as visitors (Israel Foreign Ministry, 1997).

The Regional Economic Development Working Group addresses issues of infrastructure, training and tourism development in the region, including Gaza and the West Bank (Israel Foreign Ministry, 1997). In November 1993, this group adopted the Copenhagen plan comprising of thirty-five projects in diverse fields such as communications, transport, energy, agriculture and tourism. A significant development was the Middle East-North Africa Economic Summit held in Casablanca in 1994 with the endorsement and support of Presidents Clinton and Boris Yeltsin (Israel Foreign Ministry, 1997).

The multilateral negotiations have been useful in providing forums for relatively free dialogue to take place. In particular, the numerous meetings of the Working Groups, in addition to the various intercessional activities, multiplied the channels of interaction between the different parties (Libiszewski, 1995; Wolf, 1995). This in turn enabled confidence building to take place and hence paved the way for progress to be made on the bilateral track (Wolf, 1995). For example, the "Oslo

connection" that opened the way to secret talks between Israel and the Palestinians leading to the subsequent signing of the Declaration of Principles in 1993 took place within the multilateral framework (Libiszewski, 1995). Through the participation of other Middle East states, Israel has had the opportunity to achieve détente in its relations with the wider Arab world (Libiszewski, 1995). For example, the Water Resources Working Group meeting in Oman, Muscat was the first official Israeli visit to a Gulf state (Libiszewski, 1995; Wolf, 1995). This has facilitated the process of normalisation in the relations between Israel and other Middle East states.

A third set of negotiations has emerged from the multilateral framework largely involving non-governmental organisations and academicians. In this context, an important pioneering role in the field of water was played by the "First Israeli-Palestinian International Conference on Water". The conference was convened at the Swiss Federal Institute and jointly sponsored by the Truman Institute for the Advancement of Peace at Hebrew University and the Jerusalem Centre for Strategic Studies (Libiszewski, 1995; Wolf, 1994). It stimulated interesting discussions and proposals, which were later implemented in the various multilateral and bilateral negotiations. The following section discusses the role of the Multilateral Water Resources Working Group in greater detail.

4.4.1. The Multilateral Water Resources Working Group

The objective of this Working Group in the context of the multilateral framework has been in the nature of fact finding and workshops. It has not dealt with the more technical matters relating to water rights and allocations (Wolf, 1995). In total, this group in various locations as shown in the table 4.6 below has so far held nine meetings.

Table 4.6: Meetings of the Multilateral Water Resources Working Group

Meetings	Dates	Location
Multilateral Organisation Meeting	28-29 January 1992	Moscow
Water Talks, Round 2	14-15 May 1992	Vienna
Water Talks, Round 3	16-17 September 1992	Washington, DC
Water Talks, Round 4	27-29 April 1993	Geneva
Water Talks, Round 5	26-28 October 1993	Beijing
Water Talks, Round 6	17-19 April 1994	Muscat
Water talks, Round 7	7-9 November 1994	Athens
Water Talks, Round 8	18-22 June 1995	Amman
Water Talks, Round 9	15-16 May 1996	Hammamet

Sources: Wolf, 1995:144; Israel Foreign Ministry, 1994; US Department of State, 1996.

What have been the achievements of the Working Group on water so far? Have the activities of this Working Group had any decisive influence on the water negotiations in the bilateral talks? To answer these questions, this section examines the concerns raised in each round of talks held.

The second and third rounds of talks were particularly contentious. Both sets of talks revolved around a similar theme, namely, the issue of water rights and allocations. Jordan and Palestine were particularly vocal in their insistence that the talks could not progress without a clear definition of the water rights issue (Wolf, 1995). Israel, on the other hand, argued that the question of water rights and allocations could only be dealt with in the bilateral negotiations (Wolf, 1995). Consensus was however reached in the third round of talks held in Washington D.C. It was agreed that the multilateral talks would deal primarily with issues of a non-political nature but of mutual concern. The United States Department of State defined four subjects for future talks. These included the following: enhancement of water data, water management practices, enhancement of water supply and concepts for regional co-operation and management (Wolf,

1995). The fourth round of talks had agreed upon a number of related programmes and intercessional activities. These included study tours and water-related courses aimed at assisting capacity building while fostering better personal and professional relations (Israel Foreign Ministry, 1994). Significant achievements in the stipulated four areas had been reached by the fifth and sixth meetings. In the area of enhancement of data availability some of the issues agreed upon included:

- Agreement on the need for regional data banks;
- Additional workshops on the subject as part of U.S. and European Union priority training needs assessment;
- Additional workshops would be held on the standisation of methodologies and formats for data collection;

On the question of enhancing water supply, some of the decisions reached included the following:

- The conducting of feasibility studies for the desalination of brackish water by Japan in Jordan and the European Union in Gaza;
- The suggestion of Oman to conduct a survey on the current status of desalination research and technology was accepted;
- A Canadian proposal for the installation of a rain water catchment system in Gaza was accepted. *This marked the first concrete project accepted by the Working Group*;

On Water Management and Conservation, the following decisions were reached:

- Austria sponsored a seminar on technologies relating to water and environment focusing on the Middle East;
- The United States further organised two joint seminars for the water and environment groups dealing with the subjects of wastewater treatment and drylands agriculture;
- The World Bank, in addition, carried out surveys of water conservation in the West Bank, Gaza and Jordan (Israel Foreign Ministry, 1997; Wolf, 1995).

Finally to enhance regional co-operation and management,

- The United Nations organised a seminar on various models for regional co-operation and management;
- The United States also agreed to organise a seminar on weather forecasting;
- Jordan's proposal for a water charter to define principles of regional co-operation was not accepted (Wolf, 1995).

The sixth meeting was held in Oman, Muscat. This marked the first time for the water talks to be held in an Arab country and the first of any Working Group to be held in the Gulf (Wolf, 1995). The endorsements of the working group included:

- An Omani proposal to establish a desalination research and technology centre in Muscat, was accepted. *This marked the first Arab proposal to reach consensus in the Working Group*;
- The Working Group accepted the first Israeli proposal. It included the rehabilitation of water systems in small sized communities in the region;
- A German proposal to study the water supply and demand development amongst interested core parties in the region;
- A U.S. proposal to develop wastewater treatment and reuse facilities for small communities was also accepted. It was also agreed to implement a regional training programme jointly sponsored by the United States and the European Union;
- In this meeting, the Working Group officially welcomed the announcement of the creation of the Palestinian Water Authority pledging to work with it on multilateral water issues (Israel Foreign Ministry, 1997; Wolf, 1995).

The seventh and eighth rounds of talks were held in Athens, Greece and Amman, Jordan. The following proposals formed the basis of discussion for the Working Group:

- The Israeli proposal to repair and overhaul water systems in small-sized communities was explored further. It was estimated that approximately sixty per cent of their water is lost from leaking pipes and hence overhauling such water systems would save thousands of litres of water. The next step of identifying sites and establishing a project committee has been approved;
- Progress on the Omani proposal to establish a desalination research and technology centre was made. Specifically, Oman will now take concrete steps on the project including high level consultations to secure international support for the centre;
- Other water supply enhancement plans discussed included: water collection in Gaza, desalination of brackish water in Jordan, and a training course on the use of geothermal water (in hot houses) in agriculture;
- The Working Group also endorsed a US/European Union plan for regional water data banks. The United States and Canada pledged financial support for implementation of the project, which also includes a Palestinian water data bank;
- Guidelines and principles for "concepts of regional co-operation and management of water" are now under discussion. This will ultimately serve as a framework for co-operation on water issues in the region (Israel Foreign Ministry, 1994-95).

The most recent meeting for the Working Group was held on the 15th and 16th of May, 1996 in Hammamet, Tunisia. At least thirteen Middle Eastern and North African parties were represented including other delegations from Europe, North America and Asia (US Department of State, 1996). Progress was consolidated on a variety of co-operative initiatives as well as launching of new efforts to address

water problems in the Middle East. Some important outcomes of this meeting included:

- Two new projects were agreed upon. The first project on water conservation was sponsored by the United States and involves an initiative to expand public awareness of water issues. This project gained momentum amongst the Israeli, Jordanian and Egyptian delegations. They indicated their desire to work together with a view to ultimately promoting further co-operation within the multilateral framework. In a second new project, France will finance a major effort to manage critical changes, such as pollution crises or system damage in drainage areas and river basins.
- A number of projects currently in progress were reviewed such as the Middle East desalination research centre being established in Oman. Several of the Group's participants pledged financial support of fifteen million dollars in support of the centre, which has already begun region-wide training courses. In addition, the regional data banks project focusing on Israel, Jordan, the West Bank and Gaza areas have produced substantial results. In particular, the Palestinian capacity to collect and manage water data has been greatly improved. The donors for the project include the United States, European Union, Canada and Norway (US Department of State, 1996).

Despite success by this Working Group in enhancing confidence building and providing forums for dialogue amongst the various parties, several obstacles have impeded greater progress. Firstly, Lebanon and Syria have boycotted these talks. These two Arab states argue that the larger political concerns must be addressed prior to widening the agenda to include issues such as water (Wolf, 1995: Libiszewski, 1995). Unfortunately, this means that the idea of achieving a comprehensive basin-wide solution to the particular water disputes on Yarmuk and Jordan waters has been stymied from the very beginning (Libiszewski, 1995;

Wolf, 1995; Isaac, 1994). In addition, it has been difficult to encourage the formulation of principles for integrated watershed management since issues of water quantity, quality and rights fall within the purview of different negotiating groups such as water and the environment (Wolf, 1995). The refusal by Israel to discuss the legal-political issue of water rights has also impeded greater progress (Libiszewski, 1995; Elmusa, 1996; Isaac, 1994). Israel argues that the issue of water rights can only be negotiated in the bilateral talks. This has been a particularly contentious issue. The Palestinians, for example, consider the discussion of water rights as being pivotal to any form of regional co-operation (Libiszewski, 1995; Elmusa, 1996). Therefore, in the final analysis, this Working Group has not dealt with long-term water issues plaguing the region.

However, its work has not been in vain. The progress made in several issues concerning water data and enhancement of water supply have provided invaluable ideas that have been incorporated in the bilateral treaties signed so far. The establishment of joint water committees between Israel and Jordan provides a good example of such initiative (see chapter 5.2.1). The talks have also been an important springboard towards defining a common future for the region.

4.5 Conclusion

This chapter set out to examine the role of water in the Middle East peace process. A central question of fundamental concern was: can water disputes, considered "low politics" issues, be resolved ahead of other "high politics" issues embracing political concerns such as territory and security? This issue has had a decisive influence in the progress or otherwise of the current negotiations. The structure of the peace talks has been explicitly designed to reconcile high and low politics issues. However, this examination of the peace negotiations makes it clear that in the Middle East "low politics" issues such as water cannot be

effectively resolved ahead of wider political concerns dubbed "high politics". Therefore, even with an expanded security concept the case of the Middle East still makes a powerful argument for the dichotomy of security issues advocated by the Realists (see chapter 2.2).

With the exception of the Israel-Jordan case, this has certainly been the central reason for the current impasse in the Israel-Lebanon-Syria and Palestine negotiations. In each of these cases, the water dispute seems to be related to a wider security dilemma and for the Palestinians part of an eventual struggle for state hood. This clearly illustrates the crucial link between water and politics in the Middle East region. As Wolf, (1994) succinctly puts it, "For negotiations for the political settlement to be successful, they will have to address solutions to the water conflict. Likewise, workable solutions to the problems of regional water shortage should also address constraints posed by regional politics" (1994:38).

The multilaterals have been dealing with a broader agenda encompassing five issues of central concern, namely, water, refugees, environmental degradation, economic development and arms control. The multilateral framework has been critical in enhancing confidence building measures. It has offered the parties concerned an opportunity to vent past grievances and present their views on the future of the Middle East. Dealing specifically with the water question, the Multilateral Water Resources Working Group has primarily focused on issues of mutual interest, but of a non-political nature. These include the following: water data, enhancing water supply, water management and regional co-operation. However, It has failed to resolve the long-term issues of contention primarily for two reasons, namely, Lebanon and Syria's boycott of the talks and Israel's refusal to discuss the legal-political question of water rights. Lebanon and Syria have argued that a precondition of their participation in these talks is the resolution of the wider political and territorial issues in question. Israel has also

refused to discuss the issue of water rights arguing that it falls within the bilateral framework. The obstacles being experienced by this group have not only foiled the idea of a regional water plan, but also indicate the difficulty of sidelining the role of politics in the Middle East region.

In the final analysis, the lesson emerging explicitly clear from the Middle East peace negotiations is that water disputes and political concerns must be resolved simultaneously. This means that attaining broader political co-operation remains an important springboard towards the eventual realisation of a regional water-sharing plan. The next chapter explores further the implications of this assertion in order to determine whether increased interdependence over water ultimately results in conflict or co-operation.

CHAPTER FIVE

MIDDLE EAST WATER: CONFLICT OR CO-OPERATION

5.1 Introduction

> A regional water plan need not wait the achievement of peace. To the contrary, its preparation, before a comprehensive peace settlement is attained, could help clarify objectives to be aimed for in achieving peace (Ben-Sharar, cited in Wolf and Ross, 1992:954).
>
> Political conflicts are sometimes so visceral and primordial that they simply cannot be ignored; over the course of their duration, they become an inextricable part of the identities of the parties involved. Under such circumstances, technical collaboration cannot be facilitated; rather it must await political settlement (Lowi, 1995a:123).

In the Middle East region, the link between water and political alternatives remains crucial. Water scarcity not only leads to heightened political tensions, but is also a vehicle for potential co-operation (Wolf, 1994). The above seemingly contradictory statements by two prominent scholars highlights the central question: Is co-operation over water, a "low" politics issue, attainable in the absence of resolving "high" politics issues of nationalism, territory and other security concerns? If such co-operation is attainable, will the resulting interdependence lead to greater potential for conflict or enhance the possibilities for sustainable peace in the Middle East region? In the following analysis, it will be argued that while prevailing water problems are fundamental, the search for solutions facilitating regional co-operation is only possible once more complex political issues are resolved. Therefore, any co-operation over water resources requires prior resolution of existing political differences or considerable progress in that direction and not vice versa (Lowi, 1995a).

5.2 The Prospects for Co-operation Over Water in the Middle East

Many experts have cited integrated water management as a promising field for enhancing regional co-operation (Starr and Stoll, 1988; Shuval, 1992). The underlying rationale is that co-operation in the field of water will lead to renewed perceptions of shared needs and interests ultimately creating greater interdependencies amongst the protagonists of the Arab-Israeli conflict (Libiszewski, 1995:85). The enhanced interaction will help foster understanding amongst the parties concerned and eventually pave the way for more contentious and emotionally charged issues to be resolved (Wolf, 1995). Besides the implementation of joint water projects having the potential to "strengthen and stabilise peace", they are also considered to be a much more efficient approach to facilitating regional co-operation since the flow of water does not respect political boundaries (Wolf and Ross, 1992; Kally, cited in Wolf, 1995:15). This section explores these assertions about the potential of water by examining two aspects, namely, the treaties signed in the peace negotiations and prospective regional water projects dubbed "water-for-peace" plans (Shuval, 1992).

5.2.1 The Israel-Jordan Treaty of Peace

> They say that the ancient custom of shaking hands developed out of the need to prove that neither person was holding a weapon. The first public handshake between his majesty, the King of Jordan, and myself a minute ago symbolises much more than that two people will no longer (take) up arms against one another. And here the handshake and excitement, the many photographers, the live broadcasts of television to all corners of the globe, I share this excitement and know that this moment in Jerusalem and Amman, perhaps all over the Middle East, a new era is dawning (Lalonde, 1994).

These remarks were made by the late Prime Minister Rabin in the wake of the truly historic occasion marking the signing of the Washington Declaration between Israel and Jordan. This was a follow up to an earlier initiative on the 14th of September 1993 when both countries signed a substantive Common Agenda mapping out their approach to peace. It set out the following issues: security, trade, water resources, boundary demarcation as well as the future status of 1.5 million Palestinian refugees now settled in Jordan (see appendix I). The main gist of the Washington Declaration was that the two nations promised to end the forty-six years of hostility between them and work towards a full treaty. In the words of King Hussein, "It was a day of hope and vision" for this constituted the blue print for the Treaty of Peace signed on the 26th of October 1994 (Lalonde, 1994).

In the Treaty of Peace, water is clearly considered to be a vital security issue between Israel and Jordan. This is clearly indicated by the fact that it is treated extensively in the treaty and fills the entire section of annex two (see appendix II). The first section of the treaty acknowledges the water rights and allocations of the two countries. This is of great importance given that it was the central bone of contention between the two countries from the onset of the negotiations (see chapter 4.3.1). Another issue dealt with in this section is the framework for future co-operation in the field of water.

Accordingly, article six of the treaty bears the simple title "Water". It is in paragraph one that the "rightful allocations" of the Jordan and Yarmuk rivers, surface waters and ground water of the Araba Valley are explicitly recognised. Both sides in paragraph two recognise "that the subject of water can form the basis for advancement of co-operation between them". Even more importantly, the treaty recognises a crucial principle of international water law, namely, that of not causing appreciable harm (see chapter 3.3). In particular, the treaty states both sides "...jointly undertake to ensure that the management and

development of their water resources do not, in any way, harm the water resources of the other Party" (article 6.2). This is a very important fact given that the two countries since the 1950s have pursued unilateral development projects leading to over exploitation of the Jordan-Yarmuk water resources. In acknowledging the fact that the water resources in question are insufficient to meet their future demands, paragraph four of this treaty provides a framework for future co-operation in the field of water. Specifically, it is cited that this co-operation will concern "all aspects of water management and development, including developing of new water resources (with explicit reference to the possibility of transboundary water transfers), minimising wastage, preventing pollution, dealing with shortages as well as data exchange and joint research" (article 6.4).

However, it is annex two that forms the real operational aspect of this treaty. In particular, articles one to four deal extensively with the allocations of water from the Yarmuk and Jordan rivers in addition to storage and diversion facilities, protection of water quality, and allocation of ground water in the Araba valley. Article five reinforces an important legal aspect of common jurisdiction. It binds both parties not to carry out changes in water flows through water diversion projects without prior notification of at least six months (article 5.2). In article six, the importance of exchanging water data is recognised. This is an important development for in these countries obtaining accurate water data is extremely difficult as it is considered a vital national security issue (see chapter 3.3). Article seven constitutes a further crucial development. Here both parties agree to establish a joint water committee in future to supervise and enhance implementation of the treaty (article seven, one to three).

Concrete water projects envisioned in future between the two countries are dealt with in article two of the annex. In particular, paragraph one stipulates that "Israel and Jordan shall co-operate to build a diversion/storage dam on the

Yarmuk River" (annex two, article 2.1). What is most important about this stipulation is the fact that it is an explicit reference to the building of the long aspired Maqarin dam on the Yarmuk (Libiszewski, 1995; see also chapter 3.2.3). This will enable Jordan to store more efficiently winter floods of the river and improve its diversions to the King Abdullah canal, its most vital irrigation project (Lowi, 1995a). Up until then, Israel had consistently vetoed World Bank funding for the project. In article two, 2.b another storage dam is to be planned on the lower Jordan River. In addition to these efforts, the annex stipulates in article 1.3 that "Israel and Jordan shall co-operate in finding sources for the supply to Jordan of an additional quantity of fifty MCM per year of water of drinkable standards". However, it remains to be fully defined what the source of this extra water will be (Libiszewski, 1995). Although most of this water is to be gained through additional installations, feasibility studies are yet to begin. The time factor seems critical since increasing Syrian diversions of the Yarmuk waters put the availability of this extra quantity of water at stake (Libizewski, 1995; Lowi, 1995b).

What is the difference in water allocation before and after the Treaty of Peace? A comparison between the Johnston plan of 1955 and this treaty provides invaluable insights. Although the Johnston plan was never ratified, both sides have secretly adhered to its provisions for several years (Wolf, 1994). There are various similarities. In the two agreements, both countries are allocated a major flow of one river each: the upper Jordan for Israel and the Yarmuk for Jordan (Libiszewski, 1995). This is after the deduction of each riparian's specific share. In the present treaty, Israel's future amount on the Yarmuk is set at twenty-five MCM as earlier stipulated by the Johnston plan (Haddadin, 1995; see also chapter 3.2.2). However, Jordan's allocation is substantially reduced from an earlier allocation of one hundred MCM to only thirty MCM (Libiszewski, 1995). This is because the West Bank is no longer under the sovereignty of the Kingdom

of Jordan. But to whom do these originally Jordanian rights now belong? The treaty offers no explicit answers.

One important difference between the two agreements, however, stems from the different riparian positions on both rivers. On the Jordan River, Israel remains the superior riparian owing to its military strength and occupation of the Golan Heights and the West Bank (see chapter 3.2.1). The same cannot be said of Jordan on the Yarmuk waters. Owing to its relatively disadvantaged geographic position as a downstream state and its lack of military force, it is simply not able to do anything about increasing Syrian diversions upstream. The Johnston plan allocated Syria at least ninety MCM on the Yarmuk, but to date it is estimated that Syrian extractions are between one hundred and sixty and two hundred MCM per year (Libiszewski, 1995). Therefore, Jordan will probably never be able to obtain the three hundred and seventy-seven MCM originally allocated in the Johnston plan (Wolf and Ross, 1992; see also chapter 3.2.2). This points towards the necessity for a basin-wide plan. Even though tremendous progress has been made on the Israel-Jordan negotiations, the Syrian position of non-co-operation remains a formidable obstacle. This suggests a shift in future of water disputes from the Israel-Jordan track to the Syrian-Jordanian track (Libiszewski, 1995).

In the final analysis, however, the Treaty of Peace can be said to have successfully addressed outstanding water disputes between both countries. Jordan's water supply is enhanced by approximately seven per cent in the short term and fifteen to twenty per cent in the long-term (Libiszewski, 1995). This, according to Munther Haddadin, Jordan's Chief Water Negotiator, translates to approximately two hundred and fifty MCM per year, about one hundred and seventy-five MCM being of drinking quality (Haddadin, 1995). The treaty also resolves political differences between both countries. In annex two, article four, it restores Jordan's sovereignty over wells and water systems in the Araba Valley.

Israel acquired this territory in the aftermath of the first Arab-Israeli war of 1948. It also creates a number of functional interdependencies between both countries through joint damming projects and interseasonal exchanges (Haddadin, 1995; Libiszewski, 1995). The treaty's technical aspect made this possible by maintaining the balance between partial redistribution of water resources and commitment to acquiring new water sources (Libiszewski, 1995). Therefore, it enables a fair compromise since not all the additional water gained is at Israel's expense (Libiszewski, 1995). This treaty, according to Munther Haddadin, also enforced international law principles of equitable utilisation and avoidance of appreciable harm (Haddadin, 1995; see also chapter 3.3). It can therefore be said to be the final stroke in the normalisation of relations between Israel and the Hashemite Kingdom of Jordan.

5.2.2 Water in the Israel-Palestinian Treaties

Three landmark agreements have been signed in the Israel-Palestinian negotiations. The first agreement was the Declaration of Principles (DOP) negotiated and signed in Washington on the 13th of September 1993. It specified the terms of reference for resolution of the conflict and arrangements for an interim phase of Palestinian self government to end no later than September 1998 (Elmusa, 1996). The Cairo agreement was signed on the 4th of May 1994 and it established Palestinian authority over Jericho and some parts of the Gaza Strip (Elmusa, 1996). The final agreement, commonly referred to as the Oslo II agreement, was signed on the 28th of September 1995. It extended the Palestinian Authority's limited jurisdiction to the population centres of the rest of the West Bank (Elmusa, 1996). Water remains a key issue in each of these agreements. Specifically, the central bone of contention relates to water rights as well as the equitable utilisation of water resources (Isaac, 1994; see also chapter 4.3.3). Since 1967, the state of Israel has stringently controlled

Palestinian water consumption through imposition of iron clad restrictions (see chapter 4.3.3).

Israel and the Palestinian Liberation Organisation signed the widely acclaimed Declaration of Principles on the 13th of September 1993. It is also referred to as the "Oslo Agreement" in recognition of the important mediation role played by the Norwegian government (Libiszewski, 1995). This treaty proclaims an interim period lasting five years in which the Palestinians would be given autonomy over certain spheres of control in the occupied territories, beginning with an Israeli withdrawal from Gaza and Jericho areas (Libiszewski, 1995). But to what extent does this control extend to the water resources in question during this interim period? The treaty offers no explicit answers (Isaac, 1994).

Annex three, article one of the agreement entitled "Protocol on Israeli-Palestinian Co-operation in Economic and Development Programmes" makes provision for a water development programme. The water development programme as stated in this article is to "be prepared by experts from both sides, which will also specify the mode of co-operation in the management of water resources in the West Bank and Gaza, and will include proposals for studies and plans on the water rights of each party, as well as on the equitable utilisation of joint water resources for implementation in and beyond the interim period" (see appendix III). This statement is of great significance because it defines the scope for future negotiations in its explicit reference to two issues, namely, the equitable utilisation of water and the joint management of common water resources (Elmusa, 1996).

Between 1993 and 1995, the Israelis and Palestinians engaged in further discussions to broaden the interim agreement to include the West Bank territory (Wolf, 1996). It is commonly referred to as the Oslo II agreement and was concluded on the 28th of September 1995. This agreement further reaffirms

water rights in the Declaration of Principles in annex three, article 40.1 as follows: "Israel recognises the Palestinian water rights in the West Bank". In acknowledgement of the need for joint management of water resources, articles 40.11 and 40.13 grant the Palestinians a highly confined role in the management of the water sector in the West Bank. As stipulated by the agreement, this joint water committee will have members from both sides. However, the scope of this committee's authority is restricted to the Palestinian sector only and does not extend to the settlements or boundaries encompassing water resources inside Israel (Elmusa, 1996). Article 40.14 also states that the committee's decisions must be reached by consensus. However, this appears to be tantamount to granting Israel the right to veto unfavourable decisions and hence ultimately constrains Palestinian ability to change the status quo (Elmusa, 1996). The committee's duties also include the granting of licenses for well digging and other water-related activities. Paradoxically, the consensus requirement, however, means that licensing is still in the control of Israel (Elmusa, 1996). Moreover, "joint supervision and enforcement teams" will also inspect (among other things) the compliance of Palestinian wells with pumping quotas (articles 40.16 and 40.17). These preceding provisions certainly impinge heavily on the sovereignty of a potentially independent Palestinian entity.

Another issue that relates directly to the water rights question is that of additional supplies of water during the transitional period. In this agreement, the future needs of the Palestinians in the West Bank are estimated to be between seventy and eighty MCM (article 40.6). Out of this stated amount, Israel offered the Palestinians 28.6 MCM to meet their immediate needs during the interim period in the manner detailed below (article 40.7a).

- Additional supply to Hebron and Bethlehem area, including the construction of the required pipeline - one MCM per year;
- Additional supply to Ramallah area - 0.5 MCM per year;
- Additional supply to an agreed take-off point in the Salfit area - 0.6 MCM;

- Additional supply to the Nebulus area - one MCM per year;
- The drilling of an additional well in the Jenin area - 1.4 MCM per year;
- Additional supply to the Gaza Strip - five MCM per year;

Only the capital costs of items (1) and (5) will be borne by Israel and the rest by the Palestinians (article 40.7a.7). In a sense, this arrangement does little more than reinforce Palestinian dependence on Israel's water (Elmusa, 1996; article 40.18). It is as though the Israelis are saying that any additional water will come partly if not primarily through Israel. In addition, this amount only caters for the immediate domestic needs of the Palestinians and does not take into consideration the future development of sectors such as agriculture, industry or tourism (ARIJ, 1996). This is a serious omission since the projected water demand in the industrial, domestic and agricultural sectors is expected to rise tremendously. Table 5.1 below indicates the projected water demand in the domestic, agricultural and industrial sectors of Palestine.

Table 5.1: Projected Water Demand of Various Sectors in Palestine.

Year	Domestic (MCM)	Agriculture (MCM)	Industrial(MCM)	Total (MCM)
1990	78	140	7	225
2000	263	217	18	497
2010	484	305	337	826
2020	787	415	61	1263

Source: Isaac and Selby, 1996.

By reviewing the details of the Oslo II agreement, it becomes clear that Palestinian gains are very few. In fact the 28.6 MCM per year of water which will be supplied to the Palestinians by Israel is neither a gift nor an additional resource (ARIJ, 1996). The Palestinians are paying the full cost of the five MCM of water supplied to the Gaza strip (article 40.7b.3). On the other hand, the seventeen MCM per year of water given to the West Bank originates from the

eastern aquifer which is owned by the Palestinians anyway (Isaac, 1994). The work on the drilling of new wells is yet to begin. As one observer puts it, "so far the Palestinians in the West Bank and the Gaza strip have not seen the translation of this agreement to water in their taps, but are witnessing severe shortages" (The Economist, 5 August 1995).

The Gaza-Jericho agreement extended the Palestinian right to self-government over the Gaza and Jericho areas (Isaac, 1994). Under the terms of this agreement (also known as the Cairo agreement), annex two, article B.31a states that, "all water and sewage (hereafter referred to as 'water') systems and resources in the Gaza strip and the Jericho area shall be operated, managed and developed (including drilling) by the Palestinian Authority, in a manner that shall prevent any harm to the water resources" Nevertheless, it is stated in article B.31b that the water systems currently supplying settlements and the military installation area will continue to be operated by Mekoroth Water Company (see appendix IV). Subparagraph (c) of the same states that the allocations to the settlements and military areas remain unaltered. In effect, this undermines the extension of Palestinian Authority to the areas in question since it maintains the status quo of water allocations to the Jewish settlers.

At first glance, this seems to be uncharacteristically generous of Israel given the transfer of administration over water resources to the Palestinians. However, it should be taken into consideration that these are water deficit areas (Libiszewski, 1995; Isaac, 1994). Therefore it is not surprising that Israel should want to transfer responsibility to the Palestinians. Kilot (1994:244) points out that the arithmetic of Gaza's water resources is simple: the replenishment of the aquifer is sixty million cubic metres whereas demand is one hundred to one hundred and twenty million cubic metres per year, leaving a deficit of forty million cubic metres". Indeed annex two, article two, B.31(e) states that "The Palestinian Authority shall pay Mekoroth for the cost of water supplied from Israel and for

the real expenses incurred in supplying water to the Palestinian Authority". Instead of providing for future "disengagement", this article simply reinforces Palestinian dependence on Israeli water (Isaac, 1994; Elmusa, 1996).

In conclusion, it can be said that these agreements have not been successful in tackling the water issue. In this case, the water issue is not one of insufficient supply, but of inequitable distribution aggravated by inappropriate consumption practices (Isaac, 1994). Therefore, issues of water equity, increasing water supplies and appropriate utilisation must be treated in a single formula (Isaac, 1994). However, the present agreements have deferred the important question of control and ownership of water resources in the West Bank. For example, annex three, article 40.5 of the Oslo II agreement states that issues of ownership are to be discussed in future permanent status negotiations.

Indeed, it is this sharp separation between the technical dimension of water management and the political question of water distribution that continues to impede further progress (Libiszewski, 1995). But the two issues are interrelated. Annex three, article 40.2, for example, recognises the need for both sides to develop additional water supplies. However, it fails to address the crucial question of who will bear the immense political, economic and social costs involved (Libiszewski, 1995). Moreover, in the case of the Palestinians, the existing asymmetrical distribution makes it difficult to envision exactly how this technical co-operation can ever take place (Libiszewski, 1995; Isaac, 1994; Wolf, 1995). In most cases, the parties concerned will rarely opt for a more expensive alternative to obtaining additional water if they believe they have outstanding claims to present supplies (Libiszewski, 1995). The case of Jordan provides a good example. According to the terms of the peace treaty, Israel will provide an additional fifty MCM of drinkable water annually (annex two, article 1.3). In order to obtain this additional amount without tampering with the water supplies in Israel, it was proposed that the two parties should jointly desalinate the

amount of water in question. This would be at an initial cost of one hundred and fifty million US dollars. However, the Jordanians reportedly refused this suggestion arguing that the quantity of water in question was theirs by right (The Economist, May 17 1997).

The water dispute in this case is very difficult to resolve for it has profound political implications. According to independent observers a formidable obstacle remains the question of whether powers released to the Palestinians will include just functional authority over the Arab residents or will also include territorial authority together with control over water resources (The Economist, 5 August 1995). Similarly, the controversy over the powers of a nascent Palestinian entity, its definitive borders, and the problem of Jewish settlers directly affects two central issues, namely, control and access over water resources (Libiszewski, 1995; see also chapter 4.3.3). Emerging questions yet to be resolved include the following: will Palestinian water rights include jurisdictional control over resources or just entitlement to certain water amounts? Can any increase in Palestinian water quotas be foreseen in the long-term? These remain critical questions in the current water dilemma given that Israeli officials have repeatedly stressed that Palestine will not gain additional water from the West Bank at Israel's expense (Libiszewski, 1995; Isaac, 1994). Therefore, as Isaac succinctly puts it "if the issue of water allocation continues to be addressed with an eye for might rather than justice, Palestine will remain the thirsty partner to an unjust peace which at the end of the day is no peace at all" (Isaac, 1994). In this case, the water dispute and political differences must be resolved together.

5.2.3 Prospective Regional Water-for-Peace Projects

Shuval (1992:137) argues that the only solution to the water problem in the Middle East lies in the development of a regional-water-for-peace master plan based on the principle of equitable allocations for all. In this case, equitable

allocation is defined as sufficient allotment of water for each country to adequately cater for domestic, urban, industrial and agricultural needs (Shuval, 1992:ibid). The basic essence of the plan is to alleviate water shortages in the Middle East through water imports from countries generously endowed with water resources such as Lebanon and Turkey (Wolf and Ross, 1992; Libiszewski, 1995; Starr and Stoll, 1988; Shuval, 1992). The rising rate of population growth, the rapid pace of industrialisation and over-exploited water supplies make it imperative to look for additional water supplies (De Shazo and Sutherlin, 1994). Moreover, it was estimated that the West Bank, Jordan and Israel would require an additional eight hundred MCM of water per year (Kally, cited in Shuval, 1992). Since it remains unlikely that new water sources will be discovered in the Middle East region, the options emerging are twofold, namely, water imports or desalination (Shuval, 1992). Given such circumstances, a simple reshuffling of existing, and inadequate water resources is a zero sum game with high stakes for the region (Shuval, 1992:137). However, is such a broad water strategy politically and economically viable? If yes, will such a strategy guarantee the survival of the Middle East in the light of persistent water shortages? Three such proposals will be analysed with a view to determining the potential or otherwise for enhancing regional co-operation over water resources in the Middle East.

- **Nile River - El Arish-Gaza and Negev**

The late President Anwar Sadat of Egypt initially proposed the idea that a pipeline be built linking the Nile River to the El-Arish and Gaza areas (Wolf and Ross, 1992; Shuval, 1992). The main objective of this project was to alleviate the serious water shortage currently being experienced in the Gaza area. The Gaza area has a high population density of one thousand, seven hundred and thirty people per square kilometre compared with one hundred and ninety eight in Israel (Kilot, 1994:244). Although Egypt is currently involved in a riparian dispute over the Nile waters and will eventually experience shortages of its own,

it has expressed an interest in promoting the peace process by enhancing co-operation over water resources (Shuval, 1992; see also chapter 2.4). Moreover, the Gaza region was under Egyptian leadership in the period between 1948-1967. Therefore, Egypt feels morally obligated to solve the water problem which is as a result of over pumping of aquifers during this period (Shuval, 1992). It is estimated that through this project, Israel and ultimately the Palestinians would benefit from an additional one hundred MCM of water annually (Shuval, 1992). It is also a much cheaper option to pump water from the Nile to the Negev, than from Lake Tiberias which is the current practice (Wolf and Ross, 1992). It is also estimated that approximately one billion cubic metres of water per year can be made available to alleviate water shortages in Israel, Jordan and the West Bank without significantly affecting the three main Nile riparians: Egypt, Sudan and Ethiopia (Arlosoroff, 1994). This would help speed up the resolution of the Palestinian conflict since water remains an integral aspect.

Unfortunately, even though the project is a viable one political obstacles remain formidable. Israel views this proposal with intense suspicion since Egypt implicitly ties its assistance to the resolution of the Palestinian question and the liberation of Jerusalem (Wolf and Ross, 1992). There was also virulent opposition from the Ethiopians and the Egyptians, who do not want to share this vital resource with Israel (Wolf, 1994). The countries upstream of Egypt would also have a legal say in any transfer of the Nile water (Libiszewski, 1995). Although the stated amount of one hundred MCM only represents 0.2 per cent of Egypt's water supply, deliveries to another state could result in public upheaval in a country that itself also experiences dire shortages (Libiszewski, 1995). Furthermore, the intense hostility and mistrust between Israel and its Arab neighbours makes it difficult for such a proposition to be realised. These sentiments were aptly captured by the Minister for Agriculture, Ariel Sharon, who was quoted as saying "I would hate to be in a situation in which the Egyptians

could close our taps whenever they wished" (Sharon, cited in Wolf and Ross, 1992:942).

Litani River-Galilee-West Bank-Jordan

This water project is designed to supply Israel, Jordan and the West Bank with water from Lebanon's Litani River on a commercial basis (Kally, cited in Shuval, 1992). The idea to utilise the Litani River on a commercial basis was initially suggested during the Johnston negotiations of 1955 (Wolf, 1995; Shuval, 1992; see also chapter 3.2.2). The Litani River discharges approximately five hundred million cubic metres of water into the Mediterranean Sea (Arlosoroff, 1994). Lebanon is generously endowed with water resources and the Litani River in particular is only partially used for agricultural purposes (Shuval, 1992). Through this project, at least one hundred MCM of water would be supplied annually (Shuval, 1992). The stored water from this source would be readily supplied to the Palestinians and Jordanians once the Syrian/Jordanian dam at Mukheiba and the West Ghor canal proposed during the Johnston negotiations are completed (Shuval, 1992). Even though this proposal remains a viable alternative, water deliveries are only conceivable in the context of full peace in Israel's northern border (Libiszewski, 1995). The intense bitterness and hatred accumulated over the years of Israeli occupation would not make a deal easy to accomplish (Libiszewski, 1995).

- **The Turkish Peace Pipeline**

During a state visit to the United States in February 1987, Turkish Prime Minister, Ozal Turgurt proposed the building of two pipelines from Turkey to other parts of the Middle East (Duna, 1988; De Shazo and Sutherlin, 1994). Through this project, Turkey would be able to share surplus waters from the Seyhan and

Ceyhan Rivers flowing entirely within Turkey (Duna, 1988; De Shazo and Sutherlin, 1994). These rivers discharge a total of 39.17 MCM of water, of which only 23.07 MCM is utilised for irrigation and hydroelectric purposes in Turkey. The surplus 16.1 MCM flows into the Mediterranean Sea (Duna, 1988). The western pipeline would pump an estimated 3.5 MCM of water, covering a distance of two thousand, seven hundred kilometres and extending from Amman, Jordan to the cities of Aleppo, Hama, Homs, and Damascus (Duna, 1988). The second pipeline, the Gulf pipeline would include the cities of Abu Dhabi, Dubai, the United Arab Emirates (UAE) and Kuwait. The amount of water pumped daily would be approximately 2.5 MCM and would cover a distance of three thousand, nine hundred kilometres (Duna, 1988). It is a long-term project envisioned to take eight to ten years at a total cost of twenty-one billion US dollars (Libiszewski, 1995; Duna, 1988). The water would be for domestic purposes only providing eight to nine million people with up to four hundred litres of water per person daily (Duna, 1988).

According to several scholars, the project is technically, financially and ecologically possible (Duna, 1988; De Shazo and Sutherlin, 1994). Brown and Root International also conducted a technical study that demonstrated the feasibility of this venture (De Shazo and Sutherlin, 1994). It was considered to have several benefits. Turkey, selling the water at eighty-four cents a cubic metre, could expect to earn 1.68 billion dollars a year or more (De Shazo and Sutherlin, 1994). It would also provide employment opportunities for countries such as Syria (De Shazo and Sutherlin, 1994). In the words of Prime Minister Turgurt Ozal, such "increased economic contacts will be the catalyst for the building of a common future in the region. This, in turn, would lead to a greater role for the Middle East in the global community" (Duna, 1988:122). Co-operation in this venture can also lead to the formation of regimes pooling experts and information together for the co-ordination of joint water management (De Shazo and Sutherlin, 1988). This proposal would also have the

twin benefits of bolstering present water supplies, while at the same time facilitating the type of co-operation necessary to establish lasting political stability in the region (De Shazo and Sutherlin, 1994).

However, even with such attractive benefits, political obstacles remain to be resolved. As Duna points out, "the interests that need to be reconciled are so polarised that one can easily claim that the creation of a common denominator is not possible" (1988:121). Indeed, convincing user countries, most of whom are age-old adversaries that such a project is in their long-term interests can be a very difficult task. Lowi (1995a:132) points out that technical co-operation, in the eyes of such adversaries may be viewed as a disavowal of those issues that fuel the conflict. Moreover, Turkey's generosity renews suspicion that it is attempting to attain political hegemony in the region (Kolars, 1994). Even worse, Syria, Turkey and Iraq are already engaged in conflict over the use of the Tigris and Euphrates Rivers (see chapter 2.4). Therefore, it seems unlikely that they would co-operate over a plan which they would consider an illegitimate means of curtailing water they believe is theirs by right (Libiszewski, 1995). It is also unlikely that Israel would want to become dependent on a water source crossing through many states in case a potentially hostile neighbour such as Syria cuts the supply (Libiszewski, 1995; Shuval, 1992; Anderson, 1991). These potential political obstacles have serious implications for the funding of the project. This is because even with the support of donor countries, immediate beneficiaries of the project would be expected to meet their share of the budget (De Shazo and Sutherlin, 1994).

However, even with such obstacles in view, water remains an impetus to peace. "If peace is to take hold in the region", say De Shazo and Sutherlin, "it must be founded on action and not just paper" (1994:21). Co-operation over water resources is imperative given that all the riparians are currently experiencing dire water shortages and have few alternatives at their disposal. War and the threats

of war simply are neither viable options nor cost-effective means of safeguarding vital state interests. Moreover, ample evidence exists of successful co-operation over water resources even between traditionally hostile states. The case of India and Pakistan provides a good example. Even though the dispute over the Indus River appeared intractable, the two states eventually reached an agreement. On the 19th of September 1960, both countries signed the Indus Water Treaty, which allocated the waters of the eastern rivers to India and those of western rivers to Pakistan (Caponera, 1993). Closer to the Middle East, the proposed Syria-Jordan unity dam at Mukheiba will provide additional water for agricultural and hydroelectric purposes (Shuval, 1992). This indicates that there is hope for countries in the region to co-operate over water resources and reach some form of compromise.

Nevertheless, before water can become a force for peace and lead age-old enemies to co-operate for mutual benefit, all sides must accept some measure of limitation over their territorial sovereignty (Shuval, 1992; Darwish and Bullock, 1993). The limitation of territorial sovereignty in order to protect mutual interests over shared water resources is certainly a possibility (Shuval, 1992). A good example of such co-operation is the joint management of the Rhine River that began in 1815 and which has now evolved into an International Rhine Commission involving at least ten nations (Shuval, 1992). This commission is charged with various tasks such as regulating and controlling chemical, microbial, and thermal pollution, fishing, flood control, navigation and water use (Shuval, 1992:142). In the final analysis, Shuval (1992) points out that a water-for-peace plan, far from being utopian, "can not only remove an important obstacle for peace but can provide a real motivation for peace that will enable the partners to the dispute to solve urgent problems for the social welfare and economic benefit of all" (1992:143).

The recent thaw in the Israeli-Arab relations provides a sound basis for scholars such as Shuval and De Shazo and Sutherlin to be optimistic about the prospects for water co-operation in the region. However, the history of the Middle East water conflict seems to defy the argument that mutual dependence over water resources eventually leads to a settlement of political disputes (see chapter three). Indeed, this is precisely why previous schemes such as the Johnston plan of 1955 and the Maqarin dam project of the 1970s failed (see chapter 3.2.2). As Georgiana Stevens, an assistant to Eric Johnston, was later to write:

> The Arab Government could not bring themselves to give acceptance to an arrangement that would also help Israel's development...(and) accept a plan that was tantamount to tacit acceptance of Israel's existence...thus momentum achieved during the Johnston negotiations died out" (Stevens, cited in Hosh and Isaac, 1992).

As this statement indicates, any water-sharing plan implicitly requires the prior political recognition of the other entity's rights thus indicating the difficulty of sidelining politics (Lowi, 1993). Since the highly fluid, emotionally charged environment in the Middle East is not a psychological abstraction, political issues such as identity are not easily neutralised (Lowi, 1993:125). These previous attempts at co-operation elucidate the position that political conflict hinders resolution of riparian water disputes. True to the Realist predictions, therefore, states that are adversaries in "high" politics issues of territory and security are not likely to compromise and willingly collaborate over "low" politics issues focusing on economic and social welfare concerns (see chapter 2.2).

5.3 Water Conflict in the Middle East

Many scholars such as Cooley, 1984; Tvedt, 1992 and Darwish and Bullock, 1993 have argued that water is a potential source of conflict in the Middle East region. This is in line with the hydraulic imperative theory which cites water as the primary motivator for Israeli conquests in the West Bank and Golan Heights in

the aftermath of the Arab-Israeli war of 1967 and the invasion of Lebanon in 1982 (Wolf and Ross, 1992). It is true that the history of the Middle East region has been characterised by struggles of access to and control over vital water resources (see chapter three). Contrary to such claims, however, water alone is not the primary catalyst for violence and conflict in the Middle East region. Water is only one aspect of a multifaceted conflict between Israel and her Arab neighbours. For as Libiszewski argues, "the Middle East conflict in both its inter-state Arab-Israeli and its Israeli-Palestinian dimension, is not primarily a struggle 'over water'. The conflict is over national identity and existence, territory, as well as power and national security" (1995:93). Accordingly, as an analysis of the Israeli-Palestinian conflict will demonstrate, water alone will not lead combatants to the battlefield given that it is intertwined with other political core issues. Therefore, until political core issues are resolved it remains inconclusive whether water will lead to military conflict in future. The role of water as a channel for conflict can only ultimately be understood within the context of the core political issues in dispute (Lowi, 1995b; Libiszewski, 1995).

Since water represents one facet of the multidimensional dispute between the Arab states and Israel, it is impossible to ignore the complex interrelationship between water resources, conflict, competing ideologies and nationalistic agendas which are so fundamental to the dynamics of the conflict (Hosh and Isaac, 1992:1; Wishart, 1990). At the heart of the conflict, are two central issues of land and water (El-Khoudary, 1998). Therefore, any successful settlement must address these two interrelated concerns. The deep-rooted desire for land makes the struggle over land one of the most volatile conflicts. From the late nineteenth century, it had been a political objective of Zionism to establish an independent Jewish national existence in Palestine (Libiszewski, 1995; Heller, 1983). However, the existence of an Arab national movement claiming exclusive rights to the land in question constituted the greatest challenge (Libiszewski, 1995; Heller, 1983). Therefore, in the struggle and competition for the same

piece of land by two opposing nationalistic groups lies the central trigger of the Arab-Israeli conflict (Libiszewski, 1995; Heller, 1983).

But while the struggle for water cannot be said to be an immediate cause of the conflict, it remains a factor of fundamental importance. Water was an important consideration in the delineation of political boundaries (Wolf and Ross, 1992). The famous Zionist map used by negotiators in the aftermath of the first world war defined proposed boundaries as including all the land between the Mediterranean Sea and Jordan River, north to include Lebanon's Litani River and Syria's Mount Hermon, east into Jordan up to the desert (Isaac, 1994). But as Libiszewski points out, "the water disputes that were to follow were a logical outcome of existing political and territorial conflicts, rather than part of its origins" (1995:91). What this means is that water as a channel for conflict can only be understood in the context of political core issues with deep religious and historical origins (Libiszewski, 1995; Lowi, 1995b).

Concerning water and political core issues, the Israeli-Palestinian conflict lies at the heart of the wider Arab-Israeli conflict (Selby and Isaac, 1996). Land remains a central issue in this conflict. From the very onset, ideology has been a major driving force for the Israelis who have nurtured dreams of creating a "greater Israel" and "making the desert bloom" (Heller, 1983; Wolf and Ross, 1992). As late as 1965, for example, Begin's Herut party had an election plank stating that "the right of the Jewish people to the land of Israel in its historical completeness is an eternal and inalienable right" (Internet a, 1993). Therefore, Israel expanded its borders annexing wide areas from Palestine, Syria and even south Lebanon using historical reasons to justify its occupation, namely, that more than two thousand years ago they were home to several Israeli kingdoms (Foldvary, 1997). Zionism is a form of radical nationalism based on a mythical conception of this land (Foldvary, 1997).

The aftermath of the Arab-Israeli war of 1948 further complicated the struggle over conflicting territorial claims for it led to the formation of a Jewish state, but did not make any provision for an Arab Palestine state (Heller, 1983). At the time, a war was inevitable given that there were about 1.2 million Arabs in Palestine and only six hundred thousand Jews (Internet a, 1993). Following the war, Israel further consolidated its authority in Palestine expelling at least seven hundred and fifty thousand Palestinians (Heller, 1983). This marked the beginnings of the Palestinian refugee question and the development of Palestinian nationalism as part and parcel of the quest for identity. Once again, in 1967, Israel made further incursions into "Arab lands" occupying the West Bank, Gaza Strip and East Jerusalem (Hosh and Isaac, 1996). Through one thousand, five hundred military orders, Israel seized firm control not only of existing water resources, but also seventy per cent of land in the West Bank and twenty-two per cent of the land in Gaza (Hosh and Isaac, 1996). These lands are used for the construction of Israeli settlements or have been declared closed military areas. The closed military areas alone encompass approximately one hundred thousand hectares of the West Bank (Hosh and Isaac, 1996).

In particular, the Israeli settlements on these lands intensify existing tensions even further. Both Israelis and Jews claim a strong attachment to the land in question. Extremist Jews, for example, insist that the West Bank should remain part of Israel as its historic Samaria and Judea (Foldavary, 1997). On the other hand, extremist Palestinian Arabs demand total possession of the West Bank (Foldavary, 1997). However, these controversial settlements have been established for both strategic and political reasons. Traditionally, the Labour party of Israel has favoured the establishment of strategic settlements along the Jordan River, West Bank and Golan province (Heller, 1983). On the other hand, the Likud party favours the establishment of political settlements. This is in line with their avowed policy of sounding the death knell to any Palestinian dreams of a sovereign state (Heller, 1983). It is also an objective of the Likud government

to ensure that Israel would find it impossible to cede any part of the "liberated" West Bank and Gaza to Arab sovereignty (Nashashibi, 1996). The aims of settlement belts are considered to be three fold:

- Geographic and permanent isolation and separation of Palestine from the rest of the Arab world. (Palestine is the term used to refer to the occupied territories: Gaza, West Bank and East Jerusalem).
- Halting Palestinian expansion by encircling them on all sides.
- Exploiting the land, natural and human resources of the territories in favour of the Zionist settlers, and to turn those territories into a captive market for Israeli goods and prevent their economic development by encouraging Palestinians to emigrate (Nashashibi, 1996).

At present, there are eighteen Israeli settlements in the Gaza area and another one hundred and eighty-nine in the West Bank (Hosh and Isaac, 1996). Israeli settlers also consume unsustainable amounts of water. While the average per capita Palestinian water consumption for all sectors is between one hundred and seven and one hundred and fifty-six cubic metres per year, an Israeli settler uses between six hundred and forty and one thousand and eighty cubic metres per year (Hosh and Isaac, 1996). Settlers also consume three hundred and sixty-eight litres per capita per day, in stark contrast to the Palestinians who consume eighty-eight litres which is an amount below the required one hundred litres for healthy living (Lowi, 1995a). Owing to stringent policies governing the licensing, operation and administration of wells, Palestinian consumption is restricted between one hundred and twenty-five to one hundred and thirty MCM out of an estimated six hundred and fifty MCM of available water (Lowi, 1995a).

Besides the land and water issues, the final status of Jerusalem remains a fundamental aspect of the conflict. Jerusalem possesses special political, economic and religious status for people around the world, and in particular for its residents the Israelis and Palestinians (Selby and Isaac, 1996). For Israelis,

Jerusalem is the well spring of their identity and for the Palestinians it represents an essential part of their history (Heller, 1983). Given the immense historical and religious importance of Jerusalem, neither side is willing to renounce its claims of this city. Therefore, Israel has begun a campaign to create an exclusive Jewish population in Jerusalem. Demographic balance, in the ensuing competition for land, is perceived in the context of national security and existence (Libiszewski, 1995). But despite these measures, East Jerusalem remains the heart of the West Bank. It is the largest centre with a population of over one hundred and ten thousand Arab-Palestinian residents (Heller, 1983). Since the claims of both sides are mutually exclusive, the issue has been deferred to the permanent status negotiations.

This analysis of the Palestinian conflict clearly demonstrates that water is only one aspect of a diverse conflict. The water issue therefore can only be resolved in the context of regional negotiations addressing political core issues such as land, the final status of Jerusalem and the refugee question. But even then, it remains very difficult to resolve. Unification of Arab-Palestinian territory under Israel would in effect mean the elimination of a Zionist dream of creating an exclusive Jewish state (Heller, 1983; Internet a, 1993). Creating two states of Palestine and Israel is also complicated. The fate of over two hundred thousand Jewish settlers in occupied territories would have to be decided upon (Libiszewski, 1995). The legal-political issue of water rights and ownership of ground water resources supplying both Israel and the occupied territories would also have to be decided upon. The economies of both Israel and the West Bank are interconnected and increasingly difficult to separate (Heller, 1983). This is especially because Israel provides a major source of employment for Palestinians living in the West Bank and Gaza. For example, by 1980, a survey of the labour force indicated that some seventy-two thousand West Bank and Gaza residents were working in Israel (Heller, 1983). This case demonstrates that it is very difficult to isolate water alone as the sole variable that can lead to military

conflict in the Middle East. Water alone cannot be cited as the primary catalyst for violence since it is embedded in other politically volatile issues such as land. Therefore, only when the political core issues are resolved can one conclusively decide whether increased interdependence over water will lead to conflict or co-operation?

5.4 Conclusion

From the onset of this chapter, a central question was posed: can co-operation over water, a "low" politics issue, be attainable in the absence of resolving "high" politics issues of territory and security? Two aspects, namely, the treaties concluded thus far in the peace process as well as potential regional water-for-peace plans were critically assessed. As it has been illustrated in chapter 4.3.1, the Israel-Jordan water dispute displayed typical zero sum characteristics and hence was easily resolvable outside any other strategic concerns. Therefore, the Treaty of Peace concluded between the two countries addresses the contentious issue of water allocations and provides a framework for future co-operation in the field of water. While significant progress in resolving the Israel-Jordan water dispute has been made, the Syrian position of non-co-operation ultimately remains a formidable obstacle to the creation of a basin-wide plan. On the other hand, limited progress in addressing the water dispute between the Israelis and the Palestinians has been made in the treaties concluded thus far. In this instance, the water dispute can not be effectively resolved in isolation from political core issues. Similarly, the viability of prospective water-for-peace plans was assessed. Although the Middle East is in dire need of additional water, political issues remain the most formidable obstacles to the eventual realisation of a regional water plan.

The potential for water conflict was also assessed. It is too simplistic to claim that water alone will lead combatants to the battlefield in the Middle East. Such

assumptions are erroneous because they fail to take into consideration the dynamics of the Arab-Israeli conflict. For even in previous wars fought in the region, water cannot be cited as the sole reason for their initiation (Wolf, 1996). In these cases, water was only a secondary, military target largely influenced by events on the ground such as border skirmishes, which have deep historic and religious origins (Libiszewski, 1995). The Israeli-Palestinian case in particular was used to demonstrate just how complex the water dispute in the Middle East really is. It is simply not possible to isolate water as an independent variable and a primary catalyst for violence. Many other additional political issues must be taken into consideration. While not totally dismissing the prospects for water co-operation in the Middle East region, history suggests that resolving political core issues still remains the fundamental first step. In the words of Lowi, (1995a:132), "states that are engaged in a protracted conflict--especially one that involves such visceral issues as identity, recognition of identity, territorial claims and sovereignty are often reluctant to collaborate on seemingly technical matters when larger political concerns remain unresolved". Until this essential first step is taken, it remains inconclusive whether greater interdependence over water ultimately results in co-operation or simply renews suspicion and the potential for contention?

CHAPTER SIX

CONCLUSION

> A passive governmental approach to Middle East water security will doom any future peace initiative. Middle East hatred is bountiful but Middle East water is at a point of no return. It is vital to the economic and political survivability of the region to sit down at the negotiating table. Indeed a creative response to water co-operation could forge a new path to peace" (Starr, 1991:36).

The Chinese word for crisis is made up of two ideographs: danger and opportunity. This aptly summarises the present water situation in the Middle East. As water scarcity reaches critical levels owing to rising populations and a rapid pace of industrialisation the emerging options remain twofold: co-operation or war. Regional co-operation over water resources, however, remains the most sustainable option for the future. Since the flow of water does not recognise political boundaries, it constitutes a classic example of a problem, which cannot be effectively resolved in any given national framework.

Given this scenario, however, two central questions emerge in the theoretical debates offered by the schools of Realism and complex interdependence: can water disputes, considered "low" politics issues, be resolved ahead of the "high" politics issues of territory and security? If they can, will water provide the framework within which these contentious issues can be resolved leading to the building of a common future for the region? On the one hand, complex interdependence theorists argue that mutual dependence over issues such as water can ultimately propel even hostile countries to co-operate for collective benefit. In contrast, however, the essence of the Realist argument is that a clear dichotomy exists between "high" and "low" politics issues. Accordingly, "high" politics issues of territory and security cannot be subordinated to "low" politics

issues of economic and social welfare. In integrating these two approaches, the thesis has suggested that only a simultaneous approach addressing both "high" and "low" politics issues is likely to provide a lasting framework in which regional co-operation over water can be realised.

However, water remains an important non-military threat in the new security agenda. With the demise of the cold war, security is now considered to be a holistic phenomenon conceptualised in vertical (individuals, groups, states) and horizontal levels embracing political, military, economic, environmental and societal challenges. Specifically, the emerging global water crisis clearly demonstrates that the link between water and security can no longer be ignored. While the new security agenda opens up a pandora's box of emerging challenges, the case of the Middle East still makes it difficult to discard the hierarchy of priority security issues advocated by the Realists. In this region, the link between water and politics is indispensable hence the difficulty of resolving riparian water disputes in isolation.

What lessons emerge from the history of water conflict and co-operation in the Middle East region? The fundamental lesson remains that it is impossible to de-link the water issue from the wider inter-state conflicts plaguing the region. From the earliest times, water has played a fundamental role in shaping the history of the Middle East. Given the scarcity of water resources, competition for access to and control over water resources has often been intense. The crucial role of water in enhancing the political and economic capabilities of states means that water development in the Middle East has often been perceived in the context of security and survival. In such circumstances, water has been the source of occasional conflict since any attempt by a state to augment its own water resources is viewed as a threat to the existing status quo. Since water remains intertwined with the wider political conflict, all past attempts at co-operation have fallen victim to inter-state political rivalry. The experience of

both the Johnston plan and the Maqarin dam project suggests that two central issues at the core of the political conflict are access to land as well as water resources and the thorny questions of legitimacy and recognition (Lowi, 1995b). For example, in the Johnston plan negotiations, the technical issue of water allocations seemed trivial in comparison with the fact that the Arab states at the time did not recognise the state of Israel. In this case, the Arab states remained weary of endorsing any agreement that could be misconstrued as accepting Israel's right to exist. Similarly, in the instance of the Maqarin dam project, a major hurdle remained the fact that Syria refused to participate in any water-sharing scheme no matter how urgent, that might be construed as strengthening the "enemy" Israel. This suggests that regional political conflict often blocks attempts towards attaining co-operation over water resources. This is especially the case when the political relations between states in a given international basin persist within the context of non-recognition. Implicit in any water-sharing scheme is the formal acknowledgement that a given political entity has rights and legitimate needs.

Therefore, to date the most formidable obstacle towards attaining regional co-operation over water resources remains the lack of a basin-wide authority. This brings to the fore yet another fundamental lesson, namely, that factors such as relative military power and need remain critical to the realisation of any co-operative regime. In the case of the Jordan River, for example, only Jordan and Israel are solely dependent on this water resource. Therefore reaching a basin-wide agreement with other riparians such as Lebanon and Syria generously endowed with additional water resources remains extremely difficult. However, even without a co-operative regime, Israel remains the dominant power given its undisputed military superiority. This means that it is in a better position to manipulate water resources to its own advantage unlike Jordan, which lacks military power. While the international law principle of equitable utilisation provides a basis on which such co-operation can be based, issues pertaining to

what constitutes equitable allocations and the legal ownership of the water resources in question need to be resolved. Additionally, the strong nationalistic stance adopted by Middle East governments provides another invaluable lesson, namely, that a complex interrelationship exists between water, on the one hand, and issues of nationalism and ideology. The intense ideological connotation embodied in water development means that acquisition of land and by extension water resources is intertwined with defence imperatives. Therefore, water data necessary for the success of any co-operative regime remains scarce while at the same time being viewed by extension as a source of power. This historical overview suggests that in the context of water scarcity and an absence of trust amongst the various states, water is often viewed as a political weapon rather than as a spur to co-operation.

In the nineties, there has been an apparent shift in emphasis from water conflict to water co-operation. This shift can be attributed to two major events, namely, severe drought afflicting the entire region and geopolitical events in the aftermath of the cold war and Gulf war. These developments availed Middle East countries the opportunity to reassess their attitudes towards the state of Israel. On the 30th of October 1991, the first ever face to face peace talks between Israel and the Arab states marked the commencement of the Middle East peace process. Water was cited as a substantial issue of mutual concern and hence features prominently in both the bilateral and multilateral negotiations of the peace process. This raised the question of whether riparian water disputes can be effectively resolved outside the attainment of broader political co-operation between states in the Middle East region.

In the bilateral negotiations, Israel negotiates with each of its neighbours--Jordan, Syria, Lebanon and Palestine individually. In each case, the water dispute revealed the stark differences inherent in each set of bilateral negotiations. The central bone of contention in the Israel-Jordan negotiations

was the inequitable allocation of water from the Yarmuk and Jordan River systems. The water dispute revealed typical zero sum characteristics: if Israel obtains more water, Jordan gains less and vice versa. This was in addition to other factors such as disparity of power ratios between Israel and Jordan as well as the disadvantaged geographic position of Jordan. Since this water dispute did not commingle with other politicised issues, it was easily resolvable outside other extraneous concerns. It also revealed that factors such as the need for unrestricted access to water resources and lack of military power can often be powerful motivation for adversaries to seek some form of co-operation. While this remains a laudable development, the interrelated nature of the water disputes makes it imperative to establish a basin-wide regime as the only long-term solution to the acute water crisis.

Unlike the Israel-Jordan case, however, the water dispute with the cases of Israel-Syria and Israel-Lebanon persists as part and parcel of a wider security dilemma. In both instances, the water issue seems to carry less weight in comparison to territorial concerns such as the question of sovereignty over the Golan Heights for Syria and the withdrawal of Israeli troops from southern Lebanon in the case of Lebanon. Moreover, conflictual political relations between the three countries--Israel, Syria and Lebanon have complicated the negotiations further. Specifically, Syria once considered the cradle of Arab nationalism pursues an official policy of non-recognition of the state of Israel. In addition, Syria wields immense power over Lebanese decision-making processes and hence reaching an agreement with Lebanon ultimately depends upon progress being made in the Israel-Syria negotiations. These cases demonstrate that "high" politics conflict usually impedes any form of technical collaboration over "low" politics issues such as water. In the Israel-Palestinian case, the water dispute is more than a simple demand for the reallocating of water resources. In this case, the water dispute is related to the struggle for land and national identity embodied in the search for statehood. Since the water dispute in this

case is determined by political circumstances alone, it remains very difficult to resolve. Therefore, the thesis has suggested that in the current Middle East peace process addressing the water issue in its entirety demands that both riparian disputes and political core issues be resolved simultaneously. For any political settlement to be successful it must address the issue of water and likewise the resolution of the water question must inevitably deal with constraints imposed by regional politics (Wolf, 1994).

The multilateral negotiations are intended to buttress bilateral negotiations. Five main issues form the basis of the agenda, namely, refugees, water, environmental degradation, economic development and arms control. These issues constitute problems common to the region as a whole and can only be resolved through collaboration and not confrontation. The multilateral negotiations have offered the distinct opportunity for relatively free dialogue to take place enabling parties to vent past grievances and present their views on the future of the Middle East. The multilaterals have also facilitated the normalisation of relations between Israel and the wider Arab world since they involve several North African countries in addition to the donor community. In these negotiations, the Multilateral Water Resources Working Group has been created specifically to deal with water-related issues. These largely non-political issues of mutual interest include water data, enhancing water supply, water management and regional co-operation. It has also been very useful in providing ideas, which are currently being incorporated by joint water committees established in various treaties concluded so far. Additionally, the Working Group has initiated projects albeit of a limited nature which are an important springboard towards facilitating multilateral co-operation in the field of water. A good example of such an initiative is the establishment of a desalination research and technology centre in Oman.

However, it has failed to adequately address the long-term issues of contention. This means that the idea of a regional water plan has been stymied from the beginning. Lebanon and Syria, for example, have boycotted the multilateral talks arguing that their participation is premised on the resolution of territorial and security concerns. Israel has also refused to address the critical legal-political question of water rights arguing that this contentious issue falls within the framework of the bilateral negotiations. It has also been difficult to encourage the formulation of principles for integrated watershed management since issues of water quantity, quality and rights fall within the purview of different Working Groups. Therefore, even in the multilateral negotiations the lesson emerging echoes that of the bilateral negotiations, namely, that the Working Group's task of improving water management must simultaneously address the potentially explosive legal-political question of water rights. Addressing the legal-political question of water rights remains pivotal to the attainment of co-operation in the field of water. There is also need to encourage the participation of Lebanon and Syria in future if a regional water plan is to become a tangible reality.

Pursuing this argument further, what are the prospects for water conflict and co-operation in the Middle East region? The treaties concluded thus far in the peace process as well as prospective regional water-for-peace plans are the logical avenues through which co-operation over water can take place. In the Israel-Jordan case, it can be said that the Treaty of Peace concluded between the two countries successfully resolved existing riparian disputes over the allocation of the Jordan-Yarmuk waters. Besides addressing the contentious issue of inequitable water allocations, it also provides the framework for future co-operation between the two countries. A number of damming projects, as well as interseasonal exchanges are examples of co-operation envisioned in the treaty. It can therefore be said to be the final stroke in the normalisation of relations between Israel and the Hashemite Kingdom of Jordan. Limited progress, however, has been made in the Israeli-Palestinian case. The sharp distinction

between the technical dimension of water management and the political question of water distribution continues to impede further progress (Libiszewski, 1995). The treaties concluded thus far have therefore failed to resolve the water dispute in its entirety given its profound political implications for the state of Israel. The various regional water-for-peace plans were also analysed given that water remains an impetus to peace and that the Middle East region is in dire need of additional water supplies. What clearly emerged, however, is that regional political conflict remains the most formidable obstacle to their eventual realisation. As Lowi (1993) eloquently argues, it is simply not possible to treat the highly fluid environment in the Middle East as a psychological abstraction for volatile issues such as identity are not easily neutralised. Therefore, the thesis has suggested that any co-operation over water resources requires that considerable progress be made in resolving political core issues and not vice versa. True to the Realist predictions, therefore, "high" politics conflict often impedes technical collaboration over "low" politics issues of economic and social welfare.

In assessing the prospects for water wars emerging in the region, it has been argued that water alone will not lead to armed conflict. The water issue manifests itself as being part and parcel of the wider Arab-Israeli conflict, not primarily a struggle over water. At the core of the Arab-Israeli conflict remain issues relating to land, water, competing nationalisms and ideologies. Therefore, the role of water as a channel for conflict can only be understood in the context of these larger political core issues in dispute (Libiszewski, 1995). Specifically, the Israeli-Palestinian dimension of the Arab-Israeli conflict was used to demonstrate the fact that water is only one aspect of a multifaceted conflict between Israel and her Arab neighbours. Therefore, the thesis has suggested that until political core issues are resolved, it remains inconclusive whether increased interdependence over water will lead to co-operation or simply renew suspicion and the potential for dissension?

The issue of water remains a decisive factor in the Middle East peace process given its profound security implications for the region as a whole. Water security is an issue of real concern given rising demographic patterns as well as its indispensable role in the economic development of sectors such as industry and agriculture. When a political dimension is added to the problem, however, the possibility of conflict becomes quite real given pre-existing tensions and rivalries between Middle Eastern countries. While the state of Israel may be willing to entertain such an option given its undisputed military superiority in the region, weaker Arab states such as Jordan are unlikely to consider war a viable alternative. Not only are the costs of war immensely high, but it would not be a long-term solution towards augmenting dwindling, over-exploited water resources. Given this scenario, water is likely to become an important facilitator of multilateral co-operation in the Middle East and perhaps even lead to the formal recognition of the state of Israel by other Arab states in the region. This is likely to prevail given that the success of any co-operative regime requires the participation and co-operation of the most powerful state in this case Israel. With the peace process at a critical juncture, this historic moment to establish a co-operative water regime must be seized now. There can be no room for delay for water remains a mutual, interconnected need and the quest for water, symbolic of life itself, can cultivate peace as easily as warfare.

APPENDIX I: THE BILATERAL NEGOTIATIONS ISRAEL-JORDAN TRACK COMMON AGENDA SIGNED ON THE 14TH OF SEPTEMBER 1993. Source: Israel Ministry of Foreign Affairs, Information Service Gopher: http://www.israel-info.gov.il

A. Goal: The achievement of just, lasting and comprehensive peace between the Arab States, the Palestinians and Israel as per the Madrid invitation.
B. Components of Israel-Jordan Peace Negotiations:
    1. Searching for steps to arrive at a state of peace based on Security Council Resolutions 242 and 338 in all their aspects.
    2. Security:
        a) Refraining from actions or activities by either side that may adversely affect the security of the other or may prejudge the final outcome of negotiations.
        b) Threats to security resulting from all kinds of terrorism.
        c) Mutual commitment not to threaten each other by any use of force and not to use weapons by one side against the other including conventional and non-conventional mass destruction weapons. ii Mutual commitment, as a matter of priority and as soon as possible, to work towards a Middle East free from weapons of mass destruction, conventional and non-conventional weapons; this goal is to be achieved in the context of a comprehensive, lasting and stable peace characterised by the renunciation of the use of force, reconciliation and openness. Note: The above (item c-ii) may be revised in accordance with relevant agreements to be reached in the Multilateral Working Group on Arms Control and building measures.
        d) Mutually agreed upon security arrangements and security confidence building measures.
    3. Water:
        a) Securing the rightful water shares of the two sides.
        b) Searching for ways to alleviate water shortage.
    4. Refugees and Displaced Persons:
        a) Achieving an agreed just solution to the bilateral aspects of the problem of refugees and displaced persons in accordance with international law.
    5. Borders and Territorial Matters: Settlement of territorial matters and agreed definitive delimitation and demarcation of the international boundary between Israel and Jordan with reference to the boundary definition under the Mandate, without prejudice to the status of any territories that came under Israeli Military Government control in 1967.

Both parties will respect and comply with the above international boundary.

6. Exploring the potentials of future bilateral co-operation, within a regional context where appropriate, in the following:
   (a) Natural Resources:--Water, energy and environment--Rift Valley development.
   b) Human Resources:--Demography, Labour, Health, Education and Drug control.
   c) Infrastructure:--Transportation: land and air, Communication.
   d) Economic areas including tourism.
7. Phasing the discussion, agreement and implementation of the items above including appropriate mechanisms for negotiations in specific fields.
8. Discussion on matters related to both tracks to be decided upon in common by the two tracks.

C. It is anticipated that the above endeavour will ultimately, following the attainment of mutually satisfactory solutions to the elements of this agenda, culminate in a peace treaty.

APPENDIX II: WATER-RELATED ARTICLES IN THE TREATY OF PEACE BETWEEN THE STATE OF ISRAEL AND THE HASHEMITE KINGDOM OF JORDAN OCTOBER 26 1994. Source: Israel Foreign Ministry, Information Service Gopher: http://www.israel-info.gov.il

ARTICLE SIX

WATER

With view to achieving a comprehensive and lasting settlement of all the water problems between them:

1. The Parties agree mutually to recognise the rightful allocations of both of them in Jordan River and Yarmouk River waters and Araba/Arava ground water in accordance with agreed acceptable principles, quantities and quality as set out in Annex II, which shall be fully respected and complied with.
2. The Parties, recognising the necessity to find a practical, just and agreed solution to their water problems and with the view that the subject of water can form the basis for the advancement of co-operation between them, jointly undertake to ensure that the management and development of their water resources do not, in any way, harm the water resources of the other Party.
3. The Parties recognise that their water resources are not sufficient to meet their needs. More water should be supplied for their use through various methods, including projects of regional and international co-operation.
4. In light of paragraph 3 of this Article, with the understanding that co-operation in water-related subjects would be to the benefit of both Parties, and will help alleviate their water shortages, and that water issues along their entire boundary must be dealt with in their totality, including the possibility of trans-boundary water transfers, the Parties agree to search for ways to alleviate water shortage and to co-operate in the following fields:
    1. development of existing and new water resources, increasing the water availability including co-operation on a regional basis as appropriate, and minimising wastage of water resources through the chain of their uses;
    2. prevention of contamination of water resources;
    3. mutual assistance in the alleviation of water shortages;
    4. transfer of information and joint research and development in water-related subjects, and review of the potentials for enhancement of water resources development and use.

5. The implementation of both Parties' undertakings under this Article is detailed in Annex II.

ANNEX II WATER-RELATED MATTERS

Pursuant to Article six of the Treaty, Israel and Jordan agreed on the following Articles on water-related matters:

ARTICLE I: ALLOCATION

1. Water from the Yarmouk River
    a) Summer period - 15th May to 15th October of each year. Israel pumps (12) MCM and Jordan gets the rest of the flow.
    b) Winter period - 16th October to 14th May of each year. Israel pumps (13) MCM and Jordan is entitled to the rest of the flow subject to provisions outlined hereinbelow: Jordan concedes to Israel pumping an additional (20) MCM from the Yarmouk in winter in return for Israel conceding to transferring to Jordan during the summer period the quantity specified in paragraphs (2.a) below from the Jordan River.
    c) In order that waste of water will be minimised, Israel and Jordan may use, downstream of point 121/Adassiya Diversion, excess flood water that is not usable and will evidently go to waste unused.

2. Water from the Jordan River
    a) Summer period - 15th May to 15th October of each year. In return for the additional water that Jordan concedes to Israel winter in accordance with paragraph (1.b) above, Israel concedes to transfer to Jordan in the summer period (20) MCM from the Jordan river directly upstream from Deganya gates on the river. Jordan shall pay the operation and maintenance cost of such transfer through existing systems (not including capital cost) and shall bear the total cost of any new transmission system. A separate protocol shall regulate this transfer.
    b) Winter period - 16th October to 14th May of each year. Jordan is entitled to store for its use a minimum average of (20) MCM of the floods in the Jordan River south of its confluence with the Yarmouk (as outlined in Article II below). Excess floods that are not usable and that will otherwise be wasted can be utilised for the benefit of the two Parties including pumped storage off the course of the river.
    c) In addition to the above, Israel is entitled to maintain its current uses of the Jordan River waters between its confluence with the Yarmouk and its confluence with Tirat Zvi/Wadi Yabis. Jordan is entitled to an annual quantity equivalent to that of Israel,

provided, however, that Jordan's use will not harm the quantity or quality of the above Israeli uses. The Joint Water Committee (outlined in Article VII below) will survey existing uses for documentation and prevention of appreciable harm.

d) Jordan is entitled to an annual quantity of (10) MCM of desalinated water from the desalination of about (20) MCM of saline springs now diverted to the Jordan River. Israel will explore the possibility of financing the operation and maintenance cost of the supply to Jordan of this desalinated water (not including capital cost). Until the desalination facilities are operational, and upon the entry into force of the Treaty, Israel will supply Jordan (10) MCM of Jordan River water from the same location as in (2.a) above, outside the summer period and during dates Jordan selects, subject to the maximum capacity of transmission.

3. Additional Water Israel and Jordan shall co-operate in finding sources for the supply to Jordan of an additional quantity of (50) MCM/year of water of drinkable standards. To this end, the Joint Water Committee will develop, within one year from the entry into force of the Treaty, a plan for the supply to Jordan of the abovementioned additional water. This plan will be forwarded to the respective governments for discussion and decision.
4. Operation and Maintenance
    a) Operation and maintenance of the systems on Israeli territory that supply Jordan with water, and their electricity supply, shall be Israel's responsibility. The operation and maintenance of the new systems that serve only Jordan will be contracted at Jordan's expense to authorities or companies selected by Jordan.
    b) Israel will guarantee easy unhindered access of personnel and equipment of such new systems for operation and maintenance. This subject will be further detailed in the agreements to be signed between Israel and the authorities or companies selected by Jordan.

ARTICLE II: STORAGE

1. Israel and Jordan shall co-operate to build a diversion/storage dam on the Yarmouk River directly downstream of the point 121/Adassiya Diversion. The purpose is to improve the diversion efficiency into the King Abdullah Canal of the water allocation of the Hashemite Kingdom of Jordan, and possibly for the diversion of Israel's allocation of the river water. Other purposes can be mutually agreed.

2. Israel and Jordan shall co-operate to build a system of water storage on the Jordan River, along their common boundary, between its confluence with the Yarmouk River and its confluence with Tirat Zvi/Wadi Yabis, in order to implement the provision of paragraph (2.b) of Article I above. The storage system can also be made to accommodate more floods; Israel may use up to (3) MCM/year of added storage capacity.
3. Other storage reservoirs can be discussed and agreed upon mutually.

ARTICLE III: WATER QUALITY AND PROTECTION

1. Israel and Jordan each undertake to protect, within their own jurisdiction, the shared waters of the Jordan and Yarmouk Rivers, and Arava/Araba groundwater, against any pollution, contamination, harm or unauthorised withdrawals of each other's allocations.
2. For this purpose, Israel and Jordan will jointly monitor the quality of water along their boundary, by use of jointly established monitoring stations to be operated under the guidance of the Joint Water Committee.
3. Israel and Jordan will each prohibit the disposal of municipal and industrial wastewater into the course of the Yarmouk or the Jordan Rivers before they are treated to standards allowing their unrestricted agricultural use. Implementation of this prohibition shall be completed within three years from the entry into force of the Treaty.
4. The quality of water supplied from one country to the other at any given location shall be equivalent to the quality of the water used from the same location by the supplying country.
5. Saline springs currently diverted to the Jordan River are earmarked for desalination within four years. Both countries shall co-operate to ensure that the resulting brine will not be disposed of in the Jordan River or in any of its tributaries.
6. Israel and Jordan will each protect water systems in its own territory, supplying water to the other, against any pollution, contamination, harm or unauthorised withdrawal of each other's allocations.

ARTICLE IV: GROUND WATER IN THE EMEK HA'ARAVA/WADI ARABA

1. In accordance with the provisions of this Treaty, some wells drilled and used by Israel along with their associated systems fall on the Jordanian side of the borders. These wells and systems are under Jordan's sovereignty. Israel shall retain the use of these wells and systems in the quantity and quality detailed an Appendix to this Annex, that shall be jointly prepared by 31s^{t} December 1994. Neither country shall take, nor cause to be taken, any measure that may appreciably reduce the yields of quality of these wells and systems.

2. Throughout the period of Israel's use of these wells and systems, replacement of any well that may fail among them shall be licensed by Jordan in accordance with the laws and regulations then in effect. For this purpose, the failed well shall be treated as though it was drilled under license from the competent Jordanian authority at the time of its drilling. Israel shall supply Jordan with the log of each of the wells and the technical information about it to be kept on record. The replacement shall be connected to the Israeli electricity and water systems.
3. Israel may increase the abstraction rate from wells and systems in Jordan by up to (10) MCM/year above the yields referred to in paragraph one above, subject to a determination by the Joint Water Committee that this undertaking is hydrogeologically feasible and does not harm existing Jordanian uses. Such increase is to be carried out within five years from the entry into force of the Treaty.
4. Operation and Maintenance
    a) Operation and maintenance of the wells and systems on Jordanian territory that supply Israel with water, and their electricity supply shall be Jordan's responsibility. The operation and maintenance of these wells and systems will be contracted at Israel's expense to authorities or companies selected by Israel.
    b) Jordan will guarantee easy unhindered access of personnel and equipment to such wells and systems for operation and maintenance. This subject will be further detailed in the agreements to be signed between the authorities or companies selected by Israel.

ARTICLE FIVE: NOTIFICATION AND AGREEMENT

1. Artificial changes in or of the course of the Jordan and Yarmouk Rivers can only be made by mutual agreement.
2. Each country undertakes to notify the other, six months ahead of time, of any intended projects which are likely to change the flow of either of the above rivers along their common boundary, or the quality of such flow. The subject will be discussed in the Joint Water Committee with the aim of preventing harm and mitigating adverse impacts such projects may cause.

ARTICLE VI: CO-OPERATION

1. Israel and Jordan undertake to exchange relevant data on water resources through the Joint Water Committee.

2. Israel and Jordan shall co-operate in developing plans for purposes of increasing water supplies and improving water use efficiency, within the context of bilateral, regional or international co-operation.

ARTICLE VII: JOINT WATER COMMITTEE

1. For the purpose of the implementation of this Annex, the Parties will establish a Joint water Committee comprised of three members from each country.
2. The Joint Water Committee will, with the approval of the respective governments, specify its work procedures, the frequency of its meetings, and the details and its scope of work. The Committee may invite experts and/or advisors as may be required.
3. The Committee may form, as it deems necessary, a number of specialised sub-committees and assign them technical tasks. In this context, it is agreed that these sub-committees will include a northern sub-committee and a southern sub-committee, for the management on the ground of the mutual water resources in these sectors.

APPENDIX III: WATER-RELATED ARTICLES IN THE DECLARATION OF PRINCIPLES ON INTERIM SELF-GOVERNMENT ARRANGEMENTS. Source: Israel Foreign Ministry Information Service Gopher: http://www.israel-info.gov.il

ANNEX III: PROTOCOL ON ISRAELI-PALESTINIAN CO-OPERATION IN ECONOMIC AND DEVELOPMENT PROGRAMS.

The two sides agree to establish an Israeli-Palestinian continuing Committee for Economic Co-operation, focusing, among other things, on the following:

1. Co-operation in the field of water, including a Water Development Programme prepared by experts from both sides, which will also specify the mode of co-operation in the management of water resources in the West bank and Gaza Strip, and will include proposals for studies and plans on water rights of each party, as well as on the equitable utilisation of joint water resources for implementation in and beyond the interim period.

ANNEX III: PROTOCOL CONCERNING CIVIL AFFAIRS INDEX

ARTICLE 40

WATER AND SEWAGE

On the basis of good-will, both sides have reached the following agreement in the sphere of Water and Sewage Principles

1. Israel recognises the Palestinian water rights in the West Bank. These will be negotiated in the permanent status negotiations and settled in the Permanent Status Agreement relating to the various water resources.
2. Both sides recognise the necessity to develop additional water for various uses.
3. While respecting each side's powers and responsibilities in the sphere of water and sewage in their respective areas, both sides agree to co-ordinate the management of water and sewage resources and systems in the West Bank during the interim period, in accordance with the following principles:
    a) Maintaining existing quantities of utilisation from the resources, taking into consideration the quantities of additional water for the Palestinians from the Eastern Aquifer and other agreed sources in the West Bank as detailed in this Article.
    b) Preventing the deterioration of water quality in water resources.
    c) Using the water resources in a manner which will ensure sustainable use in the future, in quantity and quality.

d) Adjusting the utilisation of the resources according to variable climatological and hydrological conditions.
e) Taking all necessary measures to prevent any harm to water resources, including those utilised by the other side.
f) Treating, reusing or properly disposing of all domestic, urban, industrial, and agricultural sewage.
g) Existing water and sewage systems shall be operated, maintained and developed in a co-ordinated manner, as set out in this Article.
h) Each side shall take all necessary measures to prevent any harm to the water and sewage systems in their respective areas.
i) Each side shall ensure that the provisions of this Article are applied to all resources and systems, including those privately owned or operated, in their respective areas.

4. Transfer of Authority

The Israeli side shall transfer to the Palestinian side, and the Palestinian side shall assume, powers and responsibilities in the sphere of water and sewage in the West Bank related solely to Palestinians, that are currently held by the military government and its Civil Administration, except for the issues that will be negotiated in the permanent status negotiations, in accordance with the provisions of this Article.

5. The issue of ownership of water and sewage related infrastructure in the West Bank will be addressed in the permanent status negotiations.

Additional Water

6. Both sides have agreed that the future needs of the Palestinians in the West Bank are estimated to be between 70-80 MCM/year.
7. In this framework, and in order to meet the immediate needs of the Palestinians in fresh water for domestic use, both sides recognise the necessity to make available to the Palestinians during the interim period a total quantity of 28.6 MCM/year, as detailed below:

a. Israeli Commitment

1. Additional supply to Hebron and the Bethlehem area, including the construction of the required pipeline - 1 MCM/year.
2. Additional supply to Ramallah area - 0.5 MCM/year.
3. Additional supply to ran agreed take-off point in the Salfit area - 0.6 MCM/year.
4. Additional supply to the Nablus area - I MCM/year.
5. The drilling of an additional well in the Jenin area - 1.4 MCM/year.
6. Additional supply to the Gaza Strip - 5 MCM/year.

7. The capital costs of items (1) and (5) above shall be borne by Israel.

b. Palestinian Commitment

1. An additional well in the Nablus area - 2.1 MCM/year.
2. Additional supply to the Hebron, Bethlehem and Ramallah areas from the Eastern Aquifer or other agreed sources in the West Bank - 17 MCM/year.
3. A new pipeline to convey the 5 MCM/year from the existing Israeli water system to the Gaza Strip. In the future, this quantity will come from desalination in Israel.
4. The connecting pipeline from the Salfit take-off point to Salfit.
5. The connection of the additional well in the Jenin area to the consumers.
6. The remainder of the estimated quantity of Palestinian needs mentioned in paragraph 6 above, over the quantities mentioned in this paragraph (41.4 - 51.4 MCM/year), shall be developed by the Palestinians from the Eastern Aquifer and other agreed sources in the West Bank.
7. The Palestinians will have the right to utilise this amount for their needs (domestic and agricultural).
8. The provisions of paragraphs 6-7 above shall not prejudice the provisions of paragraph 1 to this Article.
9. Israel shall assist the Council in the implementation of the provisions of paragraph 7 above, including the following: a. making available all relevant data. b. Determining the appropriate occasions for drilling of wells.

10.In order to enable the implementation of paragraph 7 above, both sides shall negotiate and finalise as soon as possible a Protocol concerning the above projects, in accordance with paragraphs 18-19 below.

The Joint Water Committee

11. In order to implement their undertakings under this Article, the two sides will establish, upon the signing of this Agreement, a permanent Joint Water Committee (JWC) for the interim period, under the auspices of the CAC.
12. The function of the JWC shall be to deal with all water and sewage related issues in the West Bank including, interalia:
    a) Co-ordinated management of water resources.
    b) Co-ordinated management of water sewage systems.
    c) Protection of water resources and water and sewage systems.
    d) Exchange of information relating to water and sewage laws and regulations.

e) Overseeing the operation of the joint supervision and enforcement mechanism.
f) Resolution of water and sewage related disputes.
g) Co-operation in the field of water and sewage, as detailed in this Article.
h) Arrangements for water supply from one side to the other.
i) Monitoring systems. The existing regulations concerning measurement and monitoring shall remain in force until the JWC decides otherwise.
j) Other issues of mutual interest in the sphere of water and sewage.

13. The JWC shall be comprised of an equal number of representatives from each side.
14. All decisions of the JWC shall be reached by consensus, including the agenda, its procedures and other matters.
15. Detailed responsibilities and obligations of the JWC for the implementation of its functions are set out in Schedule 8.

Supervision and Enforcement Mechanism

16. Both sides recognise the necessity to establish a joint mechanism for supervision over and enforcement of their agreements in the field of water and sewage in the West Bank.
17. For this purpose, both sides shall establish, upon the signing of this Agreement, Joint Supervision and Enforcement Teams (JSET), whose structure, role, and mode of operation is detailed in Schedule 9.

Water Purchases

18. Both sides have agreed that in the case of purchase of water by one side from the other, the purchaser shall pay the real cost incurred by the supplier, including the cost of production at the source and the conveyance all the way to the point of delivery. Relevant provisions will be included in the Protocol referred to in paragraph 19 below.
19. The JWC will develop a Protocol relating to all aspects of the supply of water from one side to the other, including, inter alia, reliability of supply, quality of supplied water, schedule of delivery and off-set debts.

Mutual Co-operation

20. Both sides will co-operate in the field of water and sewage, including, inter alia:

a) Co-operation in the framework of the Israeli Palestinian Continuing Committee for Economic Co-operation, in

accordance with the provisions of Article XI and Annex III of the Declaration of Principles.

b) Co-operation concerning regional development programs, in accordance with the provisions of Article XI and Annex IV of the Declaration of Principles.
c) Co-operation, within the framework of the joint Israeli Palestinian American Committee, on water production and development related projects agreed upon by the JWC.
d) Co-operation in the promotion and development of other water-related and sewage-related joint projects, in existing or future multi-lateral forums.
e) Co-operation in water-related technology transfer, research and development, training, and setting of standards.
f) Co-operation in the development of mechanisms for dealing with water-related and sewage related natural and man-made emergencies and extreme conditions.
g) Co-operation in the exchange of available relevant water and sewage data, including:
    1. Measurements and maps related to water resources and uses.
    2. Reports, plans, studies, researches and project documents related to water and sewage.
    3. Data concerning the existing extractions, utilisation and estimated potential of the Eastern, North-Eastern and Western Aquifers (attached as Schedule 10).

Protection of Water Resources and Water and Sewage Systems

21. Each side shall take all necessary measures to prevent any harm, pollution, or deterioration of water quality of the water resources.
22. Each side shall take all necessary measures for the physical protection of the water and sewage systems in their respective areas.
23. Each side shall take all necessary measures to prevent any pollution or contamination of the water and sewage systems, including those of the other side.
24. Each side shall reimburse the other for any unauthorised use or sabotage to water and sewage systems situated in the areas under its responsibility, which serve the other side.

The Gaza Strip

25. The existing agreements and arrangements between the sides concerning water resources and water and sewage systems in the Gaza Strip shall remain unchanged, as detailed in Schedule 11.

APPENDIX IV: WATER-RELATED ARTICLES IN THE AGREEMENT ON THE GAZA STRIP AND THE JERICHO AREA. Source: Israel Foreign Ministry Information Service Gopher: http://www.israel-info.gov.il.

B. JOINT REGIONAL CIVIL AFFAIRS COMMITTEES

31. Water and Sewage

a) All water and sewage (hereinafter referred to as "water") systems and resources in the Gaza Strip and the Jericho Area shall be operated, managed and developed by the Palestinian Authority, in a manner that shall prevent any harm to the water resources.

b) As an exception to subparagraph a., the existing water systems supplying water to the Settlements and the Military Installation Area, and the water systems and resources inside them continue to be operated and managed by Mekoroth Water Co.

c) All pumping from water resources in the Settlements and the Military Installation Area, shall be in accordance with existing quantities of drinking water and agricultural water. Without derogating from the powers and responsibilities of the Palestinian Authority, the Palestinian Authority shall not adversely affect these quantities. Israel shall provide the Palestinian Authority with all the data concerning the number of wells in the Settlements and the quantities and quality of the water pumped from each well, on a monthly basis.

d) Without derogating from the powers and responsibilities of the Palestinian Authority, the Palestinian Authority shall enable the supply of water to the Gush Katif settlement area and the Kfar Darom settlement by Mekoroth, as well as the maintenance by Mekoroth of the water systems supplying these locations and of water lines crossing the Jericho Area.

e) The Palestinian Authority shall pay Mekoroth for the cost of water supplied from Israel and for the real expenses incurred in supplying water to the Palestinian Authority.

f) All relations between the Palestinian Authority and Mekoroth shall be dealt with in a commercial agreement.

g) The Palestinian Authority shall take the necessary measures to ensure the protection of all water systems in the Gaza Strip and the Jericho Area.

h) Upon the signing of this Agreement, the two Parties shall establish a subcommittee to deal with all issues of mutual interest including the exchange of all data relevant to the management and operation of the water resources and systems and mutual prevention of harm to water resources.

i) The sub committee shall agree upon its agenda and upon the procedures and manner of its meetings, and may invite experts or advisers as it sees fit.

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