

## **THE EFFECTS OF THE SEPARATION BARRIER ON THE VIABILITY OF A FUTURE PALESTINIAN STATE**

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### **ABSTRACT**

Despite the surface tension over Palestinian terrorism and Israeli security methods, the peace process is ultimately hinged on many long-term considerations. With the recent political transformations in the region and efforts for peace between Israelis and Palestinians, water remains to be a strongly regarded priority, as well as a mutual dilemma. The importance of water access and control is at times concealed by its low-key political stature in comparison to the human security agenda of Israelis and the political rights of Palestinians. The perception that water is of lesser importance than security and justice is in itself a threat to the overall peace process, and the possibility of a future Palestinian state. The strategic control of water resources between Israel, the West Bank, and the Gaza Strip have geopolitical implications tied to nearly every aspect of the current political situation. Israeli settlements in the occupied territories, the refugee population, Palestinian living conditions, and the separation wall – along with its actual location and route – all have linkages to the access, control, and quality of water resources; this is by no means a complete list. The strategic control of water resources by either side in the West Bank and Gaza Strip will determine the future viability of any Palestinian state. Palestine's weak socio-economic maturation due in part to limited water access is a testament to its importance for success in agriculture, industry, health, and human development. The current heading towards an Israeli imposed unilateral peace will only further the control of water in the region, and calls into question the very viability of a Palestine for Palestinians.

In its current form, this paper is explicitly in its theoretical stage. The ideas provided require the backing of primary source data the authors plan to collect in future trips to Israel. The interest in providing this paper to the 2nd Israeli-Palestinian-International Conference on

“Water for Life in the Middle East,” is to expose it to the criticisms and suggestions of others interested in understanding the geopolitical realities of the Israeli Palestinian conflict, and, as such, being able to provide recommendations and solutions to bring about its conclusion. In the absence of the requisite data, satisfying Israeli water security demands, through an understanding of the security paradigm shift, will be demonstrated by identifying the relationship between the neorealist definition of the international system, and Israeli strategic culture. The specifics of the water crisis facing Israel will be provided, as will the links between water, the construction of the security fence, and settlement location. Finally, the paper will conclude on the effects of water scarcity and the viability of a future Palestinian state.

## **INTRODUCTION**

At the Paris peace conference of 1919, Chaim Weizmann set clear his vision of a viable Israeli state. He believed that it was crucial to control water resources to ensure the longevity of the Jewish state, claiming it “of vital importance not only to secure all water resources already feeding the country, but also to control them at their source.” Implicit in this demand were the lines defining the borders of Israel, and set to include the Litani, Upper Jordan, and Yarmuk rivers. Without these bodies of water, Israel could never be economically independent. (Lonergan and Brooks, 1994)

Today’s geopolitical reality makes Weizmann’s desires unrealistic, as it does so for the framework laid out by the Oslo accords and the Road Map. President Bush and Ariel Sharon made this clear when they spoke to the press on the 14th of April 2004. Yet, the Status Quo is itself an unacceptable solution for both sides. The final peace will be shaped by these changed realities, and as President Bush stated, no matter how unfair or illegal under international law, it is unrealistic to expect a return to the armistice lines of 1949.

Ariel Sharon’s disengagement plan is set to mould that final peace, and, although regrettable for some, it realistically takes into account regional power structures. Understandably, it will be a peace on Israeli terms. In this framework of an Israeli peace, the principles echoed by Zionists like Weizmann, while impossible to retain in their entirety, will be enshrined. Retaining Gaza, the Golan Heights, and

the West Bank has become politically impossible and costly. In the case of the territories Sharon has made this especially clear. Yet it would be suicidal for the state of Israel to withdraw entirely from these swaths of land. Access to water is crucial for the sustainability and growth of the Jewish state, and the ability to exploit water resources is inextricably link to the control of land. Thus, as Sharon pilots his disengagement proposal, there are tracts of land that Israel will never withdraw from, for the explicit purpose of retaining control over water.

### **THE IMPORTANCE OF WATER**

While many parts of the world are only beginning to feel the pressures of water scarcity, access in the Middle East has, for a while now, been a matter of conflicting perceptions, and of life or death. In the arid regions of Israel, the West Bank and the Gaza Strip, guaranteeing resource stability alone requires massive pipeline networks to deliver water for human, agricultural, and industrial consumption. Water is a crucial resource to every population for many reasons. Large quantities of drinking water are essential to maintain human life. Drinking water must be of a high quality and is therefore inherently expensive to procure when available sources are not polluted, or sufficient. Agriculture demands a substantially larger amount of water than for domestic use. (Lonergan and Brooks, 1994) Although this water need not be as clean as drinking water, the staggering amounts required can severely deplete existing resources, from constant over-use. In the twenty-first century industry will require relatively large quantities of water, mainly for manufacturing. Simply, water can be sub-categorized into these three uses: human, agricultural, and industrial. Without adequate access to water, population growth, and development can be severely limited. Only recently, within the past century, and drastically in the past decade, have we really witnessed the inclusion of water in strategic decision making. (Homer-Dixon, 1994; de Villiers, 2002) Of even more significance, water quality and access continues to be distressed and this trend is worsening. Both scientists and political researchers agree that water has and will be a factor in present and future tensions (Homer-Dixon 1994), including conflict between Israel and the Occupied Palestinian territories (Lonergan and Brooks, 1994).

## **NEOREALISM AND STRATEGIC CULTURE: THE COMPOSITES OF ISRAELI SECURITY POLICY**

Israeli security policy is achieved through the interaction of its own strategic culture with the functioning anarchic international system as defined by neorealist theory. Neorealism posits that the courses of action of states are conditioned by the structure of the international system. States are sovereign, making the system anarchic. The behaviour of states, amongst each other, is framed by the relative capabilities (power) they possess in relation to each other. As there is no higher authority than the state, which would impose standards of behaviour, states are exposed to a security dilemma. Relations between states in the system are characterized by suspicion and mistrust. Today's friends can easily become tomorrow's enemies. Substantial cooperation between states is therefore impossible, forcing states to adopt self help strategies to satisfy their security demands. (Glenn and Howlett, 2004)

Two assumptions reinforce the inability of states to cooperate. Foremost, there are no legal assurances that states will be bound by their international commitments. Agreements between states cannot be trusted as sovereign states are free to opt out of them as they see fit. In many cases, states participate in treaties or international law for convenience, or for gain to the national interest. Secondly, interdependence between trading states can introduce degrees of vulnerability. As some states are inherently more vulnerable than others, the prospects for cooperation greatly diminish. (Glenn and Howlett, 2004)

The self help strategy of states competing amongst each other for power to ensure their own security is ultimately self defeating as it leads to a "spiraling cycle of action and reaction. (Glenn and Howlett, 2004)" Security becomes unachievable as states are locked in continuous conflict. However, instead of always seeking to maximize power at the ultimate expense of others, defensive realists suggest that states seek a balance of power. In doing so, they seek the minimum level of power required to maintain their position in the system (survival) and their security. (Glenn and Howlett, 2004)

The behavior of states is guided by the system theory of the Neorealist School. While "immutable system forces" determine

reactions to events, strategic culture influences strategic preferences within those reactions. The anarchy of the international system is “shaped by the way that states identify themselves, with realpolitik strategic cultures, a bi-product of social construction.(Poore, 2004)” Simply stated, strategic culture provides a range of tendencies which are activated by system pressures. (Poore, 2004)

Culture exists as a collective sum, and not as individualistic parts. Cultures are intrinsically different when compared between collectives, and are relatively stable through time, compared to material evolution. Strategic culture implies “a nation’s traditions, values, attitudes, patterns of behavior, habits, symbols, achievements and particular ways of adapting to the environment and solving problems with respect to the threat or use of force.(Poore, 2004)

Israel’s adherence to the Neorealist School, when formulating its strategic security policy, stems from its strategic culture. The history of the Jewish people, and the modern history of the Jewish state, have reinforced in the Israeli mindset that others are not to be trusted. Exodus, the Diaspora, European persecution, the Holocaust, the numerous wars with its neighbors, anti Israeli terrorism, and rising global anti Semitism have reinforced the perception that Israel has an insurmountable list of enemies at its doorstep, and thus has no choice but to seek to maintain its existence and security through self help strategies. Further, the vulnerable security position that Israel perceives itself to be in greatly reduces the possibility inter-state cooperation.<sup>1</sup> Comprehensive peace in the region requires all sides to come together in agreement. However, it is unlikely that Israel will be a party to an agreement which proposes a dependency on another state. Israel will continue to guarantee its security through unilateral measures, often in violation of international law.

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<sup>1</sup> A 2003 study of Israeli public opinion on national security showed that Israeli’s are wary of their position and do not believe that a treaty will solve the security problems. The study showed that 37% of Israelis thought that the Arabs wanted to destroy the state of Israel and its Jewish population, 23% thought that Arabs states wanted to conquer the state of Israel, while 29% and 11% held the less pessimistic view that the Arabs wished to regain the territories lost in 1967, or regain some of those territories. As for those who believed a treaty could translate to an end of the Arab Israeli conflict, only 35% believed this to be true. (Asher, 2003)

Comparatively, one could study Canada and see that its strategic culture has resulted in an idealistic foreign policy and outlook on international affairs. Canada counters problems in the international system by fostering international law, multilateralism, and interdependence. Canada's position, in terms of survivability and security, is relatively strong, and the country is able to attempt to influence the natural neorealist tendencies of the international system with its idealistic principles.

### **THE NEW SECURITY PARADIGM**

Security as a concept has been usurped by a paradigm shift from its orthodox tenets to the more encompassing definition which attaches the provision of human security to the integrity of the state. The orthodox conception presented security as the collective need to preserve the state and its economic, political, and social interests against external threats. The function of national power, or aggregate of economic, political, and social factors, defined a state's capacity to construct and amass weapons, and its ability to fight war. This military capacity was the primary guarantor of security as threats were perceived as, almost exclusively, military in nature, and thus required military responses. The benchmark by which security could be preserved was the comparative strength of another state's military power. This view was especially strong throughout the cold war as the bifurcation of states along the ideological divide allowed states to compare their group's military strength vs. that of their enemy. (Poku, and Graham, 1998; Rand, N/A)

While obvious that security cannot simply encompass comparative military might, this realization did not make any progress until the end of the Cold War. The new understanding came on the heels of a more fractious world order. The international system became a complicated place as security concerns became localized as well as internal, losing its narrow focus of conventional and nuclear weapons comparisons. The security, or survival and prosperity, of the state now has to take into account the interrelationship of demographic pressures with the surrounding, often regional, environment, as well as the effects of internal or external pressures, such as media, or ideological. Inherent in the new security paradigm is the need for human security. In attempting to provide security to each individual of the state, as equally as possible, is the admission

that failing to do so could threaten the integrity of the state: through strife, protest, violence, civil war, ultimately leading to anarchy and a failed state. Additionally, the failure to provide human security weakens the elements of national power, leading to a position of comparative weakness vs. other states. Thus, security concerns such as mass trans-border or internal migration, refugee flows, unsustainable urbanization, systemic crime, quality of life, epidemics, food supply, threats to language, ethnicity, or religion, resource depletion, and the interaction between population pressures and resource degradation, among others, must now be taken into consideration. (Poku and Graham, 1998; Rand; Homer-Dixon, 1993)

Israel will have to deal with many of these pressures. This is especially true in terms of water resource depletion, and degradation, as a factor of increasing consumption. Israel will meet its security requirements through unilateral measures, influenced by its strategic culture. While the long term outlook could lead to regional cooperation, Israel will not motion to create any dependencies on its Arab neighbours. Thus, what remains is to analyze the supply of water for the region, the resulting implications and realities which Israel will have to come to terms with, and the method by which it is already guaranteeing its water security.

### **WATER RESOURCES AND DEMANDS**

The bodies of fresh water which supply Israel, the Palestinians, and their neighbours face overuse. Many supplies are being depleted beyond their rate of replenishment, leading to the salination of fresh water deposits, which threatens absolute depletion. The regional water system is complex and overlaps political boundaries. The principal surface water system is the Jordan River Basin, with the Sea of Galilee at the centre. The upper Jordan is fed by the Hasbani River which originates in Lebanon, the Baniyas River and Hermon springs from the Golan Heights, and the Dan River located in Israel and the Golan Heights. South of the Sea of Galilee, the lower Jordan is fed by the Yarmuk River, and goes on to replenish the Dead Sea. The replenishment of the Sea of Galilee, and Jordan River are affected by riparian water diversion projects meant to satisfy national water needs. Additionally, the Mountain and Coastal Aquifers augment the Israeli water supply. The Mountain Aquifer is divided into the Western, North Eastern, and Eastern Aquifers, and are almost

exclusively within the West Bank. The Coastal/Gaza Aquifer runs from the Northern Gaza Strip to Tel-Aviv.

The precariousness of the Israel's water supply is clear. Israel faces supply induced scarcity, from over-pumping to meet demand, resulting in salt-water intrusion. Demand induced scarcity is occurring because Israel's population and economic activity is growing. (Homer-Dixon and Blitt, 1998) Stefan Deconinck, from the Centre for Sustainable Development Ghent Belgium, highlighted Israel's supply induced scarcity in 2002. In *Israeli Water Policy in a Regional Context of Conflict: Prospects for Sustainable Development for Israelis and Palestinians*, he criticizes Israeli Water Commissioner Shimon Tal's long term water policy document, some of which is found as data in the tables above. Foremost among Israeli mistakes is that long term water planning assumes that rates of replenishment are consistently average. As a result, Israel pumps water at a consistent rate over that forecasted period of time. That rate of pumping often occurs at or above the actual rate of replenishment. Consistent years of under average water replenishment, without above average years to make up for the deficit, results in supply induced scarcity of aquifers, rivers, and the Sea of Galilee, and the increased salinity of those bodies. Case in point, during 16 years of pumping in the Coastal Aquifer, 11 years were at a deficit. That resource is now increasingly saline. (Deconinck, 2004)

Demand induced scarcity is further complicating Israel's capability to effectively deal with the water question. The growing population, currently 6.1 million, will surpass previous growth estimates of 6.5 million in 2020. That population is also increasing its per capita consumption of water. To preserve its current agricultural output until 2020, 530MCM of fresh water, and 620MCM of treated water will be required, while industry will require 30MCM of fresh and 25MCM of treated water. By 2020, Palestinians in the West Bank will require 70MCM from the Israeli water network, in addition to their own. Israel is also obliged to provide Jordan with 55MCM of fresh water annually as part of the peace treaty that both countries signed. Israel has an estimated supply of about 1950MCM of fresh water, while current demand is around 2100-2200MCM. While this gap may be manageable through the use of secondary water sources, a growing

population and per capita use will make this exceedingly hard. (Deconinck, 2004; Homer-Dixon, 1993)

Essentially, estimates of renewable and generated water resources are spotty at best, while future predictions, as shown in the above tables, are too perfect and do not take into account treaty obligations or provisions for the Palestinians in the occupied territories. However, the numbers are indicative of certain trends which Israel cannot escape. First is that demand on natural renewable sources cannot be increased. Surpassing the rate of natural replenishment will only add to the long term water problems facing the country. Additionally, supply to the lower Jordan could be affected if the Syrians decide to extract more from the Yarmuk for irrigation. Secondly, while Israel can continue to increase its water supply through use of brackish, and treated water, such water has limited applicability. One such limitation is that it cannot be used as drinking water to meet growing population demands. Supplementation through desalinization is also possible, however the cost of doing this on a massive scale will be difficult for Israel, which has limited financial capacity. Ultimately, Israel is tied at the hip to its fresh water resource in the West Bank. In assuring its water security, Israel will be unwilling to withdraw from sections of the West Bank where control over water will be transferred to the Palestinian Authority. This reality cannot be circumvented and is a component of Ariel Sharon's disengagement plan.

#### **MEETING THE NEW SECURITY REQUIREMENTS: THE CONTROL OF WATER THROUGH THE CONTROL OF LAND: THE SECURITY FENCE**

“Israel must hold on to the West Bank to make sure that Tel-Aviv's taps don't run dry.”

Rafael Eitan (Lonergan and Brooks, 2004)

If the demand is for drinking we must say yes; we do say yes. But we are not going to stop irrigating our orchards so they can plant new ones.

Meir Ben Meir (Lonergan and Brooks, 2004)

In 1977, Prime Minister Menachem Begin requested the Israeli water commissioner, Menachem Cator, to provide maps of Israeli water use in the West Bank. These would include zones of withdrawal which Israel could hand over to the Palestinians, without severely affecting Israeli water supply. Cator's findings defined a "red line" which traversed parts of the territory, as seen in area C of map 1. Area C yields thousands of cubic meters per hour of water, compared to ten's of cubic meters per hour in other areas.(Gvirtzman, N/A) In 1991, another water study was commissioned, this time by the Jaffee Centre for Strategic Studies at Tel Aviv University. Yehoshua Schwartz, and Aharon Zohar produced *Water in the Middle East: Solutions to Water Problems in the Context of Arrangements between Israel and the Arabs*. While regionally focused, the paper carried out a specific study on water relations between Israel and the Palestinians. The study recommended that Israel withdraw to redefined lines, much like the 1977 "red line," which would allow Israel to relinquish political control of the vast majority of the West Bank, yet retain those areas key to maintaining the Israeli water supply. (See map 2) At the time, this position went counter to government policies regarding the status of the territories. Rafael Eitan, head of the ministry of agriculture stated that "to protect Israel from threats to the quantity and quality of its water, it had to retain political control of the West Bank." Following publication for review in December 1991, the Israeli military censored the entire report, citing the sensitivity of the report's finding. (Wolf)

The authors of the 1991 study called their maps "an outline for retreat.(Wolf)" Today, this has been rephrased as disengagement. While the semantics have changed, the intention of retaining control of West Bank water supplies remains. The decision to go ahead with disengagement simply reflects the inability of the status quo to persist. Occupation is politically and economically costly for Israelis, and excluding right wing settler and orthodox groups, the vast majority of Israeli's wish to abandon most of the occupied territories. Abandoning most is the operative word, and what Israel does hold on to will partly be influenced by the need to control water. This will primarily be achieved by routing the fence as close as possible to the "red line." While some settlements in the West Bank will be abandoned, the larger commuter settlements, which were often sited to control water tables, will be maintained. Although it is questionable

whether they will be located on the Israeli side of the fence, those that are not will be fortified and expanded, and will remain connected to Israel by protected settler roads.

Many would ask why Israel cannot accept Palestinian autonomy in the territories. Why can't Israel withdraw to the 1967 borders, and satisfy its water concerns through a binding water treaty with an autonomous Palestinian Authority? That answer has been provided by precedent. Following Israeli Defence Force withdrawal from the Gaza Strip, the Palestinian Authority allowed 500 wells to be drilled, in violation of an Israeli Palestinian agreement. Palestinians suffer from critically low per capita access to fresh water, and the necessary amounts to sustain viable economic output. Thus, any treaty with Israel would likely be circumvented to meet these demands, as they were in Gaza. The potential for this to occur will be ever greater over time as the Palestinian population in the occupied territories, principally in the West Bank, is set to explode from 3.0 million to 5.8million.(Soffer) Israel has to consider that dramatic water scarcity, stemming from broken treaty obligations, combined with a growing Israeli population could lead to "collapse of transportation and other infrastructure, resulting in the emigration of Jews and the deterioration of Israel into a third world state (Soffer)."

Israel is most dependant on the western basin of the Mountain Aquifer, also known as the Yarkon-Tanninim. Israeli dependence on this source, which supplies Jerusalem, Tel-Aviv, and other major cities, should be reflected by security measures meant to retain control of water supplies. Israel has already completed a majority of the fence in this area, with the exclusion of the salient out to Ariel and Salfit, and also has many settlements in area C (map 1) of high potential pumping. In a study on water extraction, Dr. Haim Gvirtzman, of the Begin-Sadat Centre for Strategic Studies, clearly outlined the specific need to prevent additional Palestinian drilling an extraction from wells around Qalqilya and Tulkarem. This appears to have happen as the route of the fence has absorbed numerous Palestinian well into what will become Israeli territory.

## **EFFECTS ON THE VIABILITY OF A FUTURE PALESTINIAN STATE**

'The main factors fuelling water demand are population growth, industrial development and the expansion of irrigated agriculture' (UNEP, 2002). The occupied Palestinian territories face water shortages linked to each of these, the latter two limiting the long-term socio-economic development of the potential state. Each factor will be discussed below to provide evidence that extended periods of increasing water deficit will reduce the probability of a viable sovereign Palestinian state from emerging.

Extended periods of curfews and closures, and poor family planning education, have led to a population growth rate in the West Bank that is over twice that of the Israeli rate. In 2002, the estimated fertility rate in Israel was 1.48 percent, while the West Bank experience growth of 3.39 percent (CIA, 2002). This growth is primarily in urban areas (Palestinian Central Bureau of Statistics, 2002), and incidentally where water resources are under the worst strain. This rate of population growth is not sustainable, given current water shortages. If greater quantities of water are to be allocated to the occupied territories, Israel will be required initiate transfers from its overstretched share, or more water will have to be extracted from overburdened resources. Both options are unlikely, especially as the latter endangers the survival of current supplies, such as the Mountain Aquifer which is being emptied faster than replenished (de Villiers, 2002).

The majority of this discussion will refer areas where the wall has been completed. Known as Stage A communities, this area extends from Salem in the Jenin Governorate in the north to the Elkana settlement south of Qalqilya. The proposed location of Israel's separation barrier will cut into much of the existing water delivery infrastructure along major urban areas where clean potable water for consumption is provided by reliable high-output pumps. A report obtained from the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) lists 37 West Bank communities, totalling one-hundred and nine thousand residents, as cut off from water wells, agricultural land, and irrigation networks as a result of the construction of Stage A of the separation barrier. The report also described Israeli modifications to the fence that could place another

thirty thousand Palestinians in enclaves, restricting their access to water as listed by the Palestinian Central Bureau of Statistics (PCBS). (UNISPAL; PCBS, 2003).

Further, Palestinians who are caught between the 1949 Green Line and the proposed path of construction of separation barrier will be forced to relocate. This region, known as the Seam Zone, includes a large partition of the West Bank's farming regions, and water infrastructure. (PCBS, 2003) As mentioned, Israel will require all Palestinians within the Seam Zone to move East of the separation barrier, or apply for a permit to remain in their current location; there is no appeal process for rejected applicants (UNISPAL; IDF, 2003). Many Palestinians will be required to abandon their homes and agricultural land, places of employment, and establish themselves in a new location. If this situation persists, the downward spiral into water poverty faced by many Palestinians will only get worse. As water is essential for the socio-economic development of the state, this water poverty will lead to further deterioration of state autonomy.

The Palestinian economy has a large stake in agriculture, and the loss of water for irrigation will undermine the ability for Palestinian farms to produce raw goods. Ultimately this will stunt the growth of the Palestinian agricultural sector, if not contribute to its decline. Similar trends, involving appropriated land, have caused strife for farmers and primarily agricultural communities. While the most arable Palestinian lands are located within the Seam Zone of the West Bank, the separation barrier further limits the possibility of keeping these fertile lands functioning as methods of livelihood and resource production. The access for farmers, who wish to return daily to manage their crops, has been severely limited by Israel checkpoints and access gates. As a result of water shortages that have occurred over the past decade, farmers have shifted crops from citrus, other fruits and vegetables to less water demanding crops of staple foods, and olives. Since the latter crops have a lesser market value when compared to the former, Palestinian farmers are taking substantial cuts to their incomes.

This limited access to water resources over such a long period has created a substantial divide between Israeli and Palestinian qualities of life. This has left Palestinians in a situation where they are

increasingly dependant on Israeli water infrastructure. Palestinians receive water through Israeli transfers, and even though much of the infrastructure exists in the occupied territories, Israel has been responsible for its maintenance, where deemed necessary, and regulation. Regulation of Palestinian water access has been especially stringent, as Palestinian wells are limited to an almost futile depth of 140m versus Israeli wells ranging up to 800m (de Villiers, 2000).

## **RECOMMENDATIONS**

Water remains one of the contested issues which must be addressed in any final status agreements regarding a future Palestinian state. There are two significant matters that must be resolved before further actions can be taken to resolve disputes related to water. From a Palestinian perspective, the concept that each side has the equal right to access water resources must be accepted. Second, functional joint water resource management is necessary (Elmusa, 1996). These first two items are idealistic in nature, and unlikely to occur based as earlier portions of this paper were quick to show. Realistically, the potential for a viable Palestinian state, in the short term and in terms of water, will require third party water supply. The mediating body charged with this will require binding power to enforce the agreements made between the Israeli and Palestinian governments.

Future construction of the separation barrier should include more effective coordination and consultation with local Palestinian water authorities. The wall is built in a 'piece by piece' fashion, mainly under the direction of lower-echelon military commanders who have a say in the path of the barrier. It makes sense that lower level Palestinian water managers be consulted to improve mutual agreement on where the path could run. However, two factors may restrain this. Time is an important factor as each day the wall remains unfinished, Israeli's feel more insecure. Although Palestinians may wish to continuously appeal the planned route, they must realize their concerns are subservient to Israeli security concerns. Thus, Palestinian water access will be subservient Israeli concerns, such as the facility of construction, proximity to urban areas, and Israeli water security through access to settlement-built wells; to name only a few. Palestinian negotiators must realize that frustrating the Israeli military planners may lead to complete exclusion from the decision making

process, leaving them in a dire situation for an indefinite period of time.

If the wells appropriated by the separation barrier limits access to Palestinians, a just method to ensure a minimum level of water access should be guaranteed. This could be considered as 'water poverty line' no Palestinian dwelling should fall below. Without moving into the technicalities of urban hydraulics, this quota could be established within specific zones for individual, or associated groups of wells, or 3rd party sources. The USAID has set a daily per capita minimum of 100L for Palestinian domestic, agricultural, and industrial use (B'Tselem, 2001). To ensure adequate supply, sources must provide a flow rate based on the necessary consumption per capita multiplied by the number of persons drawing from a particular wellhead. Realistically speaking, the idea of a 'water poverty line' would take years to build-up to as many Palestinians do not even have adequate daily access to water. However, they are not far from attaining this goal; the average Palestinian currently draws 60L per day (B'Tselem, 2001). If efficient practices are put into place for water collection, distribution, and use, current supplies could be used more effectively.

Drawing from the preceding argument, the success of a future Palestinian state, under any plan for autonomy, will no doubt require more equitable access to water for the Palestinians; this could eventually lead down three classifiable paths, each briefly described in order of increasing effort required. First and foremost, improving essential infrastructure would substantially lessen the amount of water wasted from the source to the tap. This solution would add no stress to the water supply as no additional water will be pumped, what is will simply be used more effectively. While a total upgrade of the Palestinian water network would be costly, the benefits are substantial, and provisions could likely be made for international assistance from IGO's or NGO's. Allowing the Palestinian water system to continue to dilapidate will only reaffirm the seriousness of the water crisis.

Concurrently, better collection and distribution practices must be adopted for domestic, agricultural, and industrial use. Rainwater collection, and storage, improves supply, and has little impact on the urban eco-system. Infrastructure audits, and priority/utility studies,

and wastewater re-use offer other possible ways conserving water. The second dimension involves a socio-economic paradigm shift to institute a lasting and positive effect. This may initially require mandatory water rationing and monitoring, yet, over time, Palestinians would expectantly adopt an attitude of voluntary rationing, thus saving more water in the long-term. An educational component is also key, and informing Palestinians about water scarcity, and conditioning them to promote effective use could help create a future generation of Palestinians who may require less water than their predecessors.

Agriculture plays an important role in the Palestinian economy, and the failure of a water intensive crop, from a water shortage, would lead to socio-economic catastrophe. Palestinian farmers have already been hampered by water for irrigation, having to change types of crops in lieu of the outright loss of farmland due to aridity (Homer-Dixon, 1998). Planning ahead to rotate crops, and shifting to less water-needy crops in advance of a greater water shortage is a sound, short term, solution to water scarcity. This practice of “importing virtual water,” can minimize the drastic economic effects of crop failure, allowing Palestinian farmers to reduce their dependency on the success of a fragile crop

Another conceivable option would be to introduce an external supply to satisfy Palestinian water requirements. Numerous ideas have presented themselves over the past about how this water should be sourced and collected. In 2003, the Washington Institute for Near East Policy released a document outlining the possibility of Turkey supplying Israel with water. However, this option is expensive, costing Israelis 80 cents a cubic meter. Another option is to augment Israeli supplies through desalination (55 cents a m<sup>3</sup>) or wastewater processing (35 cents m<sup>3</sup>) (Ariyork, 2003). Augmenting the Israeli supply in such a way would allow for excess capacity to be provided to the Palestinians. Additionally, the Palestinians could seek direct importation from a third party source, such as Turkey. Although equally expensive, such a project could be conceivably assisted by the international community. Turkey stands to benefit from such a plan as it could also supply Lebanon, Syria, or Jordan, for considerable financial gain.

The option of including the Palestinians within the Israeli water system is highly unlikely, and comes with expected limitations and consequences. The possibility of connecting the Palestinians to the Israeli National Water Carrier have arisen in negotiations, as the pipeline infrastructure is already in close proximity to the West Bank. It would essentially take little more than a few hundred kilometres of pipeline to extend into the well infrastructure of the Palestinian territories to provide additional water to the Palestinians. However, interlocking both systems would allow Israel to draw water out of Palestinian wells in the event of an Israeli shortage. This is a plausible scenario considering Israel's tendency of acting in self interest.

## **CONCLUSIONS**

Although lacking the necessary primary source data, this paper has bridged a series of theoretical assumptions to the water security dilemma which Israel faces. In doing so, it has showed that certain courses of action to satisfy water supply, such as forming a dependency on a third party, are unlikely to satisfy Israel's overarching security concerns. This assumption is based on a neorealist understanding of the international system, and of the effects which strategic culture have on state policy. It was argued that Israel would satisfy its water security demands through the construction of the security fence, and existence of settlements, which appropriate land with high water yields. Such a unilateral move by Israel, while understandable in their case, will be detrimental to the creation of a viable Palestinian state. If such a state ever comes into being, Palestinian water requirements will have to be met through more efficient water use, and very likely the introduction of third party water supply.

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