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The Impact of Annexation on Natural Resource Management and Environmental Justice in the Jordan River Basin

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Annexation will exacerbate the existential threats to the region from climate change and the ongoing conflict between Palestinians and Israelis.

In studies, research, and public diplomacy, the Arava Institute works to advance cross-border environmental cooperation, at the nexus of these two existential crises for the region.

The Arava Institute's environmental experts raise serious concerns regarding the damage that will be caused by Israeli annexation of parts of Area C to the human environment, the natural environment and the hope for future agreements which could lead to a just and peaceful resolution of the conflict.

Annexation, as proposed by the current Israeli government, is a unilateral act of land appropriation, which will annex Palestinian land but not people, further aggravating the power imbalance of the occupation and further endangering chances to reach a fair and just solution.

The Jordan River Basin (JRB) is a climate change hot spot. A study from Tel Aviv University predicts a shortening of the winter months of the eastern Mediterranean from 4 months to 2 months and lengthening of the summer by two months (Hochman et al. 2018). The winter is when the eastern Mediterranean receives the bulk of its annual precipitation which enables agriculture throughout the year. In a review of recently published studies on temperature, precipitation and other hydrological data, Tal (2019) raises the alarm of a shrinking Sea of Galilee, the water reservoir for riparian entities in the basin. With rising annual temperatures and a severe reduction in water resources, climate change will negatively impact the ability of farmers in the region to produce food (Behar & Kaplan 2019).

Annexation combined with the impacts of climate change in the region escalates environmental injustice by disenfranchising and isolating vulnerable communities in the annexed areas putting them at greater environmental risk. The proposed timing of annexation, as the world is still entrenched in a pandemic and at the beginning of a massive economic crisis, further exacerbates these environmental injustices. Economic, national, and environmental issues cannot be separated.

The new government's current path towards annexation risks extinguishing the ability of civil society organizations like the Arava Institute, to continue the critical cross-border environmental work carried out with Palestinian and Jordanian partners. This work is not part of the right/left political spectrum. It has received support from multiple Israeli governments over time and addresses the needs of the planet earth and the human beings who populate it.

Engaging in cross-border environmental cooperation will be impossible once the annexation process has begun and will lead to major environmental consequences.

Specific environmental impacts of annexation include:

The Sea of Galilee is used as one of the two major reservoirs in which the state of Israel stores water for dry years. The second reservoir is within the coastal and mountainous aquifers. Wet-years, where the lake is replenished with substantial amounts of fresh water provide Israel with the option to decrease groundwater abstraction to restore the exploited groundwater reservoirs (aquifers). Filling the Sea of Galilee with fresh water helps to maintain its fragile aquatic ecology by diluting the salty water (and even brines) that continuously discharge into the lake via underwater spring. A year ago the water salinity in the lake reached a critical level that eliminated the use of the water unless it was mixed with other sources of fresh water such as desalinated water. The Sea of Galilee is routinely used for water supply to Israel's national water carrier and serves as emergency water storage. Therefore, the lake is one of the most important parameters in Israel's homeland security.

Regarding the amount of water which used to flow into the Lower Jordan River, Sea of Galilee contributed about 45%, on average but most of the water came from the eastern tributaries in Jordan and the Yarmouk River. Now, most of the Yarmouk water is consumed by Syria and Jordan. According to the peace treaty between Israel and Jordan, Israel is allowed to pump 20 M m³/year of water from the Yarmouk (less than 4% of its annual capacity), and in addition, Jordan is allocated 50 M m³/year from the Sea of Galilee (about 15% of the average rate of replenishment of the lake). While Israel has practically blocked almost all the flow of water from the Sea of Galilee into the lower Jordan River, Syria and Jordan exploit completely the Yarmouk River with almost no water discharge into the Lower Jordan River. In summary, most of the natural water sources of the Lower Jordan River are consumed by Syria and the Hashemite Kingdom of Jordan, while Israel must maintain sufficient water in the Sea of Galilee to guarantee the annual supply to Jordan (50 M m³/year) and to maintain the water quality and aquatic ecology. What is left is used by Israel.

As all the natural water resources in the Middle East, the Jordan River is a cross-border water resource. It is shared and exploited by Syria, Lebanon, Jordan, Palestine and Israel. Therefore, a sustainable solution for management of this precious and delicately balanced resource can only be achieved when all riparian parties are working in concert. Annexation threatens the ability of riparian parties to continue to work together even in the current limited framework. Annexation would make this limited level of cooperation between Jordan and Israel even more tenuous and in the end, threaten Israel's strategic water supplies.

Map of Jordan River Basin, (Source: UNDP/Green Cross)



On the Dead Sea

The sinkholes at the Dead Sea are getting worse and the issue suffers from government neglect on all sides. The Dead Sea basin and all that it has to offer is at risk of imminent loss. The only solution is a regional approach. The Dead Sea, which is the terminus of the Jordan River and Dead Sea Basin watershed, is a transboundary system. As described in the previous section, Israel, Jordan, Syria, Lebanon and Palestine are all riparian parties with legal water rights claims to the system. Climate change and over-abstraction of the upstream sections of the system are devastating the Lower Jordan River and the Dead Sea. The Dead Sea is now shrinking at an alarming rate of more than one meter per year. This unique ecological system, the only one of its kind in the world, and with huge economic importance for tourism and mineral extraction, is crumbling into a series of sinkholes. The countries in the region cannot sit idly by and watch this tragedy unfold; neither can they afford to simply give up on such an important resource and heritage to the people of the region and to the world. Regional cooperation is the only way forward to save the Dead Sea and the time to do so is running out.

The impact of climate change on the region's water resources is clearly evident. Since 1967, the Palestinians have been cut off from the Dead Sea while Jordan and Israel continue to exploit the Dead Sea's mineral resources and water inflow, with little regard for the ecological damage caused. Annexation acts as a threat multiplier by preventing any forward progress on resolving the environmental issues at the Dead Sea and removing any opportunity for Palestine, Israel, and Jordan to come to an agreement on a just and sustainable solution to managing this precious resource and world heritage site.

On the mountain and coastal aquifers

Groundwater is the most important source of freshwater for Israelis and Palestinians. Two thirds of the recharge area of the Mountain Aquifer lies within the West Bank and it is the only accessible source of water for the Palestinian Authority. The long term sustainability of this aquifer depends on managing pumping with recharge from rainfall. Climate change and increasing water demand are already causing over pumping and a decline in water quality. This is most acute in the Coastal Aquifer of the Gaza Strip where massive over pumping has led to significant declines in water quality making the water undrinkable and creating a humanitarian crisis that is only getting worse. The only way to minimize long-term degradation of both aquifers is through strong bilateral water agreements between Israel and the Palestinian Authority. The water allocations that were agreed to under the Oslo Accords are no longer sufficient to meet today's and future water needs. Unilateral annexation by Israel of territory in the West Bank will mean less access to groundwater for the Palestinians and will make the opportunity of bilateral water agreements almost impossible. Without water security there cannot be regional security, unilateral actions will threaten both.

Map of Mountain and Coastal Aquifers

Source: "Agreement to share Water between Israelis and Palestinians: The FoEME Proposal", EcoPeace 2012



On energy

Without any significant supply of natural resources for conventional production of energy, Palestine currently imports the vast majority of its electricity from Israel, leaving the Palestinian population completely dependent on Israel for its energy needs. The annexation of major sections of Area C in the West Bank will make it extremely difficult for any Palestinian development in the energy sector. Even if 3% out of the 61% of Area C was used for solar energy production Palestine could easily produce 3,000 MW substantially decreasing import reliance and decreasing the pressure on the Israeli energy sector. As the populations of both Palestine and Israel continue to grow and the hot dry summer season lengthens while the cool wet winter seasons shorten due to climate change, the pressure on the Israeli Electric Company to supply electricity for everyone in the region could become unsustainable. Further, the annexation may impede all electricity and fossil fuel import options from Jordan.

Annexation could even result in an increase in energy demand in the West Bank due to accelerated growth of Jewish settlements once Israel claims sovereignty. As with other natural resources, energy resources must be managed on a region-wide basis. The energy needs of populations who due to annexation will be living next to each other under very different legal jurisdictions will not be adequately supplied, leading to energy scarcity, and environmental injustice.

On food security

The Jordan Valley is a fertile strip of land that runs along the east and west banks of the Jordan River. The area is minimally populated and underdeveloped. As such, this area is the largest land reserve for future development of the West Bank. The Palestinians call the Jordan Valley a “food basket” as it constitutes 50% of total agricultural areas, currently producing 60% of the vegetables consumed in the West Bank. The importance of the Jordan Valley lies in the fact that it is a warm and fertile natural region which can be used for agriculture throughout the year and sits in the most important water basin in Palestine. The Jordan Valley forms over a quarter of the West Bank, with a population of about 65,000, including Jericho. The agricultural area constitutes 280 thousand dunam, 38.8% of the total area of the Jordan Valley. Palestinians control 50 thousand dunams, while Jewish settlers control 27 thousand dunams. (Btzelem)

According to the World Bank, the potential revenue from agriculture, were Palestinians given full access to this agricultural land, could be as much as a billion dollars a year. With an annual population growth rate of approximately 1.8% (CIA World Fact Book), the West Bank’s Palestinian population can be expected to double in the next 40 to 50 years putting even more pressure on water and land resources. Any scenario which takes into account this continued population growth rate must also recognize the growing pressure on food supplies. Annexation may deny access to thousands of Palestinian farmers to agricultural land which both Israel and Palestine rely on to feed the population in the region. If the food supply to the Palestinians is reduced due to the limitation of access or the expropriation of Palestinian lands, food security will be threatened

Summary of impacts of annexation on the environment

Unilateral approaches like annexation of parts of the West Bank and the Jordan Valley threaten to block any possible cooperative regional approach to solving the water, energy and food security issues which currently plague the region and will be exacerbated by the growing population and climate change.

Climate change is a cross-border global issue with serious natural resource and environmental justice implications. Only through cooperation, especially on issues of climate change adaptation, can the region ensure ecosystem integrity, sustainable natural resource management and the well-being of the most vulnerable communities, already disadvantaged by limited resources and poverty. As the world and the region are trying to recover from a devastating pandemic and facing an existential threat from rising average annual global temperatures, leaders of Israel must ask themselves if this is the time to attempt to fulfill the dreams of a small minority of Israeli citizens while ignoring the needs of the majority of Israeli citizens and our neighbors for a future with hope.

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