Concept note

Region-wide water-energy nexus (WEN)

Introduction

This concept note is a part of *"Advancing Climate Resilience: Area C Solar Power for Gaza and West Bank and Regional Water Security"* - a Joint project of the European **European Commission's Foreign Policy Instruments** and **EcoPeace Middle East.** EcoPeace Middle East is a unique organization that brings together Jordanian, Palestinian, and Israeli environmentalists aiming to advance both sustainable regional development and the creation of necessary conditions for lasting peace in our region. EcoPeace has offices in Amman, Ramallah, and Tel Aviv, and its 30 years of work in Environmental Peacebuilding has been rewarded with a Nobel Peace Prize nomination in 2024.

This project's objective is to achieve increased regional cooperation and agreement on joint action on climate, energy, and human security, through the creation of (1) increased awareness and political will of key national and international decision makers on water security as central to national and regional security; and (2) evidence base for implementation of rapid response measures to build climate resilience for Palestinians.

This concept note focuses on the need to create region wide climate resilience, through relaunching the Regional Water and Energy Nexus (later known as "Project Prosperity, that was promoted bilaterally by the governments of Jordan and Israel)in the original design of EcoPeace, that includes Palestinian and Israeli import of renewables from Jordan and Israeli and Palestinian (Gaza) export of desalinated water to Jordan.

Background

The climate crisis in the Middle East, while multiplying threats in the region, can also be a multiplier of opportunities if the leaders of the region were to cooperate to foster climate resilience. In the aftermath of the war, surviving the climate crisis will require more than ever a change in mindset in favor of environmental cooperation.

The Levant area of the Middle East suffers from a scarce supply of fresh water and lacks developed renewable energy supply. The region also faces rapid population growth and climate change, placing additional pressure on these limited resources.

Much like the coal and steel agreement enhanced cooperation and peace in post-war Europe, EcoPeace Middle East aims to explore how natural resource cooperation by harnessing the sun and the sea in the Middle East could achieve similar goals of building a foundation for sustainable peace in the region.

The Water-Energy Nexus (WEN) is an initiative for water-energy exchanges between Israel, Jordan, and Palestine to address current and future water and renewable energy needs in an economically efficient and environmentally sound manner. The overarching idea is based on utilizing comparative advantages. Compared to Jordan, Israel and Palestine have high population density and lack open land spaces; therefore, they face a challenge in developing renewable energy domestically. On the other hand, Israel and Palestine do have access to the Mediterranean Sea as a source of water for desalination, which is in relatively close proximity to the population centers of Israel, Palestine, and Jordan. Jordan has a lower population density and an abundance of open space for the generation of solar energy. Jordan, however, is limited in its access to seawater, with its only access point at Aqaba on the Red Sea, far from its population centers. **The WEN model therefore proposes the creation of healthy interdependencies needed to secure regional climate resilience, with each side having something to sell and to buy.** This approach recognizes that each participant possesses valuable assets and resources that can be exchanged, leading to a **win-win scenario** for all involved**.**

In 2017, with the financial support of the German government, EcoPeace in partnership with the Konrad Adenauer Foundation completed a feasibility study on the concept[1]. The study showed that the water-energy exchanges foreseen between Jordan, Palestine, and Israel are technically feasible and could offer substantial climate, economic, environmental, and geopolitical benefits to all parties involved. Per country, the primary advantage for Palestine is decreased dependence on Israel as a source of water and energy, in addition to increased diversification of energy supplies, and the ability to achieve renewable energy goals without adding pressure on scarce open spaces. These last two benefits would be shared by Israel. Jordan would benefit not only from the sale of electricity to its neighbors but also from replacing current dependent relations with Israel with mutual interdependence.

Based on the EcoPeace feasibility study, in June 2021, a Letter of Intent (LoI) was signed by Israel, Jordan, and the United Arab Emirates (UAE) under the auspices of the US Special Presidential Envoy for Climate, John Kerry. The LoI was signed to explore the feasibility of a **bilateral** water-energy exchange between Israel and Jordan called “Project Prosperity”. In 2022 at COP27 in Sharm el-Sheikh, the LoI was

advanced to a Memorandum of Understanding and included signatures of the UAE Minister of Climate Change and the Environment, Jordan's Minister of Water and Irrigation, and Israel's Minister of Regional Cooperation. The Memorandum was to advance implementation plans for Project Prosperity.

The Project has two components: Prosperity Green and Prosperity Blue. Prosperity Green includes a 600-megawatt solar photovoltaic plant with significant electric storage that will be built in Jordan and produce clean energy for export to Israel. Prosperity Blue is a water desalination program, located in Israel, to export to Jordan 200 MCM of potable water per year. At this point, it should be noted that Project Prosperity is different from the original EcoPeace WEN proposal, as Project Prosperity constitutes a trilateral agreement between Jordan, Israel, and the UAE – **not including Palestine**. However, the war in Israel/Gaza and public criticism in Jordan have resulted in the halting of the advance of the Project Prosperity agreement.

Post-war opportunities: Reviving a region-wide water-energy nexus

Despite and maybe even because of the war, it is in the interest of all sides to revive a water-energy exchange agreement and to expand it to include Palestine. Such an agreement promotes regional cooperation and creates healthy interdependencies between the involved parties, which in turn diminishes tensions over resources and can act to reduce conflict.

In order to achieve these goals, EcoPeace advocates for implementing three elements:

1) **Constructing a 200 MCM desalination plant in the Gaza Strip:**

The Gaza Strip has been suffering long before the war from a lack of potable water. The Palestinian Water Authority (PWA) has therefore identified a series of interventions to increase the water supply while decreasing reliance on the Coastal Aquifer of which the water is no longer potable.

The original proposal of EcoPeace under the WEN initiative of 2017 included the construction of a large-scale desalination plant in Gaza with a 200 MCM annual capacity. Back then, EcoPeace advocated for this idea through the upgrade of the planned Gaza Central Desalination Plant (GCDP) from a 55 MCM capacity into 200 MCM capacity. EcoPeace proposes that half of this amount would be dedicated for Palestinian consumption in the Gaza Strip and the West Bank, while the other half would be exported to Jordan.

The initiative is motivated by the desire to develop a domestic Palestinian desalination capacity. Rather than simply address local Gazan needs, it would also provide the West Bank with an independent source of water and would augment Jordanian supplies at a cost lower than what Jordan will pay for its own domestically produced desalinated water. It is difficult to overstate the importance of such an initiative in terms of self-determination and sovereignty. The project would increase water security for both Palestinians and for Jordanians. In addition, it would promote regional integration geopolitically, the project would enhance water security and regional integration by providing a stable water source to Gaza, the West Bank, and Jordan. The project could also become a vehicle for trust-building and further regional cooperation.

In July 2025, a study initially analyzing the feasibility of the construction of such a large scale desalination plant in Gaza was handed to EcoPeace by a team of two expert consultants hired by EcoPeace. The study presents a preliminary assessment of the technical, economic and geopolitical feasibility of such a project, and outlines potential broader regional and international partnerships that could advance such an initiative.

According to our study, a 200 MCM reverse-osmosis plant, currently the most cost-effective commercially proven technology, a land area of roughly 10-12 hectares would be needed for the facility and an additional 5 hectares for the reception facility. In addition, this study assumed the plant would use a dedicated power plant with a capacity of roughly 120MWe. Two main scenarios were evaluated for distribution of water outside of the Gaza Strip: In the first scenario, dedicated pipelines conveying the water directly to the West Bank and to Jordan. The second scenario includes integration of desalinated water within Israel's national water system, allowing for "swaps" of water which would eliminate the need for long distance pumping and transportation (a scenario that is technically feasible, according to officials at the Israeli Water Authority).

The study estimates projected capital expenditures (CAPEX) of between US $1.1-1.6 billion, with an annual operating cost (OPEX) ranging from US $127-221 million. Water costs rise per cubic meter proportionally when the distance from the plant is increased; this results in higher delivery expenses for Jordan and the West Bank. While Scenario 1 appears initially cheaper, Scenario 2 has the potential for greater cost-effectiveness. To attract investors, the project addresses risks such as conflict-related disruptions, weak cost recovery, and poor credit ratings. To address these challenges, the project recommends a Public-Private Partnership (PPP)

structure, including a Trust Fund Steering Committee and a Program Management Body to oversee financing, procurement, and operations. This model would secure an external Operations and Maintenance (O&M) contractor to ensure quality, efficiency, and accountability.

The proposed initiative faces several challenges and risks that will have to be addressed in order to be attractive to international lenders, investors, and contractors. These include the risk of damage and/or supply disruption due to renewed conflict, low cost-recovery rates within the water sectors, lack of a domestic energy supply, and issues regarding the credit-rating of the parties involved. Given these circumstances, any project would need financial guarantees from the parties involved. Contractors may also seek Engineering Procurement and Construction (EPC) or turnkey type contracts rather than the Build-Operate-Transfer (BOT) contracts typical for desalination facilities built elsewhere.

Given the uncertainty and risks involved, a dedicated trust arrangement is recommended. This would take the form of a Trust Fund Steering Committee, which would be tasked with overseeing financial governance, coordinating donor contributions, and ensuring that disbursements align with pre-defined milestones and performance benchmarks. The trust structure would enhance transparency and protect the project's funding political volatility, thereby building confidence among investors internationally and Gulf States. By centralizing financial oversight and linking disbursements to independent monitoring mechanisms, the trust fund would serve as a neutral platform mediating between key stakeholders—including Israeli authorities, Palestinian water institutions, and Jordanian agencies. It would also facilitate procurement coordination under the Program Management Body and provide enforceable assurances for Engineering Procurement and Construction (EPC) contractors, particularly in meeting date-certain delivery and quality targets. In a high-risk context such as Gaza, this arrangement would be essential to safeguarding capital, enabling operational continuity, and ensuring that contractual obligations, such as Operations and Maintenance (O&M) performance metrics and force majeure provisions, are reliably upheld.

2) Promoting a Palestinian-Israeli-Jordanian WEN agreement

Based on the progress made bilaterally between Jordan and Israel, EcoPeace would advocate for signing a broader agreement between Jordan, Palestine, and Israel. This agreement would include two parts:

The first part is the export of renewable energy produced in Jordan to Israel and Palestine. While the export of energy to Israel would represent the negotiated concept of Project Prosperity, the export of renewables to Palestine would demand significant investment in the Palestinian grid and the lines connecting Jordan to the West Bank, as further discussed in EcoPeace's concept note titled *Advancing climate resilience in Palestine by transitioning the Palestinian energy sector towards sustainability and promoting Area C solar projects*.

The second part is the export of desalinated water from Palestine's Gaza desalination plant and Israel's newly constructed plant into Jordan as reviewed above. EcoPeace proposes that the desalinated water from Gaza and Israel will flow into the Israeli National Water Carrier, which has been recently adapted to pump water reversely into the Sea of Galilee. From there, EcoPeace proposes to rehabilitate the neglected Jordan River thus turning it into a natural water carrier for the water to be exported. This would enable the rehabilitation of its unique biosphere and the utilization of clean water from the River by Jordanians.

The introduction of Palestine into this framework would help ease the political resistance that accompanied project prosperity, by framing this project as a part of the broader roadmap towards the two-state solution.

Gender Sensitivity Considerations

Water scarcity and intermittent energy supply place disproportionate household and caregiving burdens on women, who are most often responsible for securing water for domestic use and managing household adaptation to service interruptions. By stabilizing water and electricity supply through the Water-Energy Nexus, the proposed interventions would directly reduce this uneven burden and free time for women's economic and civic participation.

3) Expanding regional forums to focus on water and energy

The signing of the proposed WEN agreement, alongside the above-mentioned regional challenges the climate crisis creates, emphasizes the need for a regional

forum to discuss issues that relate to climate resilience—such as energy, but also broader issues of water, health, biodiversity, economy, and security.

The Eastern Mediterranean Gas Forum (EMGF) was established in 2019 by Egypt, Cyprus, Israel, the Palestinian Authority, Jordan, Greece, and Italy following the discovery of significant quantities of gas in the Eastern Mediterranean. In 2021, The EMGF was registered as an international organization with its headquarters in Cairo, Egypt. Later, France joined as a member, while the US, EU, and World Bank are official observers, and the UAE attends unofficially by invitation. The Forum's mandate is to develop a common strategic vision to maximize the exploration and exploitation of the gas deposits found in the Eastern Mediterranean.

The EMGF is the only existing organization that brings together most countries along the East Mediterranean basin (except for Turkey, Syria, and Lebanon). Expanding the mandate of the EMGF beyond gas to include renewable energy and climate security would be an effective manner to meet the needs of the parties and thus better respond to the climate crisis.

Hence, EcoPeace calls to extend the mandate of the EMGF, making it a regional platform for discussion on efforts to expand the water-energy nexus into a region-wide effort to build stronger climate resilience in the region

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